CHILDREN'S EDUCATION SOCIETY (Regd.)
THE OXFORD DENTAL COLLEGE
(Recognized by the Govt. of Karnataka, Affiliated to Rajiv Gandhi University of Health Sciences, Karnataka & Recognised by Dental Council of India, New Delhi)
Bommanahalli, Hosur Road, Bangalore – 560 068.
Ph: 080-61754680 Fax : 080 – 61754693E-mail:deandirectortodc@gmail.com
Website: www.theoxford.edu

Infection control manual, patient safety manual, Composition & Minutes of Hospital Infection Control Committee

Index

Dean and Director
The Oxford Dental College, Bommnah
Hosur Road, Bengaluru - 560 06

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Summary:

Composition & minutes of hospital infection control committee: the meeting of infection control & BMW management committee is held 5-6 times in the academic year. The main focus was on routine checking on protocols of sterilization followed by the department and educating the new technicians and attenders about biomedical waste, handling surgical sharps was discussed.

Copy of infection control manual gives a comprehensive overview of different standard operating procedures for infection control followed by various department of college. It also gives insight of biomedical waste management.

Copy of standard of care manual/patient safety manual contains different procedures done in each department with emphasis on the precautions to be followed during different medical conditions, hence ensuring a good dental care.

Dean and Director
The Oxford Dental College, Bomma...
Hosur Road Bengaluru - 560 068

Composition & minutes of hospital infection control committee

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	09/06/16	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments was discussed.
2.	Maintenance of equipment of IC and BMW was discussed.

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Sameena	Orthodontics
10.	Dr Shilpashree	Oral Pathology

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	13/10/16	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Check on the colour coded bags used for biomedical waste segregation was done by checking with the department incharge
2	Routine check on the protocols followed by the departments was discussed
3	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Shilpashree	Oral Pathology

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Sameena	Orthodontics

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	09/02/17	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Amalgam disposal methods by the endodontic department was discussed.
2.	Maintenance of routine checklist and biannual checklist by all the departments.

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Sindhu	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	13/04/17	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Discussion on Colour coded dustbin for waste segregation in each department supply from central stores.

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Sameena	Orthodontics
7.	Dr Shruti	Oral Pathology
8.	Dr Revathi	Pedodontics
9.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	08/06/17	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Padmaja	Prosthodontics
6.	Dr Sameena	Orthodontics
7.	Dr Shruti	Oral Pathology
8.	Dr Revathi	Pedodontics
9.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	10/08/17	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Maintenance of equipment of IC and BMW
3.	Immunisation schedule for all staff was discussed.

Members attended :

NAME	Department
Dr. Archana Krishna Murthy	Public Health Dentistry
Dr Manjunath C	Public Health Dentistry
Dr Srinivas P	Conservative Dentistry
Dr Ashwini A	Oral Medicine
Dr Vinayak	Periodontics
Dr Harikeerthi	Oral Surgery
Dr Mohsen	Prosthodontics
Dr Sameena	Orthodontics
Dr Shruti	Oral Pathology
Dr Revathi	Pedodontics
Mrs Lalithamma	

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	11/10/17	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Maintenance of equipment of IC and BMW
3.	Training of the technicians regarding Safe disposal of X-Ray developing solutions discussed.

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Manjunath C	Public Health Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Revathi	Pedodontics

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	14/12/17	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary
Agenda Items			
1.	Routine check on the protocols followed by the departments		
2	Maintenance of equipment of IC and BMW		

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Revathi	Pedodontics
10.	Mrs. Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	09/02/18	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Maintenance of equipment of IC and BMW
3.	Issues regarding the proper collection, segregation at the central collection point from college was resolved with the supervisor.

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Sameena	Orthodontics
10.	Dr Shilpashree	Oral Pathology

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	13/04/18	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Discussion on Hepatitis immunization programme
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Padmaja	Prosthodontics
6.	Dr Sameena	Orthodontics
7.	Dr Shruti	Oral Pathology
8.	Dr Revathi	Pedodontics
9.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	08/06/2018	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Check on Bio medical Waste disposal issues
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Madhusudhan	Pedodontics
10.	Mrs Madhavi	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	08/06/2018	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Check on Bio medical Waste disposal issues
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW
	.....

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Madhusudhan	Pedodontics
10.	Mrs Madhavi	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

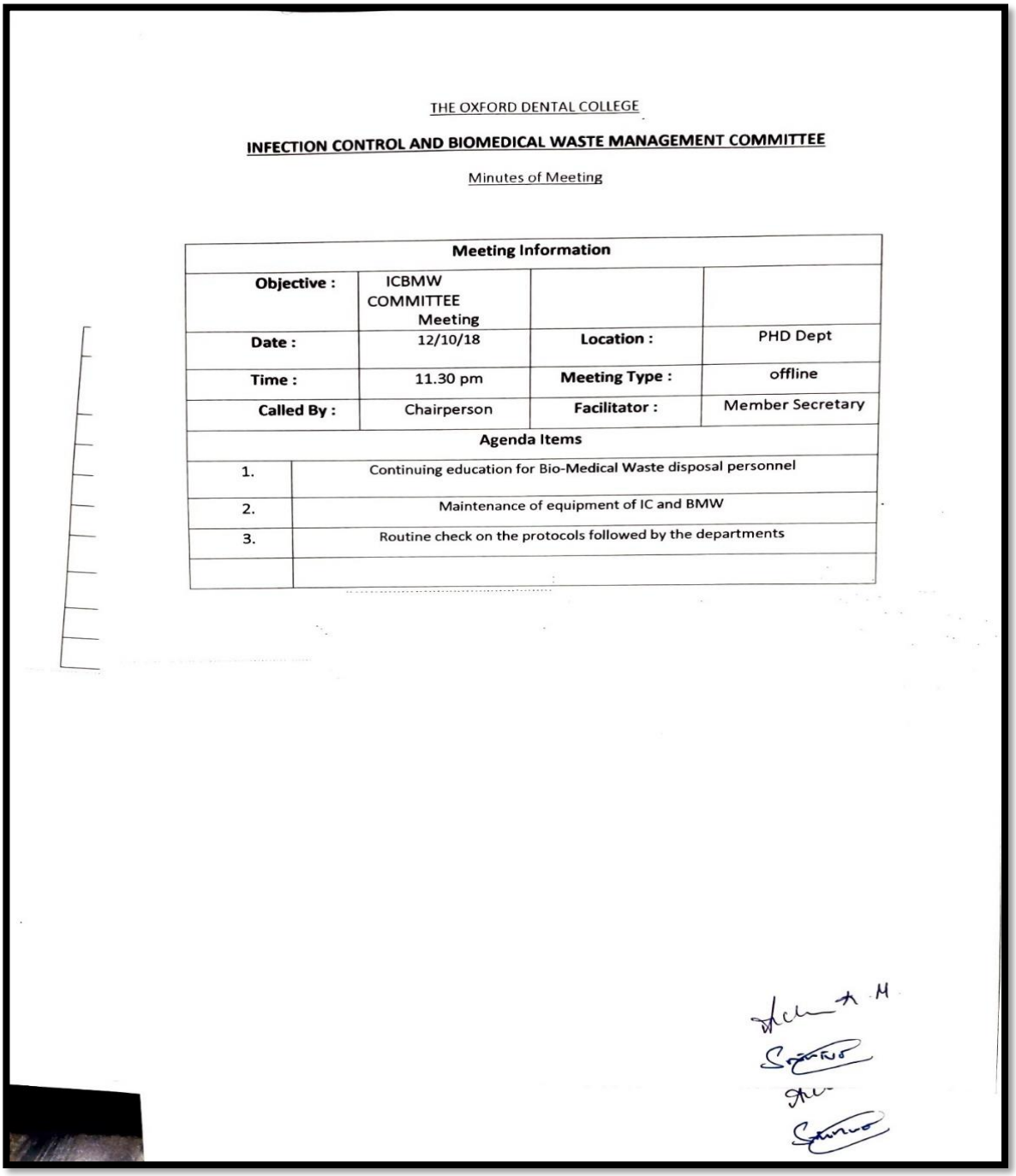
Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	10/08/18	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Fungus formation and waste accumulation issues in few departments to be discussed.
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW
4.	Check on Bio medical Waste disposal issues

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Sameena	Orthodontics
7.	Dr Shruti	Oral Pathology
8.	Dr Revathi	Pedodontics
9.	Mrs Lalithamma	House Keeping Supervisor



THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	12/10/18	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Continuing education for Bio-Medical Waste disposal personnel
2.	Maintenance of equipment of IC and BMW
3.	Routine check on the protocols followed by the departments

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Sindhu	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	14/12/18	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Annual reports submission
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Sameena	Orthodontics

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	24/02/19	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary
Agenda Items			
1.	Routine check on the protocols followed by the departments was checked		
2.	Maintenance of equipment of IC and BMW was checked		
3.	Check on Bio medical Waste disposal issues was done		

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Sameena	Orthodontics

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective :	ICBMW COMMITTEE Meeting		
Date :	12/04/19	**Location :**	PHD Dept
Time :	11.30 pm	**Meeting Type :**	offline
Called By :	Chairperson	**Facilitator :**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Maintenance of equipment of IC and BMW
3.	Reminders for submission of Annual reports done

A.M.

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Sindhu	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	13/06/19	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Regular disinfection of spittoons and suctions in the clinical departments was discussed
2.	Maintenance of equipment of IC and BMW was discussed.
3.	Routine check on the protocols followed by the departments was done

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Sindhu	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	08/08/19	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Maintenance of equipment of IC and BMW
2.	Routine check on the protocols followed by the departments
3.	Educating the new technicians and attenders about biomedical waste was discussed.

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Sameena	Orthodontics
7.	Dr Shruti	Oral Pathology
8.	Dr Revathi	Pedodontics
9.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	17/10/19	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Educating the personnel regarding Surgical Sharps handling and safe disposal techniques was discussed
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Sameena	Orthodontics
7.	Dr Shruti	Oral Pathology
8.	Dr Revathi	Pedodontics
9.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	12/12/19	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Educating Interns regarding the safe disposal of biomedical waste and infection control in dental clinics was proposed.
2.	Routine check on the protocols followed by the departments
3.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Sindhu	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	24/02/20	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Regular meeting and updating on the ongoing infection control methods and biomedical waste management was discussed.
2.	Follow-up on the work done and attendance and safety measures taken by BMW Staff was elaborated

Members attended :

Sl.No	NAME	Department
1.	**NAME**	**Department**
2.	Dr. Archana Krishna Murthy	Public Health Dentistry
3.	Dr Manjunath C	Public Health Dentistry
4.	Dr Srinivas P	Conservative Dentistry
5.	Dr Ashwini A	Oral Medicine
6.	Dr Vinayak	Periodontics
7.	Dr Harikeerthi	Oral Surgery
8.	Dr Mohsen	Prosthodontics
9.	Dr Sameena	Orthodontics

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	15/06/20	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Infection Control techniques and BMW management techniques during COVID -19 Pandemic discussed.
2.	Educating the BMW personnel regarding regular Disinfection of patient areas were discussed.
3.	PPE Kits procurement during the pandemic for aerosolic departments discussed.
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Members attended :

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Sindhu	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	11/08/20	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Updating of SOPs during COVID-19
2.	Discussion of using Fumigation in aerosol departments
3.	Dos and Don'ts during the dental treatment in pandemic were discussed and display of instructions for the same in each department was implemented with immediate effect.
4.	Educating about infection control to the attenders and BMW Staff in wake of the pandemic discussed.

Sl.No	NAME	Department
1.	Dr. Archana Krishna Murthy	Public Health Dentistry
2.	Dr Srinivas P	Conservative Dentistry
3.	Dr Ashwini A	Oral Medicine
4.	Dr Vinayak	Periodontics
5.	Dr Nandan	Oral Surgery
6.	Dr Padmaja	Prosthodontics
7.	Dr Sameena	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Revathi	Pedodontics
10.	Mrs Lalithamma	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	09/10/20	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Updating of SOPs during COVID-19
2.	Check on Fumigation in aerosolic departments done
3.	Check on protocols to be followed during COVID-19

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Mrs Madhavi	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	11/12/20	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Updating of SOPs during COVID-19
2.	Routine check on the protocols followed by the departments
3.	Maintenance of Needle Stick injury registers

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Madhusudhan	Pedodontics
10.	Mrs Madhavi	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	15/02/21	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Infection Control techniques and BMW management techniques during COVID -19 Pandemic discussed.
2.	Educating the BMW personnel regarding regular Disinfection of patient areas were discussed.
3.	Educating Interns regarding the safe disposal of biomedical waste and infection control in dental clinics was proposed.

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Dr Madhusudhan	Pedodontics
10.	Mrs Madhavi	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	08/04/21	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	offline
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Routine check on the protocols followed by the departments
2.	Maintenance of equipment of IC and BMW

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Mrs Madhavi	House Keeping Supervisor

Members attended :

Sl.No	NAME	Department
1.	Dr. Ravi Kumar	Prosthodontics
2.	Dr Ashwini	Conservative Dentistry
3.	Dr Sindhu	Oral Medicine
4.	Dr Sindhu	Periodontics
5.	Dr Anthara	Public Health Dentistry
6.	Dr Padmaja	Prosthodontics
7.	Dr Vandhana	Orthodontics
8.	Dr Shruti	Oral Pathology
9.	Mrs Madhavi	House Keeping Supervisor

THE OXFORD DENTAL COLLEGE

INFECTION CONTROL AND BIOMEDICAL WASTE MANAGEMENT COMMITTEE

Minutes of Meeting

Meeting Information			
Objective:	ICBMW COMMITTEE Meeting		
Date:	10/06/21	**Location:**	PHD Dept
Time:	11.30 pm	**Meeting Type:**	online
Called By:	Chairperson	**Facilitator:**	Member Secretary

Agenda Items	
1.	Regular meeting and updating on the ongoing infection control methods and biomedical waste management was discussed.
2.	Follow-up on the work done and attendance and safety measures taken by BMW Staff was elaborated

Copy of infection Control Manual
2016-17
Department of Oral Medicine and Radiology

Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections

Infection control procedures are required for the following in the department:

1. Patient examination
2. Biopsy
3. Radiology

a. Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  - Aluminum foil
  - Transparent cling wrap
- These protective coverings are replaced after every contact and every patient.

a. Biopsy.

1. Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.

- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red colour coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical sterilant.

Storage of the sample: The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

b. Radiology

- Patient examination is done using gloves and mouth mask.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  - Aluminum foil
  - transparent cling wrap

1. These protective coverings are replaced after every contact and every patient.
   - Processing solutions, developer, water and fixer are kept in different containers to prevent the contamination of solutions
   - During processing of x ray films, the lead foils and black paper are put into separate bins.

CHILDREN'S EDUCATION SOCIETY (Regd.)
THE OXFORD DENTAL COLLEGE
(Recognized by the Govt. of Karnataka, Affiliated to Rajiv Gandhi University of Health Sciences, Karnataka & Recognised by Dental Council of India, New Delhi)
Bommanahalli, Hosur Road, Bangalore – 560 068.
Ph: 080-61754680 Fax : 080 – 61754693E-mail:deandirectortodc@gmail.com
Website: www.theoxford.edu

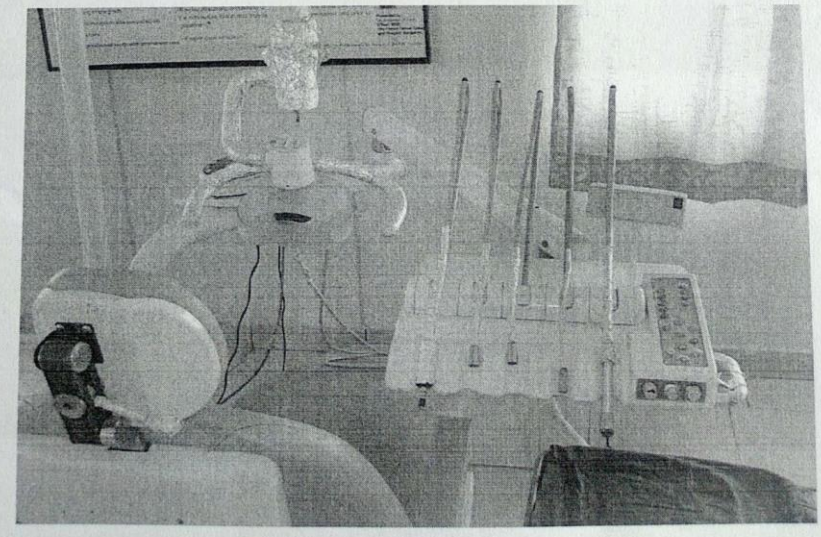
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

2016-2017

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair



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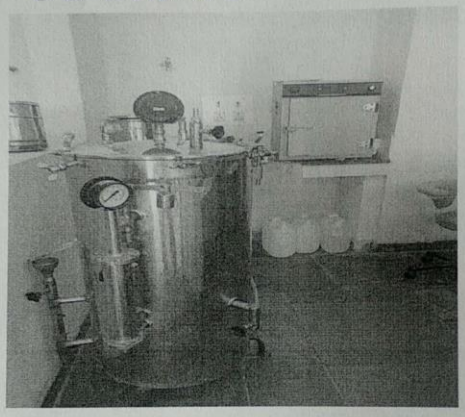
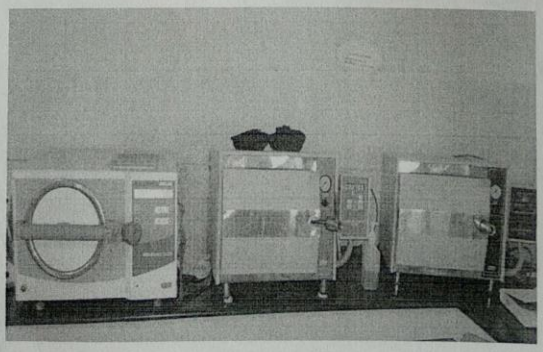
UG CLINIC



PG CLINIC



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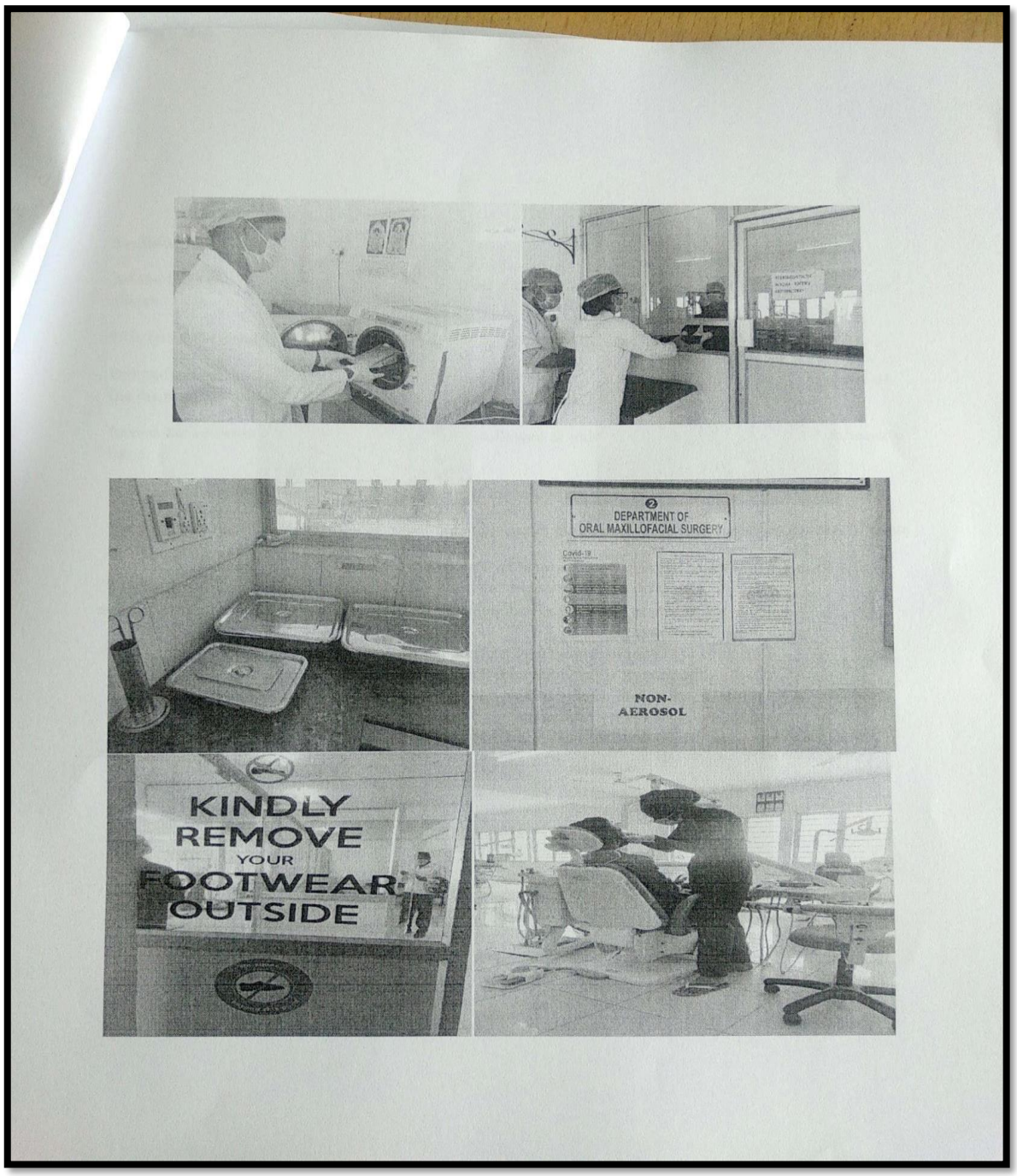

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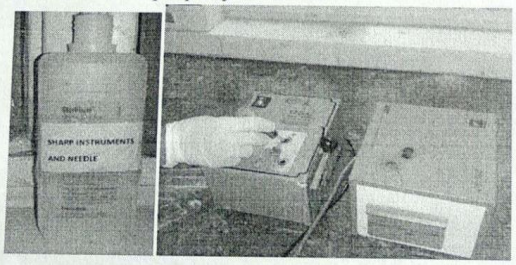
Biomedical Waste Segregation Protocol In The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.



SYRINGE NEEDLE DESTROYER

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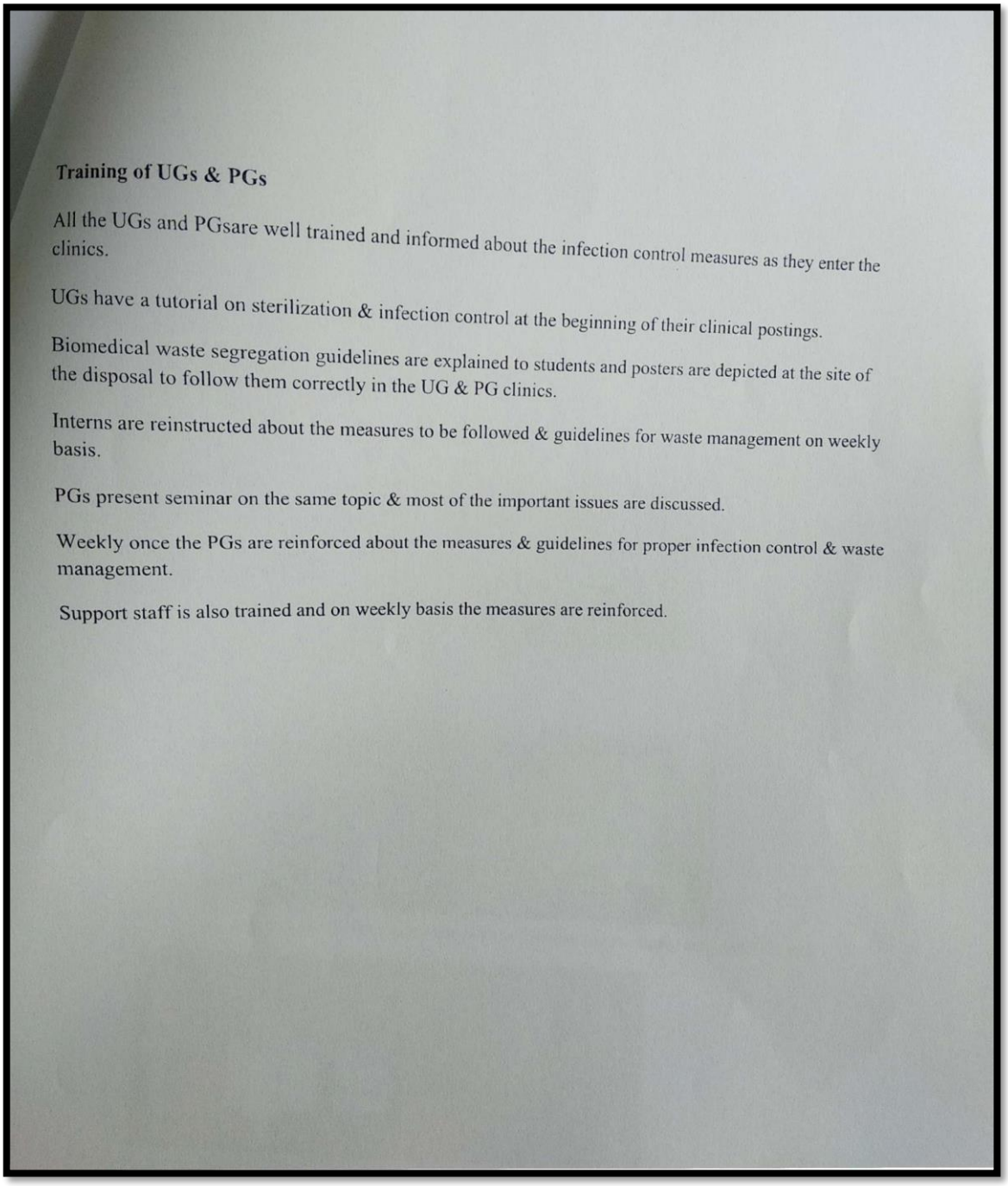


Training of UGs & PGs

All the UGs and PGsare well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings.

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

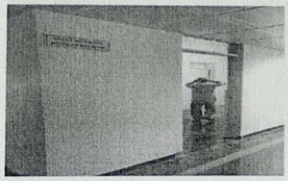
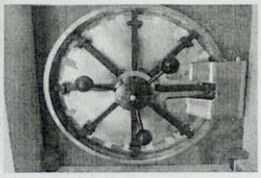
PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

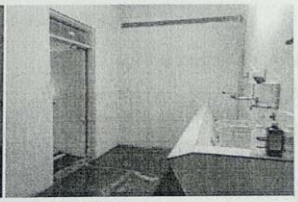
Support staff is also trained and on weekly basis the measures are reinforced.

- **Layout of the OT**
- Outer Zone
- (Main Access corridor, transfer area, supervisor office or control station, documentation area, preoperative patient holding area(s), the changing facilities).

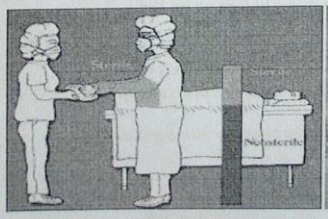
- Clean/ Semi restricted zone
- (Clean corridor, sterile and equipment sterile store, anesthesia and recovery room, rest areas)

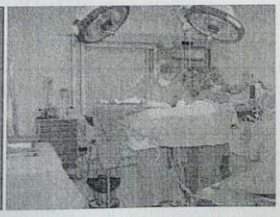



- Restricted zone
- (scrub sinks, operation room)

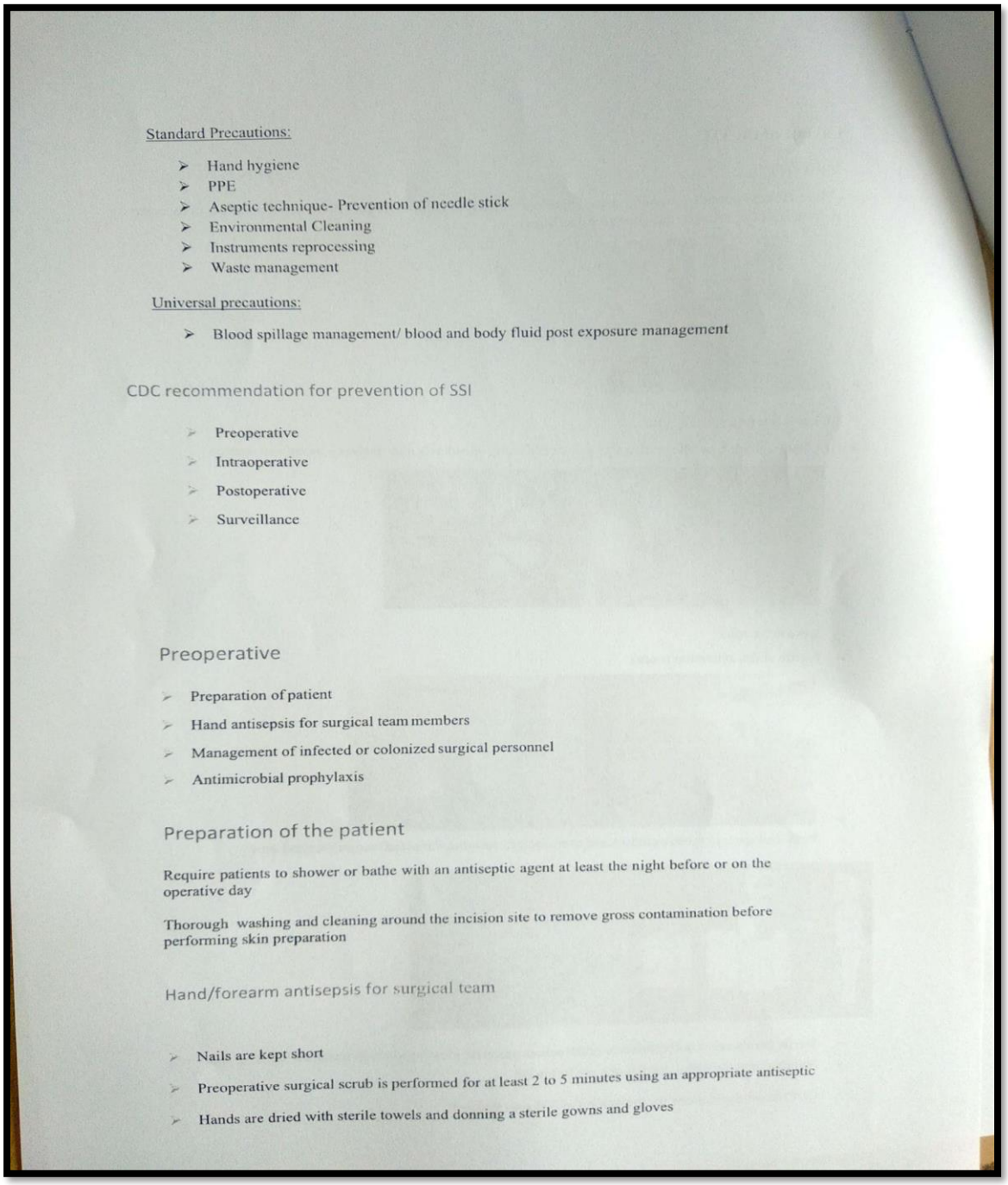



- Staff change into theatre clothes and shoes before entering the clean/ semi restricted area





- Sterile personnel is not allowed to reach across unsterile areas or to touch unsterile items, or vice versa
- Standard and universal precautions are followed



Standard Precautions:

- Hand hygiene
- PPE
- Aseptic technique- Prevention of needle stick
- Environmental Cleaning
- Instruments reprocessing
- Waste management

Universal precautions:

- Blood spillage management/ blood and body fluid post exposure management

CDC recommendation for prevention of SSI

- Preoperative
- Intraoperative
- Postoperative
- Surveillance

Preoperative

- Preparation of patient
- Hand antisepsis for surgical team members
- Management of infected or colonized surgical personnel
- Antimicrobial prophylaxis

Preparation of the patient

Require patients to shower or bathe with an antiseptic agent at least the night before or on the operative day

Thorough washing and cleaning around the incision site to remove gross contamination before performing skin preparation

Hand/forearm antisepsis for surgical team

- Nails are kept short
- Preoperative surgical scrub is performed for at least 2 to 5 minutes using an appropriate antiseptic
- Hands are dried with sterile towels and donning a sterile gowns and gloves

Surgical attire and drapes

Surgical mask that fully covers the mouth and nose

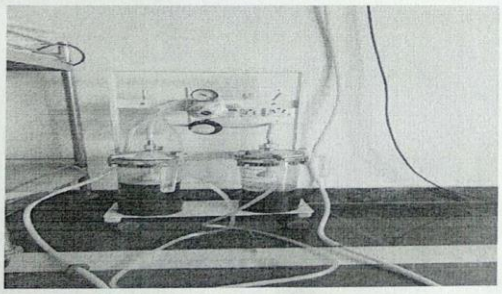
Cap or hood to fully cover hair on head and face

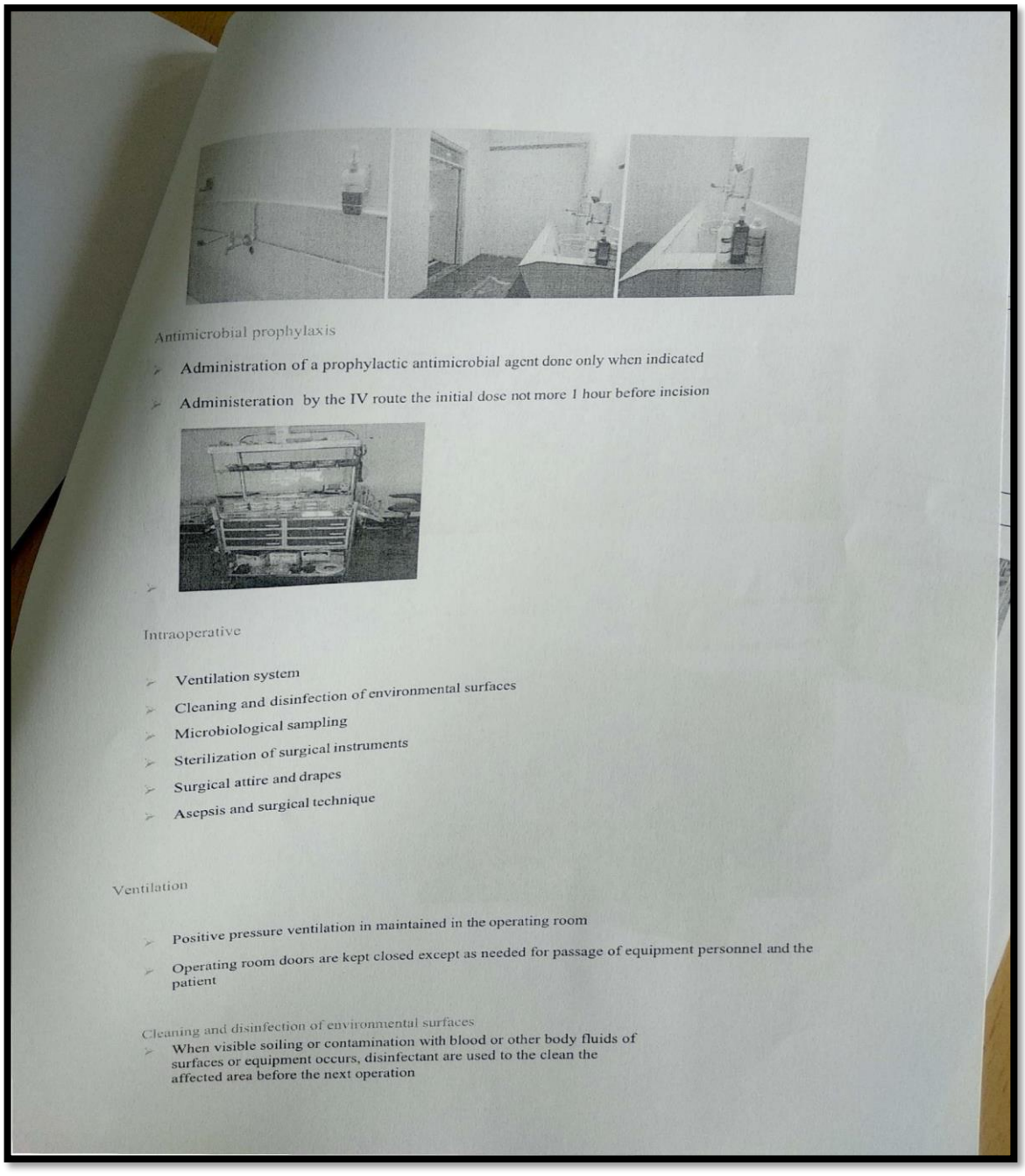
Sterile gloves

Impermeable sterile gowns

Change of scrub suits when visibly soiled or contaminated with blood or body fluids

When drainage is used , closed suction drain is used.





Antimicrobial prophylaxis

- Administration of a prophylactic antimicrobial agent done only when indicated
- Administeration by the IV route the initial dose not more 1 hour before incision

Intraoperative

- Ventilation system
- Cleaning and disinfection of environmental surfaces
- Microbiological sampling
- Sterilization of surgical instruments
- Surgical attire and drapes
- Asepsis and surgical technique

Ventilation

- Positive pressure ventilation in maintained in the operating room
- Operating room doors are kept closed except as needed for passage of equipment personnel and the patient

Cleaning and disinfection of environmental surfaces

- When visible soiling or contamination with blood or other body fluids of surfaces or equipment occurs, disinfectant are used to the clean the affected area before the next operation

Department of Conservative dentistry and Endodontics
Annual Report of 2016-17

Sterilization and cross-infection control in the dental practice
Educational aims

- The overall aim of this module is to inform and educate the dental professionals on the basic principles of cross-contamination barriers and infection control measures in the dental health care facility.
- Sterilization and cross-infection control are a core compulsory or recommended dental CPD (continuing professional development) topic in most European countries.

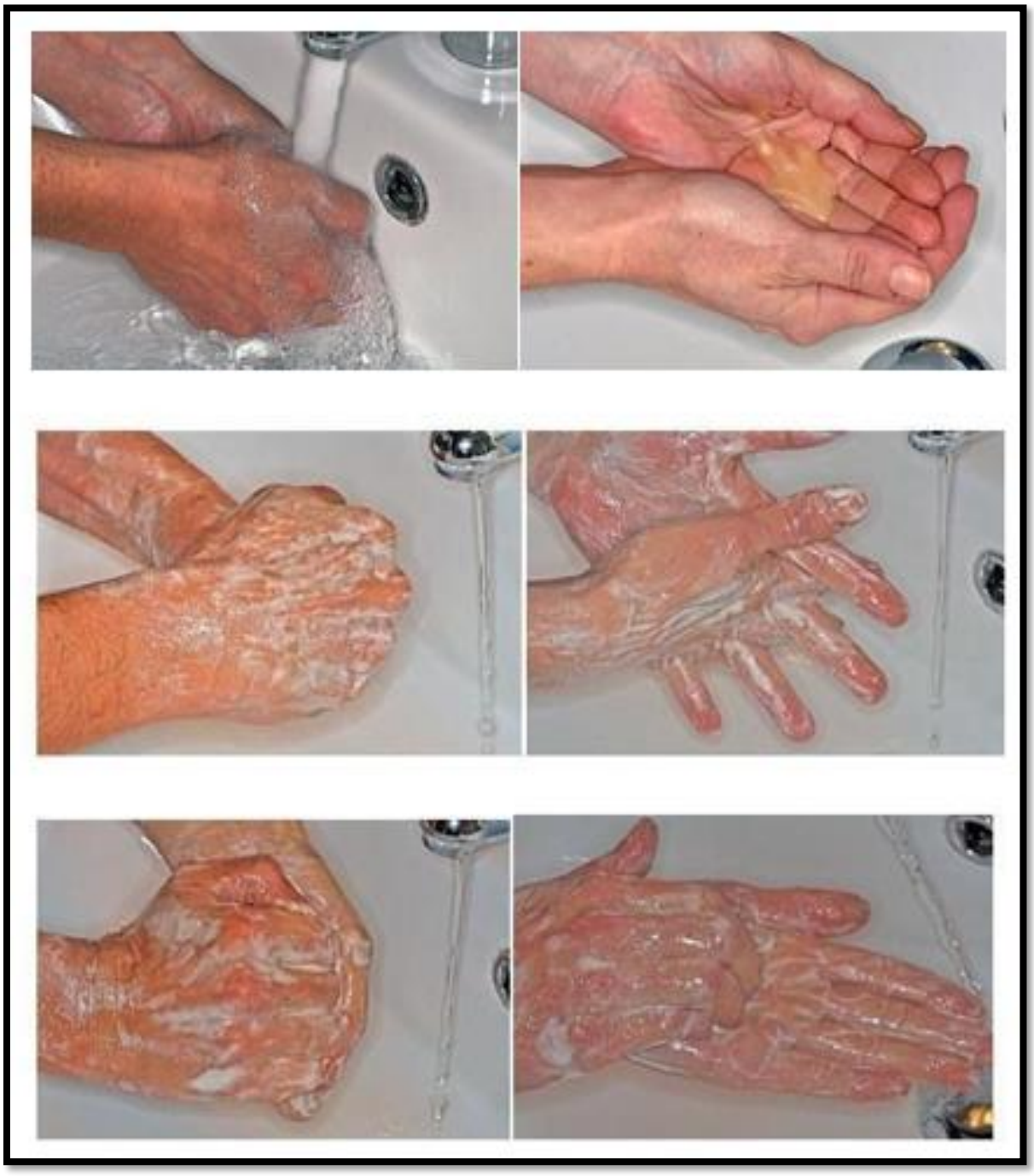
i. Taking protection measures prior to beginning work

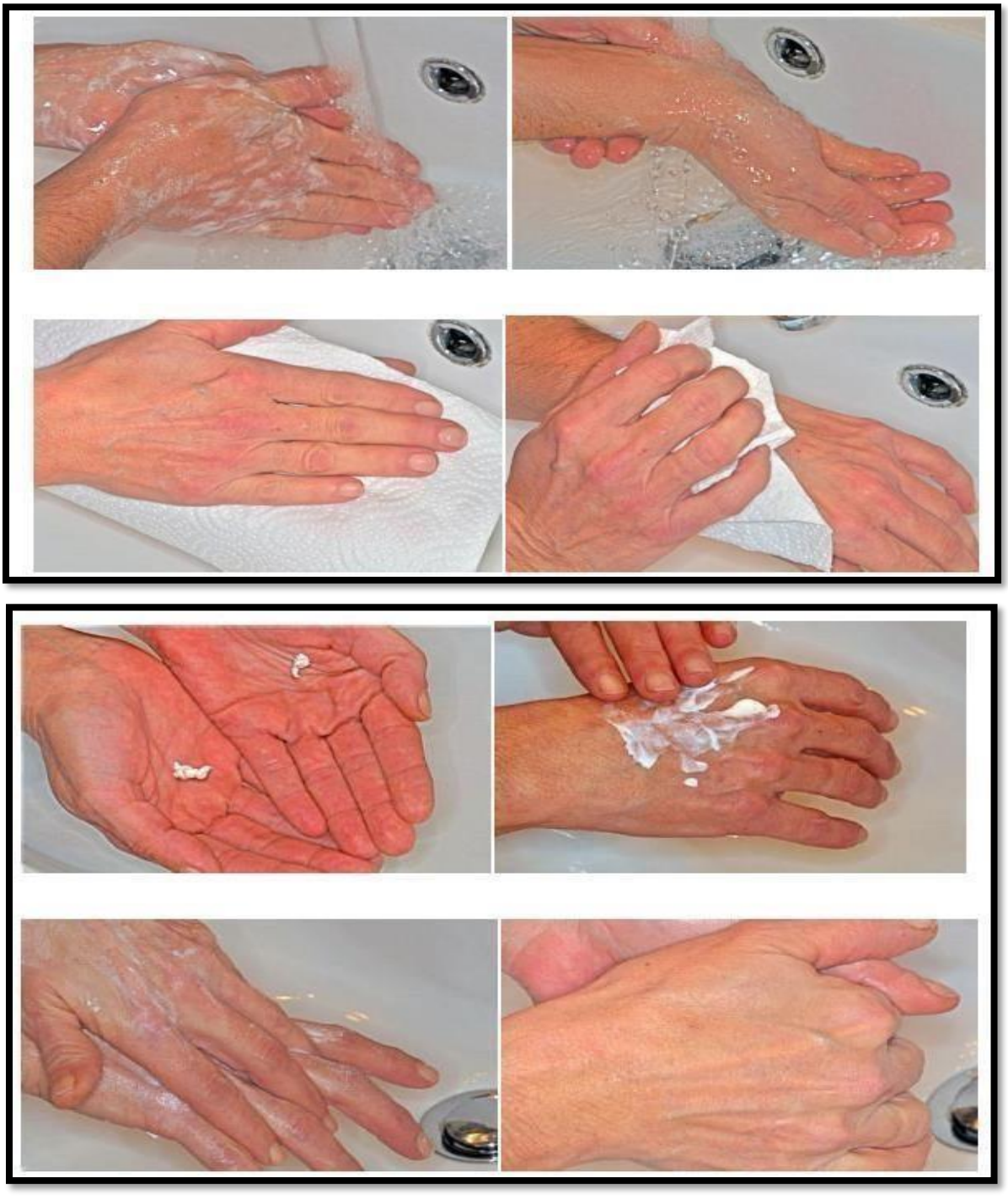
The dental staff must do the following before performing any dental work: Get vaccinated against hepatitis B – **It is an imperative**. Take a detailed medical history. This is necessary to find out if the patient has been through some kind of active contamination or other diseases indicating immunosuppression or other systemic illnesses. Independently of the information you have collected from your patient, you must consider him/her **potentially contaminated and take the precautions advised for all patients**. Make sure **all the instruments are sterilized**. Any instruments used to penetrate soft tissues or bones, such as tweezers, chisels, cleaning scoops, scrapers, must be sterilized after use. Protect **working surfaces**. Make sure they have at **their disposal all the disinfectant fluids** and waste containers necessary.

j. Hand washing

Hand washing is the cornerstone of the 'patient – doctor – auxiliary staff' protection circle aiming at the prevention of cross infection.

The dental personnel are obliged to wash their hands **before and after coming in contact** with the patient (or the instruments used) independently of wearing gloves or not during the operation. Hand washing must be performed meticulously so that every hand surface is adequately cleaned. Special attention must be paid to hand surfaces usually neglected when washed.





The pictures illustrate the areas requiring special attention so that hands are properly cleaned.

Various methods for drying hands

After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter. *Although frequent hand washing is a necessity, sometimes problems may appear such as dry skin and dermatitis. To avoid such problems special moisturizing lotions are recommended. These lotions, moisturizing creams etc. should be applied at the end of the day as they may cause the gloves to develop pinholes, due to their chemical composition, in which case no protection is offered by the glove.*In most kinds of dental work, **water and soap** followed by an antimicrobial solution are sufficient. In case of an injury, scratch or exudative injury, the person should postpone treating patients until the wound is healed. If this is not possible, the use of a double pair of suitable and tolerable gloves is recommended. As regards to antimicrobial solutions, although their use is not required, solutions with prolonged action are preferable. *Their contribution to hand antisepsis is significant as pinholes may pre-exist or develop when the gloves are in use allowing the penetration of oral fluids and blood. When an antimicrobial solution remains effective for a long time after its application, adequate hand protection from the development of germs on the skin surface below the gloves is provided.* Using antimicrobial solutions without prior meticulous hand washing is a defective and inefficient procedure. Alcohol antiseptic solutions or gels are effective in destroying the germs on the hand surface, provided that their use is preceded by adequate cleaning. Hand washing before and after patient contact is absolutely necessary Antimicrobial solutions contribute to hand antisepsis Solutions are not used are the only antiseptic means

k. Gloves

The medical and auxiliary staff is obliged to always wear latex (or vinyl or nitrile) gloves during any dental work which involves contact with blood or saliva containing blood or mucus. These gloves should not necessarily be sterilized unless an operation is going to take place, particularly on patients with HIV infection. **Hands must be meticulously washed before wearing gloves**.

The same procedure must be followed after removing gloves. Gloves are used during any dental work, for a single patient only and, afterwards, they are removed and discarded.

Washing the gloves and performing any dental work to another patient is strictly forbidden.

In patients with confirmed HIV or HBV and HCV infection, it is recommended that **double gloves** are used for the protection of the surgeon. If during any dental work it is necessary to use an extra device or material, gloves should be covered with an extra pair of nylon gloves so that contamination of those surfaces is prevented.

If there are injuries, scratches or exudative injuries and the operation cannot be avoided, double gloving is recommended for extra protection.

Hand washing is necessary before wearing gloves. Gloves are discarded after each patient

Double gloves are recommended for patients with HIV, HBV, HCV infection

1. Mask and glasses

During the examination or any dental work, an appropriate mask and eye protectors are necessary. These masks must follow certain specifications regarding the size, the thickness and the material, excluding those designed for structural or technical occupations due to intense particle penetration ability. Masks must be able to withhold at least 95% of the microorganisms. In case the dental patient suffers from an airborne disease (tuberculosis), the mask must be enhanced and fully adaptable to the wearer's face. Also, it must be able to withhold particles and microorganisms with a diameter up to 1μm, at a percentage of 95%. If the mask gets wet it must be immediately discarded andreplaced.


Mask, glasses and head cover

Eye protectors may include various types of glasses or plastic masks, or shields made of transparent materials. The side frame should be wide enough to cover adequately the eye.
These protectors must be rinsed with abundant water and get disinfected in case they get stained in between the patients. Masks and eye protectors enhance dentist and patient safety

1. Dental clothing & Surface coverings

Blouses should cover a big part of the dentist's body and hands. **They must be changed on a daily basis and definitely as soon as they get stained.** If the operation is expected to involve a large amount of bleeding or the patient is likely to be seropositive, it is highly recommended that specially designed single-use clothing be used. Reusable clothing must be washed in a machine washer at an appropriate temperature, using a detergent and always separately from

domestic and non-medical clothing. **Surface coverings** Any surfaces, devices, electric switches, door handles, drawer knobs, taps, handles and device tubes not able to be sterilized or disinfected, should be meticulously covered with appropriate materials, such as: special rollers and plasticized paper sheets, cellulose film, aluminum foil, nylon cases, latex and vinyl cases.

These protective coverings should be replaced after every contact and every patient

Dental blouses are changed daily and washed separately Surfaces not being able to be sterilized are covered with appropriate material


DentCPD
© 2012
Headrest cover


DentCPD
© 2012
Handpiece cover
DentCPD

2. Cleaning and Sterilization of dental instruments

Any dental hand instrument used during a dental incident must undergo a cleaning and sterilization procedure.

Step 1. Right after the completion of the incident (examination, restoration, surgery) the instruments must be discarded in a special plastic container filled with an appropriate disinfectant solution or enzyme solution with a proteolytic action**.**

Step 2. After leaving the instruments within the solution for as long as the manufacturer recommends, they are transferred to the machine washer where they undergo thorough mechanical cleaning using the appropriate detergents. If dental materials (cements, pastes, oxides, etc.) have been fixed on the instruments, the latter must be cleaned with ultrasonic devices and appropriate solutions. **Manual cleaning is not recommended due to the high risk involved in causing injuries and because it is inferior to mechanical cleaning in terms of quality**

Step 3. After the instruments have been cleaned, they are packaged in special bags or perforated cassettes, and they are taken to the autoclaves to be sterilized.

The autoclave is programmed to operate depending on the packaging of the instruments and according to the default parameters set by the manufacturer, e.g., 134o C for 3 minutes or 121 C for 20 minutes or 121oC for 13 minutes, etc. it should be noted that the above times do not include warm up or air removal. The completion of the cycle and the sterilization process is confirmed through electronic instrument indications as well as changes in the color or shape of the indicators.

Autoclaves

6a. Single use instruments

These instruments are divided into two categories: Obligatory single use instruments. **They can only be used once and be discarded afterwards.**

Anesthetic needles, Scalpel blades, Suture needles, Saliva ejectors, Dental cups, Surgical suction nozzles, Pulp instruments, Wedges, Rubber cups, Artificial walls, Fluoride gel trays. Optionally single use instruments

Certain mirrors, Artificial wall retainers, Napkin holders, Various types of burrs, impression trays, Material mixing pads, Low speed handpieces for polishing after cleaning, High speed handpieces for cavity and stump formation in seropositive patients.

Single use disposable needles for etching

Single use wood wedges

Single use brushes

Disposable single use examining set

6b. Use and care of sharp instruments and needles

Sharp instruments, having been in contact with blood and saliva, should be used with special care so that injuries are prevented. Place any surgical blade and needle within a solid, hard plastic container for sharp instruments. Do not cap, bend or destroy the needles before you discard them. Do not overfill the plastic container, close tightly and, finally, discard. *Used needles must not be recapped with both hands or any other technique and care must be taken so that the needle does not point towards the body. The* ***'one hand' technique to recap the needle*** *or a mechanical means designed to hold the cap should always be used. Recently, the use of needle destroyers which melt the metallic edge of the instrument has been suggested.* Dental instruments must undergo a cleaning and sterilization procedure Sharp instruments and needles must be managed with special care

3. Sterilization of handpieces and burrs

Low and high-speed handpieces as well as various burrs used in everyday clinical practice should be sterilized before use so that all conditions ensuring harmless dental care provided to all population groups are met. Sterilizing the handpieces requires special attention and suitable preparation so that any damages to their interior are avoided and, consequently, defective operation and financial burden are prevented. After the completion of any dental work, the external surfaces of the handpiece have come in contact with saliva, blood, dental tissue debris and residues of dental materials. However, it is likely that the internal tubes of the handpieces are infected due to various hydrodynamic phenomena taking place on their tip:

a. *when cavities are formed sub gingivally,*
b. *opening up a coronal cavity during endodontic therapy,*
c. *forming stumps,*
d. *polishing gingival restorations,*
e. *polishing the cervical areas of the tooth after a periodontal treatment.*

Several ways to control the spread of contaminating matter between two patients have been recommended. The most common methods of asepsis control are the following: Protection from any contact with the fluid's existent in the oral environment Chemical disinfection, Thermal sterilization, Disinfection via irrigation, Single use handpieces

Among the above techniques, moist heat using saturated water vapors (autoclave) offers the best results as regards the sterilization of handpieces in a very short time.

7a. Sterilization of handpieces

Step 1. After the end of the dental work the handpiece **must operate** for 5-10 seconds over the wash basin or a similar container while ejecting water and air.

Step 2. Then, after being detached from the tubes connecting it with the unit it must be meticulously **washed and brushed** under running water.

Step 3. Finally, it must be **dried** with an absorbent paper.

Step 4. After external cleaning, the handpiece is reconnected to the tubes and operates for 3-5 seconds only with air so that any water residues are removed from the interior of the tubes and the impellers.

Step 5. Then, the handpiece is **lubricated** with the lubricant recommended by the manufacturer

and operates again for 10-20 seconds only with air so that the lubricant is properly distributed throughout the sensitive areas of the head.

Step 6. After the end of this procedure, the handpiece along with the burr extractor are **enclosed in a special pouch** airtightly sealed either with a self-adhesive tape or a thermosealer

Step 7. The handpiece is placed in the autoclave where care should be taken for the pouches not to be clambered so that the air passes unhampered. *The pouch with the handpiece must also include a sterilization indicator which could be either a special tape or a vial with carbon grains. This is not necessary if the pouch includes a system controlling the length of stay and the vapor temperature within the autoclave.*

Depending on the manufacturer's indications, the autoclave is programmed to operate at 121oC for 20 minutes or at 127oC for 13 minutes or at 134oC for 3minutes. After these cycles have finished and after the indicators have confirmed that the conditions worked properly, the handpieces and the extractors are sterilized and are ready to use.

Step 8. Right before using them, some handpieces must be **lubricated again** with an appropriate lubricant which, this time, must be either sterilized or new and generally different from the one used to lubricate the septic handpiece before being placed in the autoclave.


DentCPD
Water flushing under the tap water stream


DentCPD
Drying with absorbent paper


DentCPD
Lubrication of the head


DentCPD
Sealed pouch ready for the sterilization process

7b. Sterilization of burrs

Burrs should be sterilized independently of their type or mouth area they have worked in.

Step 1. A necessary step prior to sterilizing a burr is **meticulous cleaning** from tooth tissue debris, residues of dental materials, blood clots or a paste-like mixture of all the above with saliva. The most widely accepted cleaning method for burrs and other micro instruments are **ultrasonic devices** (baths) using suitable fluids and with the addition of enzymes with proteolytic action. *In these baths using suitable fluids at a temperature of about 60°C, burs vibrate at a frequency of 60-80 kHz for at least 15 minutes. After the end of this procedure, burs are free from foreign matter as well as oxides very often being deposited on their stem.*

Step 2. After taken out of the ultrasonic bath, burrs must be **dried** using an absorbent paper and hot air.

Step 3. They must be placed in an appropriate **device for sterilization**, depending on the material they are made of: burrs made of common carbon steel should not be placed in the autoclave because they are oxidized. on the contrary, burrs made of stainless steel or tungsten carbide are not affected. dry heat ovens, ovens for chemical vapour sterilization and ethylene oxide ovens are suitable for sterilizing all types of burrs. However, dry heat ovens, due to prolonged heating involved, may seriously damage the cutting edge of the burrs. using various aldehydes and phenols for at least 30 minutes offers adequate sterilization while after 10 hours chemical sterilization is achieved. Nevertheless, they may damage the integrity of rotating cutting instruments.

OTE: It is a fact that no technique can fully remove organic debris and, therefore, result in successful sterilization. For these reasons, burrs intended for single patient use and discarded afterwards have recently been introduced.

4. Preparing impressions for the Lab

After removing the tray from the oral cavity, all impressions must be cleaned and sterilized in a certain way and using suitable solutions.

More specifically:

Step 1. After making the impression the tray must be transferred to the wash basin where the flow of tap water will remove any visible organic contaminants (blood, salivate.).

Step 2. Afterwards, the tray is sprayed with or immersed in a suitable disinfectant solution depending on the properties of the material each impression is made of.

Step 3. Impressions must be packaged in a suitable plastic box or a pet bag so that they are safely sent to the dental lab.

Taking protection measures after ending work

Before you clean the working surfaces, wear thick work gloves, so that your hands are covered and are not exposed to blood and other biological fluids left on surfaces or instruments.

Remove any protective cover. If the cover has been stained with blood, place it in a red bag. If the blood is completely dry or the cover has not been contaminated, place it in a regular bag. Use absorbent paper in case blood has penetrated the protective cover and put the absorbent paper in the red bag. Use an appropriate disinfectant.

Clean and sterilize all the instruments and **disinfect the working surfaces** with an appropriate disinfectant solution (phenolic, alcoholic, quaternary ammonium compounds).

Sterilize in the autoclave or dry heat oven any instruments having been in close contact with tissues. A special tape indicating that they have been sterilized must be attached on the instruments so that one is sure that sterilization has been carried out. This procedure is performed by specialized personnel. All **handpieces must be sterilized** in between patients. Follow the instructions recommended by the manufacturers. Chemical sterilization is not safe. Ultrasonic handpieces, scrapers and air syringes must be washed and sterilized. This procedure is performed by specialized personnel. **Place and remove any used waste**. All plastic bags must be collected on a daily basis to prevent the spread of infectious diseases. **Clean and disinfect the impressions**. Any impression or mapping should not be sent to the lab before being

cleaned or disinfected. Remove your gloves and **wash your hands** with a disinfectant and water. If more patients are waiting to be examined, place back the protective covers and repeat the procedure.

5. hat must be done in case of an accident and exposure to infected material

Although the transmission probability of HIV after an accident is below 0.5%, it is imperative that protection measures are taken. In case of professional exposure to HIV after been pierced with an infected needle or other sharp instrument used on a patient diagnosed with HIV infection, the following actions must be taken: Prompt and meticulous washing of the injured area. Immediate placing of a gauze with a disinfectant solution on the injury (e.g. Cidex, formaldehyde, povidone iodine or 75% alcohol etc.) for at least 15minutes. The professional must be examined as soon as possible. HIV can be detected in antigen presenting cells and peripheral ganglia within 72 hours after the infection while viraemia develops in about five days. The latter allows a 72-hour-period within which treatment can be provided. Chemoprophylaxis with antiretroviral drugs must begin as soon as possible after the incident. After 72 hours have passed, there is no point in administering chemoprophylaxis medication.

Post exposure prophylaxis, PEP

Depending on the size of the injury and the viral load of the patient two or three antiretroviral drugs are used (two nucleosides with the addition or not of a protease inhibitor). These same drugs are used to treat HIV infected people.

Standard Operating Procedures for Biomedical Waste Management

Biomedical waste includes any solid or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Objective: To segregate the biomedical waste from the general waste to avoid cross infection.

Procedure:

a. Categories the BMW into the following:

- Contaminated waste – Used cotton swabs
- Waste sharps– Needles, lancets, scalpel and other blades.

a. Segregation:

1. Refers to the separation of different type of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.
2. Prevents mixture of medical waste with general waste
3. Prevents illegal reuse of certain components of medical waste such as syringes, needles, and other plastic
4. Recycled plastics can be used for non-food grade applications.
5. All the bio waste is segregated according to their nature
6. The BMW are segregated into the appropriate colour coded containers and bags red, yellow and white cardboard boxes)
7. Needles, sharps is disposed using needle burner.
8. Storage of sharp instruments using containers.
9. Use of personal protective equipment's like gloves and masks by attenders during the waste handling.
10. Disposal of bags containing BMW to the designated central collection point.

Clinicals:

Red bin: gloves, mouth mask, cotton.

Yellow bin: Blood soaked cotton and all infected waste

Sharps: vials, needles and blades

Amalgam Disposal:

To be immersed in closed bottles filled with fixer solution.

Radiology waste segregation:

1. Never mix x ray developer and used x ray fixer because the silver containing x ray fixer is hazardous waste.
2. Most of the silver content of x ray film is removed during processing of X-ray film, so only traces of silver are present in developed X- ray film and it can be discarded into the trash.
3. Return unused expired x ray film to the manufacturers.

4. Developer solution is discharged by diluting with water into the sewer.
5. Use silver recovery unit to reclaim silver from fixer solution and mix de silvered fixer with developer, dilute it and discharge to the sewage

1. Lead foils:
   - Recycling of lead foils.
   - Biomedical waste disposal company accept lead foils.
   - Do not throw lead foil into general or non-hazardous waste.
   - Do not reuse lead foil packet for any other purpose.
   - Do not hand over lead foil packets to patients as they can throw them into regular garbage or can use for other purpose.

- **Proper labelling of the bins**
  - The bins are properly covered with the colored bags.
  - BMW is disposed accordingly.

- **Collection of the BMW:**
  - All the personnel involved in the collection are trained accordingly to use personal protective equipment's while handling the BMW.
  - Collection of the waste is done once daily or once in thrice in a week depending upon the waste collected.

- Storage: Waste is stored in a proper place and marked with a caution sign.

- The used fixer solution is stored in white container

- Transportation:

1. Transportation is done in trolleys and manual loading is avoided.
2. Container containing BMW is lidded before transportation.
3. Before transportation the BMW is accompanied with a signed document from the doctor.
4. The collected BMW is sent to the central collection point and then transported to the main disposal area.
5. The collected used fixer solution in the white cans are sent to reclaim the silver content.


Do not mix your Hospital Waste
Ensure the segregation of waste at source
Bio Medical Waste handling new rules 2016
Maridi Eco Industries Pvt. Ltd.
PLEASE DISPOSE THESE ITEMS
VIALS & GLASS BOTTELS.
DONOT MIX HOSPITAL WASTE
PLEASE DISPOSE THESE ITEMS
COTTON WASTE & SOILED COTTON / DRESSINGS
DONOT MIX HOSPITAL WASTE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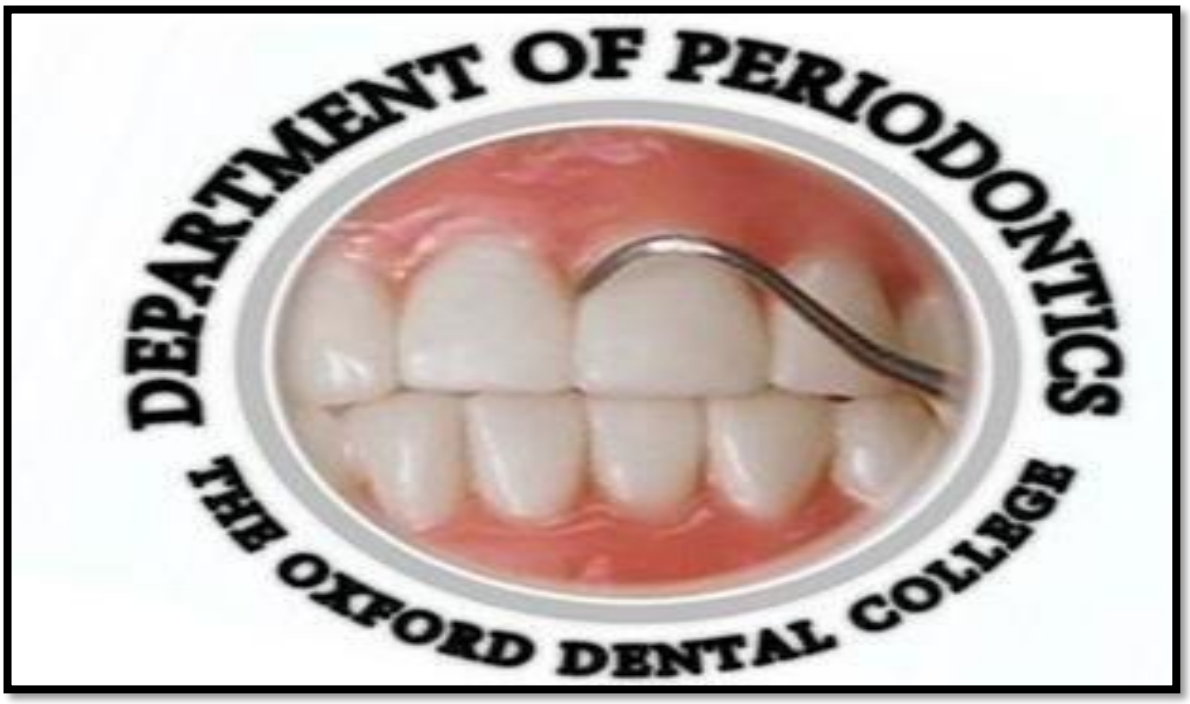
Infection Control Practice



Department of Periodontics the Oxford Dental College

Bangalore-560076

Contents: -

A. Infection Control Policy
B. Cleaning and Sterilizing of Instruments

C. Hazardous Waste Management
D. Standard Operative Procedure

A. Infection Control: -

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus.
- Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene: -

Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

1. Use liquid hand wash from dispenser when possible.
2. While replenishing the dispenser, clean the dispenser before refilling.
3. Routine hand washing must be done
4. Before and after eating/smoking
5. After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10- 15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Hand washing in clinics must be done:

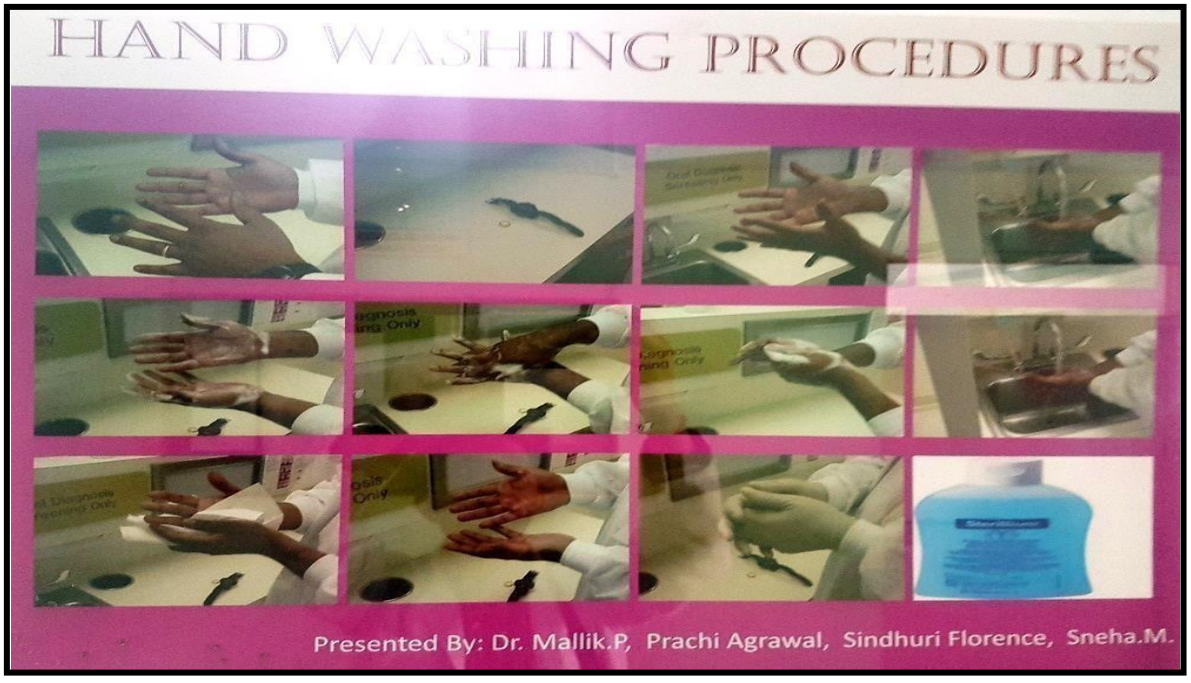
6. Before any Non- surgical procedure
7. Before any non-surgical procedure
8. Before handling any instrument/ equipment
9. Before or after routine wearing of gloves
10. Before contact with patients (examination)

Technique:

- Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1minute.
- Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
- Pat dry using paper towel.

Method of washing:

- Palm to palm
- Palm over dorsum
- Palm to palm (fingers interlocked)
- Back to fingers to opposing palms
- Rotate hands in palms
- Rotate fingers in palms



Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand wash prior to any invasive surgical procedure

Technique:

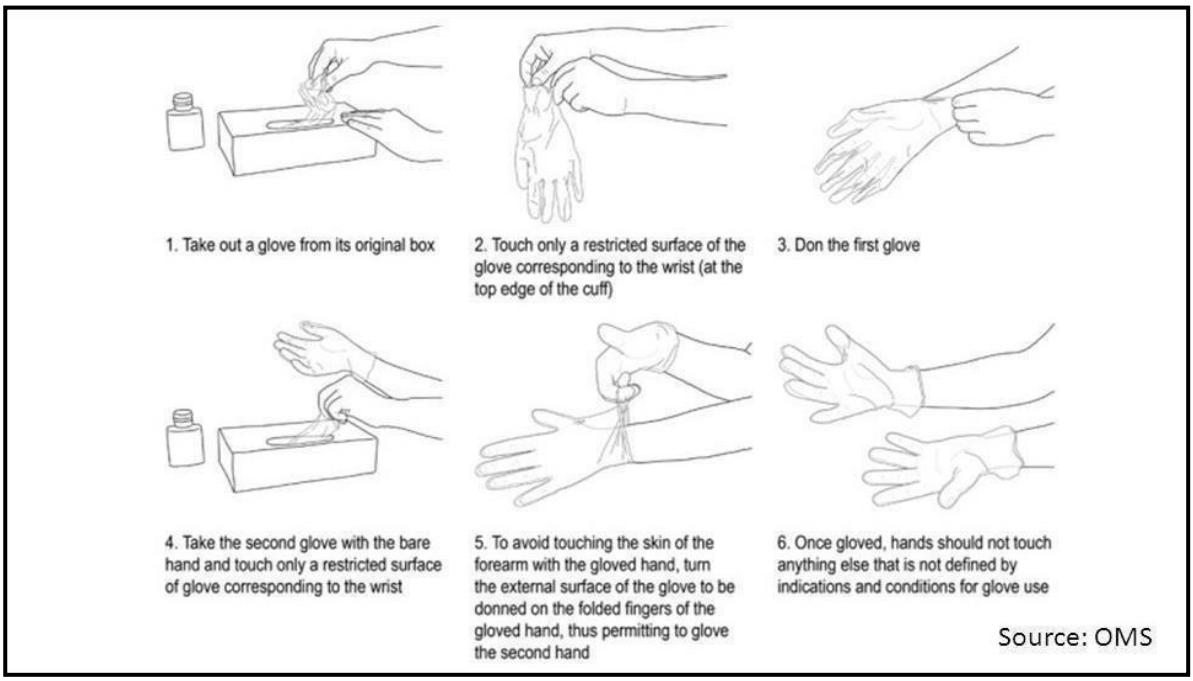
- Wash nails, hands, forearms thoroughly.
- Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
- Commence washing with the forearms and finish with the hands.
- Rinse thoroughly, keep hands above the elbows.
- Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

1. Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
2. Wear general purpose utility gloves for housekeeping.
3. Examination gloves must be used only once and should be worn s per the below mentioned illustration.
4. Provision should be made to utilize non-latex products for individuals with latex allergy.



Fingernail Care

1. Keep fingernails clean and trimmed to avoid puncturing the gloves.
2. Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

1. Change into uniform while working in the clinics.
2. Don't wear uniform outside the practice.
3. Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

1. Wear protective eyewear prior to commencing of any procedure.
2. Place protective eyewear on patients.
3. It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

1. Wear when likelihood of blood/fluids or aerosols or droplets may occur.
2. Must be fluid repellent deflector mask.
3. Must be capable of filtering 3µm or less of impurities.

- **Cleaning and Sterilizing of Instruments**

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

CATEGORY	DESCRIPTION	EXAMPLES OF ITEMS
Critical	Penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue	Surgical instruments, scalers, curettes, scalpel blades, surgical burs
Semicritical	Contact mucous membranes, but will not penetrate soft tissue, contact bone or enter into or contact the bloodstream or normally sterile tissue	Dental mouth mirrors, amalgam dispensers, reusable impression trays, dental handpieces
Noncritical	Contact with intact skin	Blood pressure cuff, stethoscope, pulse oximeter

Source: Organization for Safety, Asepsis and Prevention, "From Policy to Practice: OSAP's Guide to the Guidelines. www.osap.org.

- **Critical instruments:** are those used to penetrate the soft tissues or bone or enter into or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals.

Instruments under this category are forceps, scalpels, bone chisels, scale surgical burs

- **Semi-critical instruments** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays.

They should be sterilized after every use.

- **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

All critical and semi-critical dental instruments that heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g. Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

- After preliminary cleaning the following steps should be taken:
- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.

- Scrub instruments with a sterilized brush, while holding instruments underwater.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time**.**

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet**.**

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed colour
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects, and other vermin
- loosely packed on clean, smooth, washable shelves.

- Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored, they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

1. Hazardous Waste Management Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection area.

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

1. Blood
2. Dried blood
3. Saliva
4. Non-intact skin
5. Mucous membranes

The precautions staff must take when dealing with these substances include the following:

Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in a biohazard waste container in a biohazard waste container.

Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

1. Waste disposed of as sharps and infectious waste often contain many items of general waste.
2. All waste contains much that could be recycled.
3. Less waste, particularly sharps and infectious waste, means lower practice costs
4. Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick and Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts water. If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

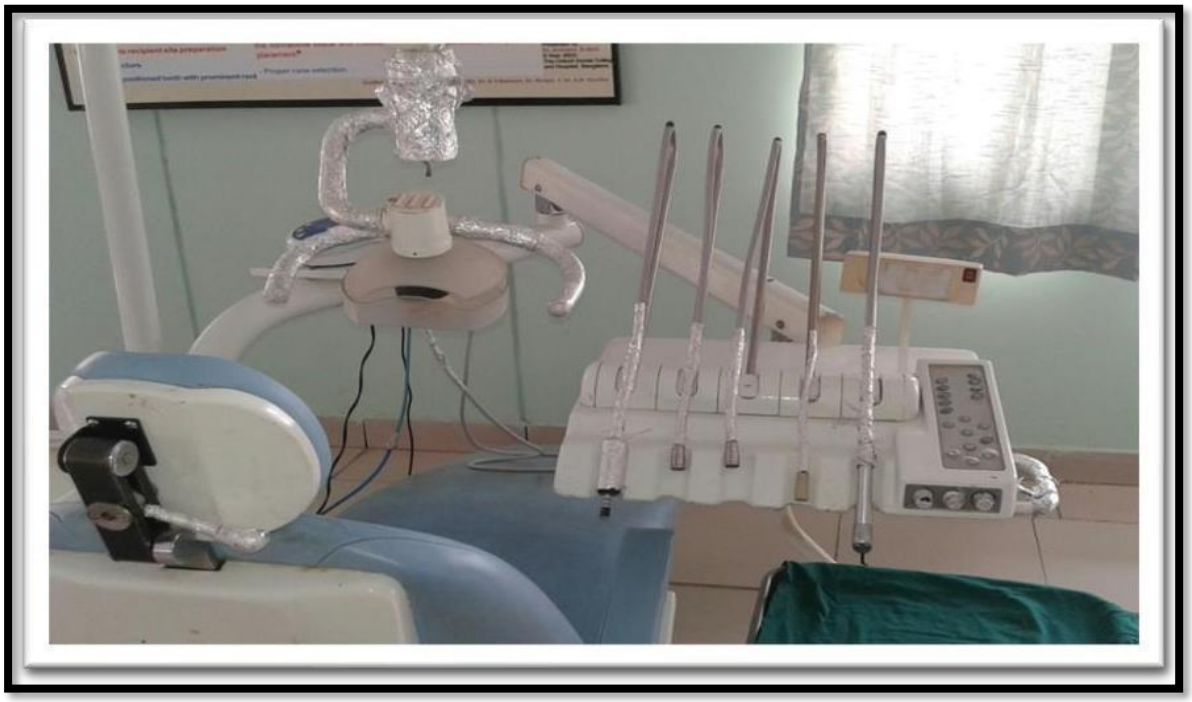
It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

Department of Periodontics

Infection control practices in the department

- Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
- Sterilized instruments are stored with the lids on the trays.

- Use of disposable gloves, face masks & head caps for personnel protection.
- Use of disposable head caps & disposable drapes for patients.
- Eye protection by using proper eye wears during the procedures.
- Use of disposable tin foils to cover the exposed areas of the chair.
- Working condition of the dental chairs is checked on daily basis.
- Dental Chairs are cleaned & disinfected on daily basis.
- Suction tips changed for each patient.
- Basic hand scrub technique, gloving procedure followed.
- All the used instruments are thoroughly cleaned, dried & packed for sterilization.
- At the end of the day all the suction lines are flushed with water & the chairs are raised.
- Drains are checked for maintenance & cleaned on regular basis.
- Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.



Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair

PG Clinic

UG Clinic

Biomedical Waste Management: -

- Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
- Measures are taken to segregate & recheck the waste before disposing.
- All the support staff is provided with the utility gloves for the same.
- Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
- Alginate & dental waste are segregated separately & disposed.


Do not mix your Hospital Waste

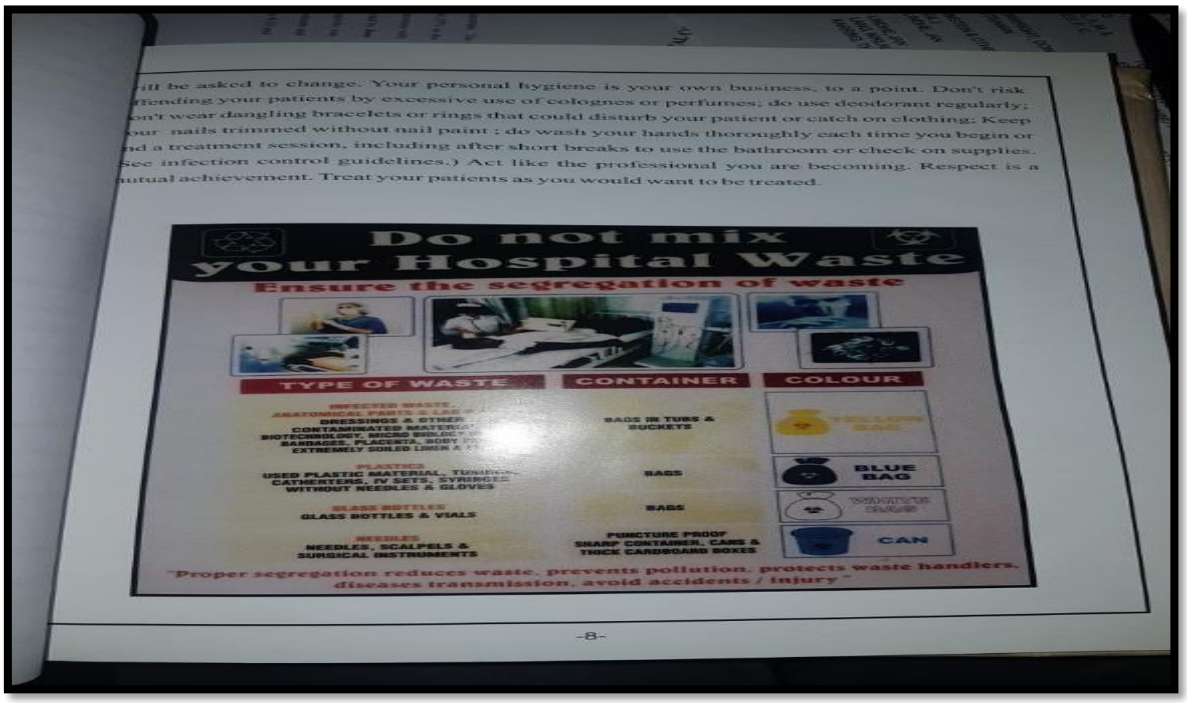

Sterillium
SHARP INSTRUMENTS
AND NEEDLE
PRECAUTION

Syringe Needle Destroyer

Training of UGs & PGs

All the UGs and PGs are well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings and is added to their curriculum in their clinical logbook



Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics. Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis. PGs present seminar on the same topic & most of the important issues are discussed. Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management. Support staff is also trained and on weekly basis the measures are reinforced.

2. Standard Operative Procedure

It is a process document that describes in detail the way an operator should perform a given operation.

Periodontics is the specialty of dentistry that encompasses prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of teeth and dental implants. The specialty includes maintenance of the health, function, and esthetics of all supporting structures and tissues (gingiva, periodontal ligament, cementum, alveolar bone, and sites for tooth replacements). Tissue regeneration, management of periodontal-endodontic lesions, and providing dental implants as tooth replacements are, when indicated, integral components of

comprehensive periodontal therapy. Tooth extraction and implant site development may accompany either periodontal or implant therapy.

The goals of periodontal therapy are to preserve the natural dentition, periodontium and peri-implant tissues; to maintain and improve periodontal and peri-implant health, comfort, esthetics, and function. Currently accepted clinical signs of a healthy periodontium include the absence of inflammatory signs of disease such as redness, swelling, suppuration, and bleeding on probing; maintenance of a functional periodontal attachment level; minimal or no recession in the absence of interproximal bone loss; and functional dental implants.

Periodontal Examination

All patients should receive a comprehensive periodontal examination. Such an examination includes discussion with the patient regarding the chief complaint, medical and dental history review, clinical examination, and radiographic analysis. Microbiologic, genetic, biochemical, or other diagnostic tests may also be useful, on an individual basis, for assessing the periodontal status of selected patients or sites.

Some or all of the following procedures may be included in a comprehensive periodontal examination:

- Extra- and intraoral examination to detect non- periodontal oral diseases or conditions.
- General periodontal examination to evaluate the topography of the gingiva and related structures; to assess probing depth, recession, and attachment level; to evaluate the health of the subgingival area with measures such as bleeding on probing and suppuration; to assess clinical furcation status; and to detect endodontic-periodontal lesions.
- Assessment of the presence, degree and/or distribution of plaque, calculus and gingival inflammation.
- Dental examination, including caries assessment, proximal contact relationships, the status of dental restorations and prosthetic appliances, and other tooth- or implant-related problems.
- Determination of the degree of mobility of teeth and dental implants.
- Occlusal examination.

1. Interpretation of a satisfactory number of updated, diagnostic quality periapical and bite-wing radio- graphs or other diagnostic imaging needed for implant therapy.
2. Evaluation of potential periodontal systemic inter- relationships.
3. Assessment of suitability to receive dental implants.

Establishing A Diagnosis and Prognosis

The purpose of the comprehensive periodontal examination is to determine the periodontal diagnosis and prognosis and/ or suitability for dental implants. This process includes an

evaluation of periodontal and peri-implant tissues to determine the suitability of the patient for treatments including nonsurgical, surgical, regenerative and reconstructive therapy, or dental implant placement. This information should be recorded in the patient's chart and communicated to the patient and the referring dentist when appropriate.

Periodontal Diseases and Conditions

Diseases of the periodontium may be categorized as gingival diseases, periodontitis, necrotizing periodontal diseases, abscesses of the periodontium, and developmental or acquired deformities and conditions.

- **Gingivitis** is gingival inflammation without attachment loss or with non-progressing attachment loss. Other gingival diseases may be modified by systemic factors, medications, or malnutrition.
- **Periodontitis** is gingival inflammation with progressing attachment loss. Different forms include, but are not limited to, **chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease, necrotizing ulcerative periodontitis, and periodontitis associated with endodontic lesions.**

Periodontitis may be further characterized by degree of attachment loss as slight, moderate, or severe; by extent as localized or generalized; and by post-treatment status as recurrent or refractory. Facial recession involving loss of periodontal attachment and gingival tissue affects children and adults. The prevalence increases with age and adults over 50 have the greatest degree of involvement. This mucogingival condition is often treatable. Edentulous ridge defects result from loss of osseous tissue and can compromise esthetics or complicate future implant placement.

Development of a Treatment Plan

The clinical findings together with a diagnosis and prognosis should be used to develop a logical plan of treatment in order to eliminate or alleviate the signs and symptoms of periodontal diseases and thereby arrest or slow further disease progression. The treatment plan should be used to establish the methods and sequence of delivering appropriate periodontal treatment. When indicated, the plan should include:

- Medical consultation or referral for treatment when appropriate.
- Periodontal procedures to be performed.
- Consideration of adjunctive restorative, prosthetic, orthodontic and/or endodontic consultation or treatment.
- Provision for re-evaluation during and after periodontal or dental implant therapy.
- Consideration of chemotherapeutic agents for ad- junctive treatment.
- Consideration of diagnostic testing that may include microbiological, genetic or

biochemical assessment or monitoring during the course of periodontal therapy.

- Periodontal maintenance program.

Informed Consent and Patient Records

Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, informed consent should be obtained prior to the commencement of therapy. The information given to the patient in these circumstances should include the following:

- ✓ The diagnosis, etiology, proposed therapy, possible alternative treatment(s), and the prognosis with and without the proposed therapy or possible alternatives.
- ✓ Recommendations for referral to other health care providers as necessary.
- ✓ The reasonably foreseeable inherent risks and potential complications associated with the proposed therapy, including failure with the ultimate loss of teeth or dental implants.
- ✓ The need for periodontal maintenance treatment after active therapy due to the potential for disease recurrence.

A record of the patient's consent to the proposed therapy should be maintained. Moreover, complete records of diagnosis, treatment, results, and recommended follow-up are essential, starting with the initial examination and continuing for as long as the patient is under care. Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, it is advisable to obtain the informed con-sent in writing prior to commencement of therapy.

Treatment Procedures

A broad range of therapies exist in periodontics. No single treatment approach can provide the only means of treating any one or all periodontal diseases. One treatment modality may be appropriate for one section of the mouth while another approach may be suitable at other sites. When indicated, treatment should include:

✓ Patient education, training in personal oral hygiene, and counseling on control of risk factors (eg, smoking, medical status, stress) with referral when appropriate.

✓ Removal of supragingival and accessible subgingival bacterial plaque and calculus is accomplished by periodontal scaling. Comprehensive periodontal root planning is used to treat root surface irregularities or alterations caused by periodontal pathoses. In some instances, these procedures may be incorporated into the surgical treatment.

- Finishing procedures, which include post-treatment evaluation with review and reinforcement of personal daily oral hygiene when appropriate.

The following courses of treatment maybe indicated in addition to the above outlined procedures:

- Chemotherapeutic agents. These agents may be used to reduce, eliminate, or change the quality of microbial pathogens; or alter the host response through local or systemic delivery of appropriate agent(s).
- Respective procedures. These procedures are designed to reduce or eliminate periodontal pockets and create an acceptable gingival form that will facilitate effective oral hygiene and periodontal maintenance treatment. Soft tissue procedures include gingivectomy, gingivoplasty, and various mucogingival flap procedures. Osseous procedures include ostectomy and osteoplasty. Dental tissue procedures include root resection, tooth hemi section, and odontoplasty. Combined osseous and dental tissue procedures may be required for management of endodontic-periodontal lesions.
- Periodontal regenerative procedures include: soft tissue grafts, bone replacement grafts, root biomodification, guided tissue regeneration, and combinations of these procedures for osseous, furcation, and recession defects. Periodontal reconstructive procedures include: guided bone regeneration, ridge augmentation, ridge preservation, implant site development, and sinus grafting.
- Periodontal plastic surgery for gingival augmentation, for correction of recession or soft tissue defects, or for other enhancement of oralesthetics.
- Occlusal therapy, which may include: minor tooth movement, occlusal adjustment, splinting, or provision of devices to reduce occlusal trauma.
- Periprosthetic periodontal procedures include: exploratory flap surgery, resective procedures, regenerative or reconstructive procedures, or crown lengthening surgery, performed to facilitate restorative or prosthetic treatment plans.
- Selective extraction of teeth, roots, or implants when indicated, in order to facilitate periodontal therapy, implant therapy, implant site development, or im-plant, restorative and/or prosthetic treatment plans.
- Replacement of teeth by dental implants.
- Procedures to facilitate orthodontic treatment including, but not limited to, tooth exposure, frenulectomy, fiberotomy, gingival augmentation, and implant placement.
- Management of periodontal systemic interrelationships when appropriate.

Periodontal Maintenance Therapy

Upon completion of active periodontal treatment, follow-up periodontal maintenance visits should include:

1. Update of medical and dental histories
2. Evaluation of current extra- and intraoral, periodontal and peri-implant soft tissues as well as dental hard tissues and referral when indicated (eg, for treatment of carious lesions,

pulpal pathosis, or other conditions)

3. Assessment of the oral hygiene status with reinstruction when indicated.
4. Mechanical tooth cleaning to disrupt/remove dental plaque and biofilms, stain, and calculus. Local delivery or systemic chemotherapeutic agents may be used as adjunctive treatment for recurrent or refractory disease.
5. Elimination or mitigation of new or persistent risk and etiologic factors with appropriate treatment.
6. Identification and treatment of new, recurrent, or refractory areas of periodontal pathoses.
7. Establishment of an appropriate, individualized interval for periodontal maintenance treatment.

The patient should be kept informed of:

1. Areas of persistent, recurrent, refractory, or new periodontal disease.
2. Changes in the periodontal prognosis.
3. Advisability of further periodontal treatment or re- treatment of indicated sites.
4. Status of dental implants.
5. Other oral health problems noted that may include caries, defective restorations, and non-periodontal mucosal diseases or conditions.

Evaluation of Therapy

Upon completion of planned periodontal therapy, the record should document that:

1. The patient has been counseled on why and how to perform an effective daily personal oral hygiene program.
2. Accepted therapeutic procedures have been per- formed to arrest the progression of the periodontal disease(s).
3. Periodontal root planning has left subgingival root surfaces without clinically detectable calculus deposits or rough areas.
4. Gingival crevices are generally without bleeding on probing or suppuration.
5. A recommendation has been made for the correction of any tooth form, tooth position, restoration, or prosthesis considered to be contributing to the periodontal disease process.
6. An appropriate periodontal maintenance program, specific to individual circumstances, has been recommended to the patient for long-term control of the disease, as well as for the maintenance of dental implants, if present.

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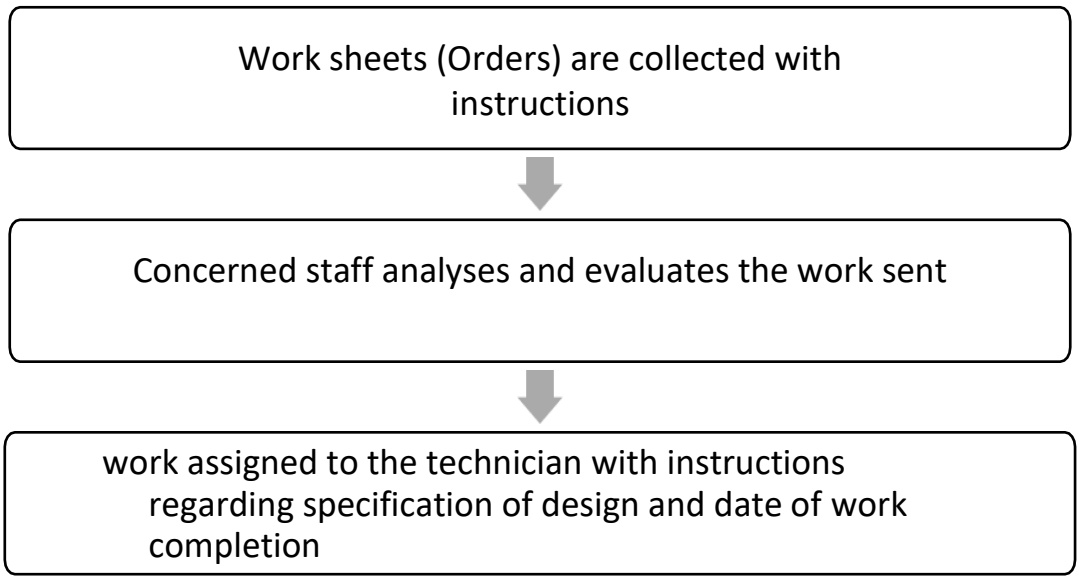
Department of prosthodontics

[Standard operating procedures]

Standard operating procedure follows



1. **Lab safety procedures:**

1. Disinfection of all the materials used and sterilization of all instruments accompanied by a clean laboratory
2. Laboratory decorum followed
3. No eatables allowed in the lab.
4. Covered overalls separate from that used outside the lab.
5. Safety protocol (Complete hygiene of technician that includes Mouth mask, Safety glass, Gloves and Lab coat)
6. Re-use of metals
7. Metal can't be re-used more than twice.

2. Protocol for Complete Dentures

Fabrication of primary cast from collected primary impression and construction of special/custom tray (given in 2 working days)

↓

Fabrication of Master cast from procured Secondary impression and construction of denture base with occlusal rims (given in 2 working

↓

Articulating the casts in the procured jaw relation (done in 1 working day)

↓

Teeth setting (given for try-in in 2 working days)

↓

Flasking, dewaxing, packing and curing procedures carried on, followed by trimming and finishing of denture (denture delivered in 3 working days)

1. Protocol for Cast Partial Denture

Fabrication of primary cast from the procured primary impression followed by construction of denture base with occlusal rims (given in 2 working days)

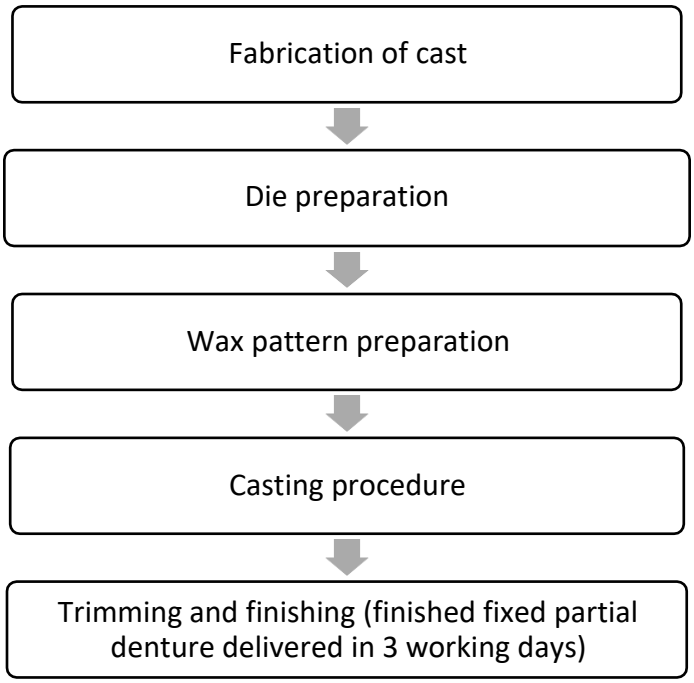
↓

Articulation and teeth setting (given for try-in in 2 working days)

↓

Investing, dewaxing, packing and curing procedure followed by denture trimming and polishing (denture delivered in 2 working days)

2. Protocol for fixed partial denture



➢ Schedule for supplying materials

- **Consumables**
  - ❖ Materials supplied on every Monday (9-10am) for the usage of that week
  - ❖ On exhaustion of material, re-issued on every Thursday (9-10am)
- **Non-Consumables**
  - ❖ Available to technician on all days (Monday-Saturday (9-12.30am)]
  - ❖ Stocked on the first working day of every month.

Areas of Responsibility:

- Dental Providers (Dentists/Hygienists)
- Dental Support Staff (DSS)

Procedure:

- Dental Providers (Dentists/Hygienists)
- Have a basic understanding of the Dental Sterilization Process.
- The Infection Prevention/Control (IPC)/Safety Officer (Hygienist) for each dental clinic is responsible for training and monitoring the dental sterilization process. If there is a breach in the sterilization process it is their responsibility to report this to the Dental Clinic Director and the Infection Prevention/Control Advisor for the Dental Department.
- In the event of a breach in the sterilization process, the Clinic IPC/Safety Officer, the Dental Clinic Director, and the Infection Prevention/Control Advisor for the Dental Department will ensure the appropriate steps are taken to correct the situation.

Dental Support Staff

1. Instruments/cassettes which need to be heat sterilized are to be transported from the dental operatory to the sterilization (instrument processing) area in the approved transport container.
2. instruments are defined as any instruments or dental devices (ex: bite block, lab spatula, xcp's) not contained in a cassette that require heat sterilization.\
3. Cassettes are defined as any instruments which are contained in a cassette that require heat sterilization. They may be sterilized in either a multi parameter pouch or blue surgical wrap.\
4. The sterilization (instrument processing) area should be divided into the following four sections:
    - Receiving, Debridement, and Decontamination.
    - Preparation and Packaging.
    - Sterilization.
    - Holding Aerator sterilized pouches/wrapped cassettes waiting to be returned to the operatory and storage areas.

5. The sterilization area should be divided by walls, partitions, or adequate spatial separations to control traffic flow and contain contaminants generated during processing.
6. Receiving/Debridement/Decontamination of the Instruments/Cassettes:
7. Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
8. The debridement/decontamination process is to be completed immediately after the

instruments/cassettes are brought to the sterilization area in order to reduce the risk of microorganisms becoming encapsulated on the instrument/cassette surfaces.

9. Instruments/cassettes need to be debrided/decontaminated by one of the following methods

- **When Using the Ultrasonic:**

  - The preferred procedure is to place instruments/cassettes directly into the ultrasonic using the appropriate inserts immediately after being received in the sterilization area.
    - ❖ If there is a load already running in the ultrasonic, the instruments/cassettes should be kept in a presoak of the approved ultrasonic cleaner and run through the ultrasonic as soon as possible.
    - ❖ Manual debridement of the instruments/cassettes is strongly discouraged. If it is absolutely necessary, the instruments/cassettes are to be debrided with a long-handled brush and placed into the ultrasonic as soon as possible.
  - The ultrasonic is filled at the beginning of each day with the approved ultrasonic cleaner.
  - If the ultrasonic cleaner becomes diluted due to excessive use, it may be necessary to change the ultrasonic cleaner during the day.
  - he ultrasonic is to run for the appropriate time according to the manual.
  - The instruments/cassettes are then thoroughly rinsed with tap water and set on a rack to dry.
  - If this is the last cycle of the day, the instruments/cassettes maybe left after the rinse has been completed.
  - The instruments/cassettes will need to be packaged and sterilized the next day.
  - The ultrasonic is to be drained at the end of each day and sprayed with the approved surface disinfectant.
  - DSS are responsible for keeping the sterilization area neat and organized.
  - Place the loose instruments neatly in the drying area in order to prevent damage to the instruments/cassettes.
- **When Using the Miele (Dental Washer Disinfector), follow the "Instrument Handling Recommendations" which are found in the manual:**
  - Instruments/cassettes should not be pre-soaked, rinsed, or hand scrubbed.
  - Instruments/cassettes are placed directly into the Miele Dental Washer Disinfector.
  - The Miele Dental Washer Disinfector serves as the "dirty storage area" and will clean and disinfect instruments/cassettes that have been sitting for up to 6 hours; however, instruments/cassettes cannot be left to sit overnight.
  - Instruments should be placed into plastic cassettes within the metal mesh basket in the Miele to prevent damage to the tips of the instruments. Tips of the instruments can become caught in the metal mesh.

- The recommended cycle is the Disinfection VARIO with the optional 10-minute drying cycle.
- The Miele cannot be left running when the DSS leave for the day. The cycle must be complete, and the door of the Miele must be left slightly opened.
- Do not leave the door to the Miele completely opened because it is a safety hazard.
- The door of the Miele needs to be opened immediately after the cycle ends to release hot air and steam and to let instruments cool. This prevents rust and corrosion from forming on the instrument/cassettes.
- If this is the last cycle of the day and there is not enough time to run the Disinfection VARIO cycle, the Miele may run through one of the following cycles:
- The 30-minute cycle with a cold-water pre-rinse and a detergent phase. When this cycle is completed, the DSS will need to open the door to the Miele, and they may leave for the day.
  - ❖ Instruments/cassettes may be packaged and sterilized the following day.
- The 10-minute cycle with a cold-water pre-rinse only. When this cycle is completed, the DSS will need to open the door to the Miele, and they may leave for the day. The instruments/cassettes are not ready for packaging and sterilization.

cassettes will need to be run through the Disinfection VARIO cycle at the beginning of the following day.

- Instruments/cassettes may then be packaged and sterilized.
- **Hand Pieces:**
  - Hand pieces are to be cleaned and oiled by the handheld air driven method.

10. Preparation/Packaging of the instruments/Cassettes: Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
11. After the debridement/decontamination process is completed, the instruments/cassettes are prepared for heat sterilization through the following steps:

- Place instruments/cassettes in the appropriate sized multiparameter pouches (Multi parameter meaning the appropriate levels for heat, temperature, and time have been achieved).
- Affix the self-sealing adhesive strip to the designated place on the multi parameter pouch to ensure a complete seal.
- If using blue surgical wrap, a small piece of autoclave indicator tape needs to be inserted into the middle of the cassette (internal indicator). The outside of the package needs to be secured with autoclave indicator tape (external indicator).
- The pouches/wrapped cassettes now need to have the current date marked on them with a regular point black Sharpie permanent marker. The date will read as: 09-13-13. (Not 09/13/13).

- Any clinic with more than one heat sterilizer (ex: Statin/Autoclave) needs to designate which sterilizer the pouches/wrapped cassettes have run through. (ex: red Sharpie permanent marker=Statim; blue Sharpie permanent marker=Autoclave 1; green Sharpie permanent marker=Autoclave 2; orange Sharpie permanent marker=Autoclave 3)
- **Sterilization of the pouches/wrapped cassettes:**
- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated pouches and wrapped cassettes.
- Pouches/wrapped cassettes are to be placed correctly on the trays for each heat sterilizer (refer to the "Guidelines for Loading Trays" which may be found in the sterilizer manual).
- Before sterilizers are started, the water levels need to be checked. (Ex: Autoclave=tubing indicator inside the door/Statim=the lid covering the mesh trap on the top of the unit). Make sure the collection container which drains under the Statimis not full. If sterilizers need to have water added to the units, use only distilled water. No tap or filtered water is to be used in these sterilizers.
- The recommended cycle for the Statim is the "Wrapped" cycle which will runat
- 2750F (1350 C) For 10 minutes.
- The recommended cycle for the Autoclave is the packs cycle which will run at (121^0 C) for 30 minutes.

1. After the cycle for the autoclave has been selected, push the 'Start' button and listen for the sound of water filling the reservoir. The sterilizer will now show it has started and you may then fill out the log for that sterilizer. (Print your name, current date, note the time started and place your initials).
2. It is imperative that the sterilizer run through the complete cycle from the "filling" phase through the "drying" phase. Do not interrupt the cycle at any point before the drying phase is complete.

- When the sterilizer shows the cycle is complete, the (DSS) may remove the sterilized pouches/wrapped cassettes.
- Holding area for the sterilized pouches/wrapped cassettes:
-
- When removing the sterilized pouches/wrapped cassettes from the sterilizer, the DSS will initial each sterilized pouch/wrapped cassette clearly with their written initials once they have verified the following three items:

✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.

✓ There is a clearly marked date of sterilization.

✓ There is a clearly marked sterilizer identifier.

3. If the three previously stated items can be verified, the sterilized pouches/wrapped

cassettes can be placed in the holding area.

4. If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
   - ✓ The IPC/Safety Officer for the dental clinic will need to be notified.
   - ✓ The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.

- When removing the sterilized pouches/wrapped cassettes from the Holding Area, the DSS will initial each sterilized pouch /wrapped cassette clearly with their written initials for a second time after they verify the following three items:
- The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.
- There is a clearly marked date of sterilization.
- There is a clearly marked sterilizer identifier.
  - ✓ If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be taken to the operatory/storage area.
  - ✓ If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.
- When removing the sterilized pouches/wrapped cassettes from the storage areas and preparing for the next patient, the DSS will need to triple check the following three items:
- The internal/external indicators changed to the appropriate color (from pink to cocoa brown) according to the color chart.
- There is a clearly marked date of sterilization.
- There is a clearly marked sterilizer identifier.
  - ✓ If the three previously stated items can be verified, the sterilized instruments and cassettes can be removed from the pouches and blue surgical wrap.
  - ✓ The DSS can set up for the next procedure.
  - ✓ Leave the sterilized pouches/blue surgical wrap on the counter for the dental provider/ DSS to verify.
  - ✓ The pouches and blue surgical wrap can then be thrown away.
  - ✓ If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilizations process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental

Department.

- Breach in the sterilization process:
- If a breach in the sterilization process is identified and the pouch/wrapped cassette has Not been used in a dental procedure involving a patient:
  - ✓ The IPC/Safety Officer for the dental clinic will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
  - ✓ The pouch/wrapped cassette will need to be re-packaged and re-run through the sterilization cycle.
  - ✓ The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- If a breach in the sterilization process is identified and the pouch/wrapped cassette Has been used in a dental procedure involving a patient:
- The IPC/Safety Officer will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
- The pouch/wrapped cassette will need to be pulled from the operatory/storage area.
- Any other pouches/wrapped cassettes which have the same date of sterilization, and the same sterilizer identifier will also need to be pulled from the dental operatory/storage areas.

1. The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
2. The Dental Clinic Director will need to notify the appropriate people in the Medical Department and the Administration Department. The plan for a Failed Dental Sterilization Process will be initiated.

✓ Important reminders:

- The efficacy of the heat sterilizers is measured weekly through biological spore testing. Refer to the Spore Testing SOP.

❖ Periodic maintenance (daily, weekly, monthly, quarterly, bi-annual, and annual) needs to be completed and documented for each sterilizer (Autoclave/Statim).

- Each sterilizer has its own manual with the maintenance schedule outlined.
- Document the maintenance completed in a log specific to each sterilizer.
- At the beginning of the month send a copy of each of the maintenance logs via interoffice mail to the Quality Coordinator/Trainer in Administration.

❖ Periodic maintenance (daily, every 2 weeks, and annually) needs to be completed on the Miele as outlined in the manual.

❖ Periodic maintenance needs to be completed on the Ultrasonic as outlined in the manual.

❖ Periodic maintenance needs to be completed on the Assisting as outlined in the manual.

❖ The countertops, door handles, and doors in the sterilization area are to be disinfected at

least once per week. The proper PPE will need to be worn when using the dry 4X4s and the approved surface disinfectant.

- The biohazard (red) bag in the sterilization area needs to be taken to the large clinic biohazard container at least once per week.

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The Oxford Dental College and Hospital
Department of Orthodontics and Dentofacial Orthopedics
For the Year 2016-17

Note on Infection Control in The Department

- ✓ Hand Hygiene

Hand contact is one of the main routes of transmission of multi drug resistant bacteria, etc.

Hand hygiene reduces the risk of bacterial transmission to patient and health care personnel.

We maintain hand hygiene:

- ✓ before and after treating each patient (before glove placement and after glove removal)
- ✓ after barehanded touching of objects that most likely to be contaminated with blood or saliva
- ✓ before leaving dental operatory.

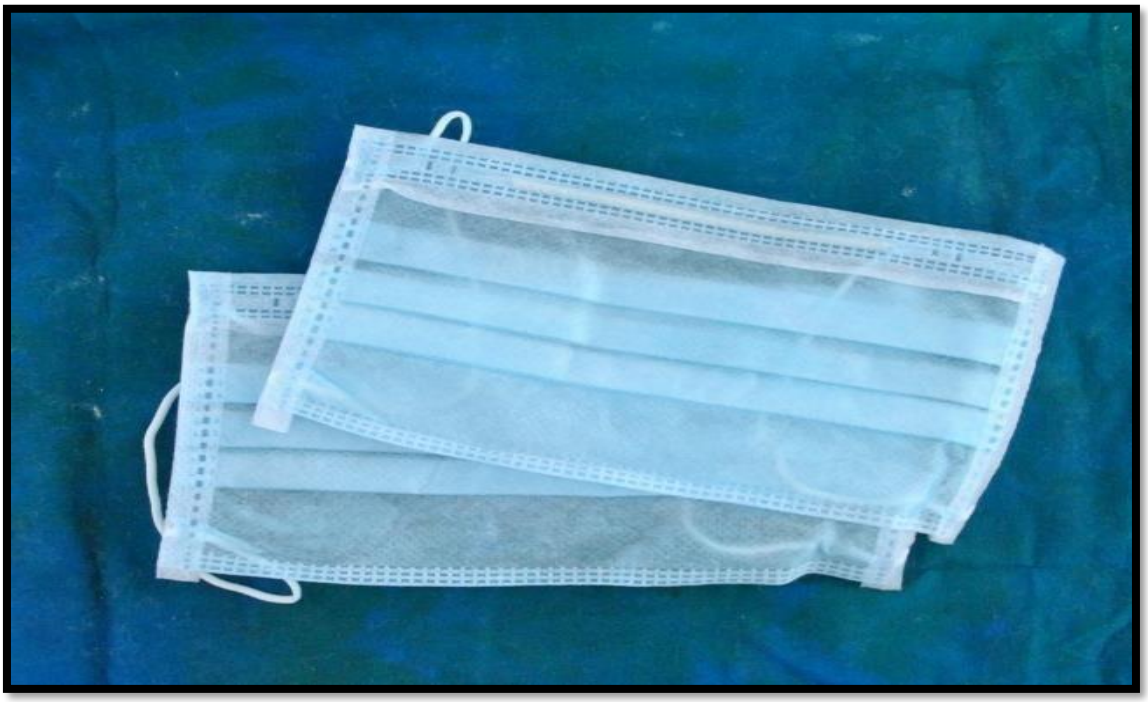
✓ **Gloves**

We in the department wear gloves to prevent contamination of our hands when in contact with patients mouth to reduce the risk of transmission of microorganisms from our hands to the patient during performing dental procedures.

-

Mouth Mask, Head Cap and Protective Eyewear

- **Mouth Mask** is worn to cover both nose and mouth during procedures to prevent splashes or spray of blood or body fluids. A mouth mask protects the patient against microorganisms from the wearer and protects us from droplets that may contain bloodborne pathogens. A mouth mask is changed between each patient in our department.

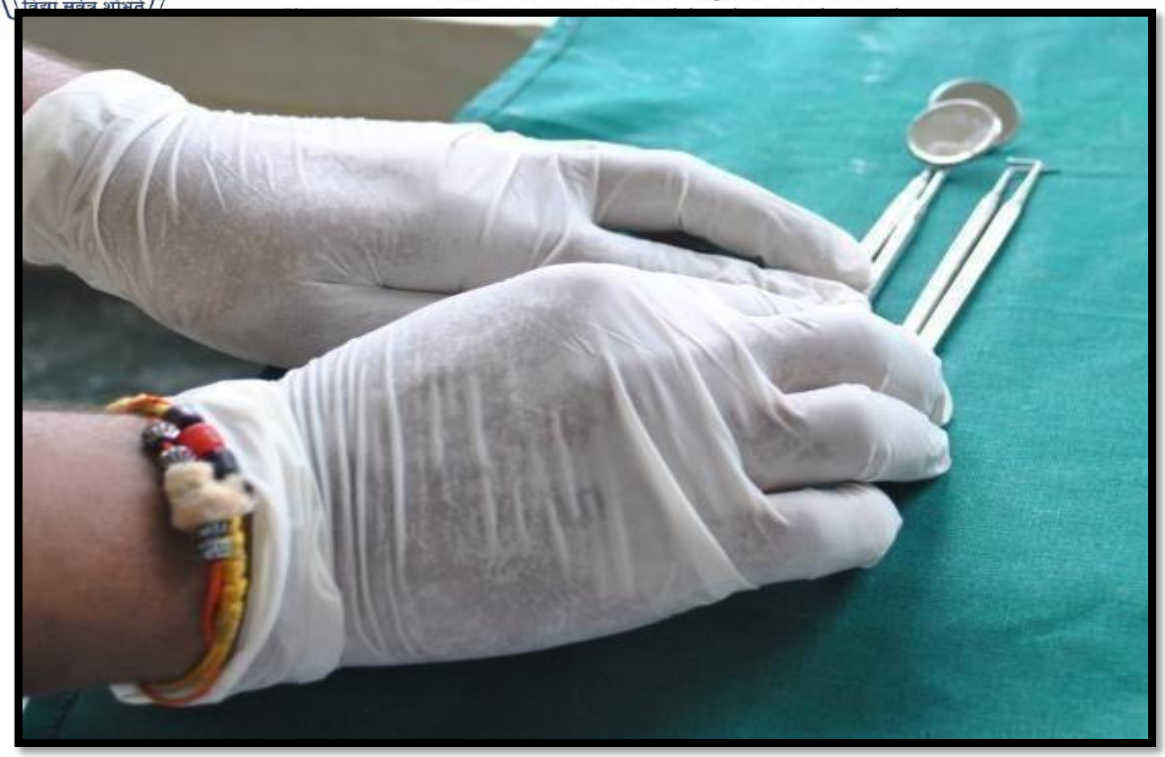


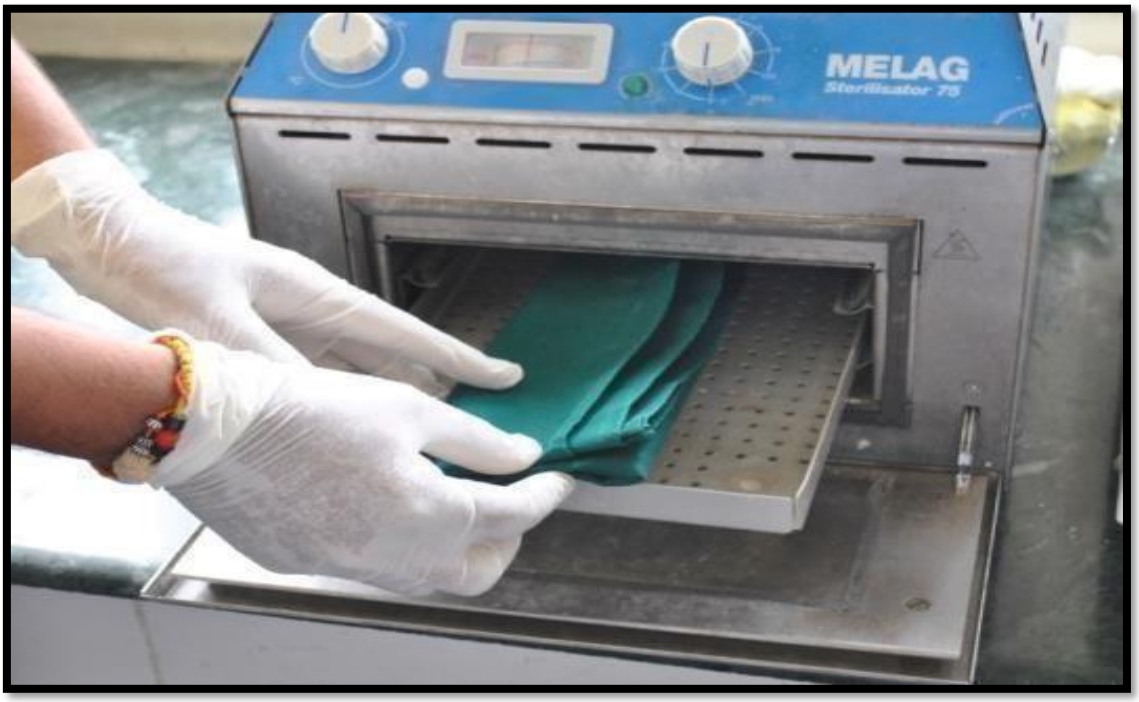
- **Head Cap** is used during every dental procedure to prevent splashes of blood and body fluids.

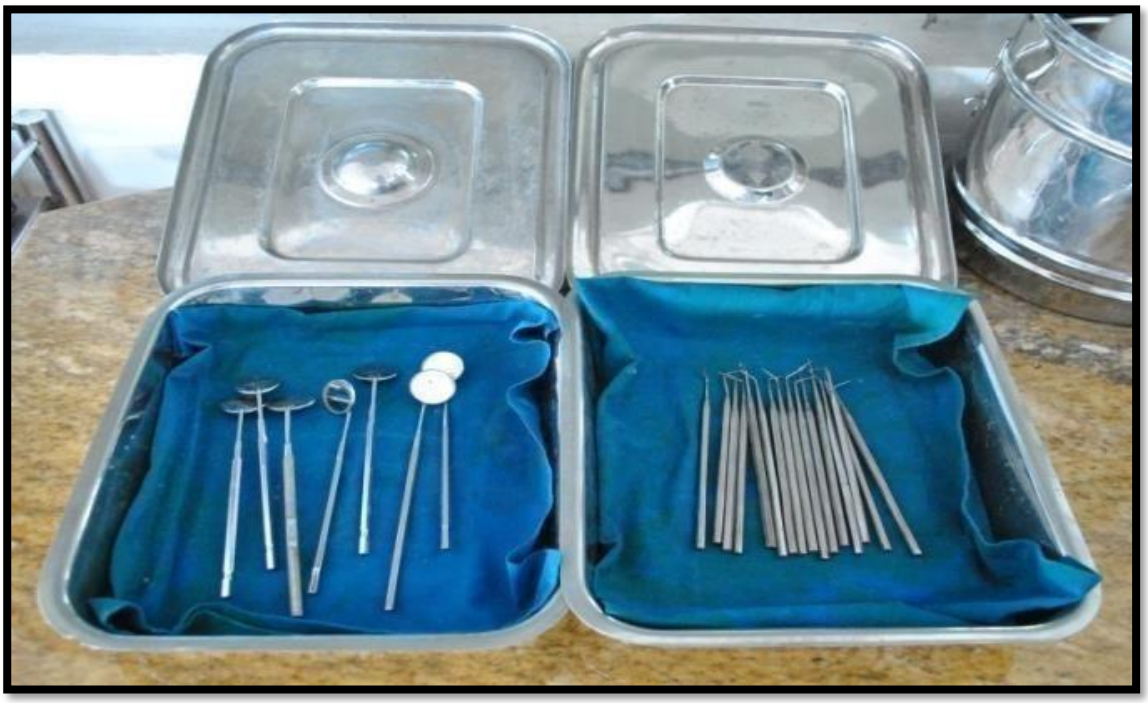
- **Protective Eye Wear_**is used in our department during examination or any dental procedures which is likely to generate splashes or sprays of blood or saliva. It protects the eyes from contact with microorganisms. It is always kept clean after use of each patient.

  The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave.

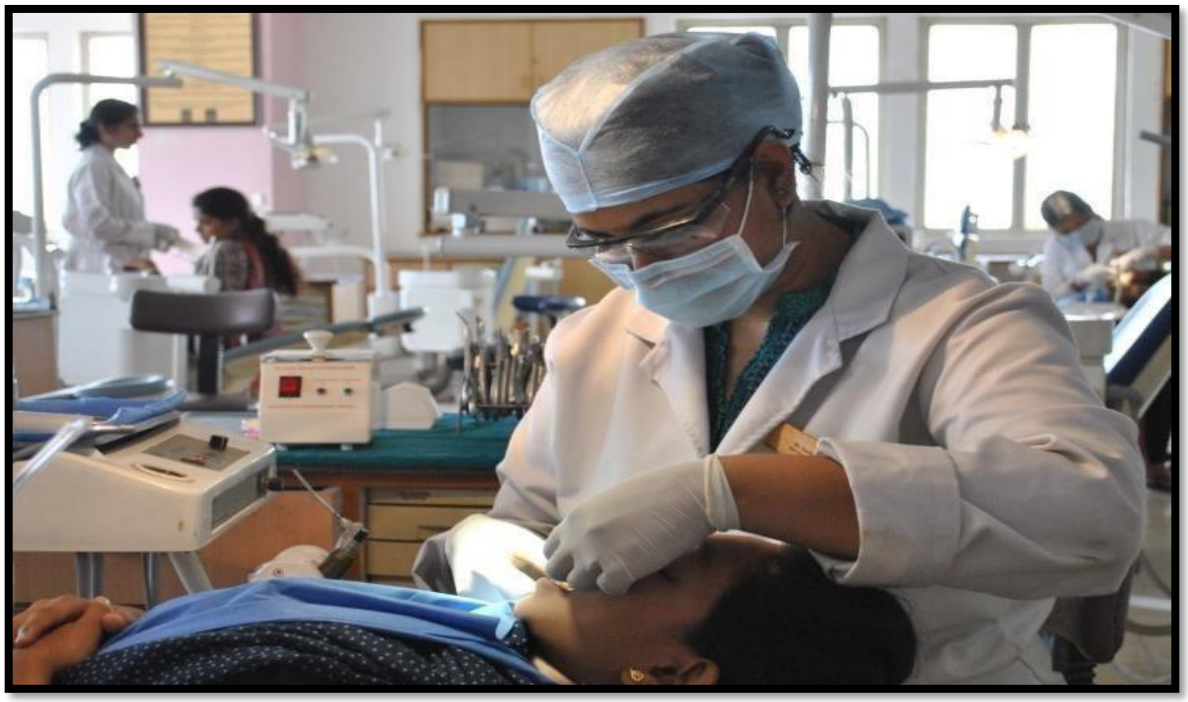
Cleaning and Sterilization of Dental Instruments




MELAG
Sterilisator 75



Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven.



Each post graduate student has an individual chairside glass bead sterilizer.

Single Use Materials (Disposed After Single Use)

- Suction tips
- Disposable glasses
- Gloves
- Mouth masks
- Drapes
- Head cap

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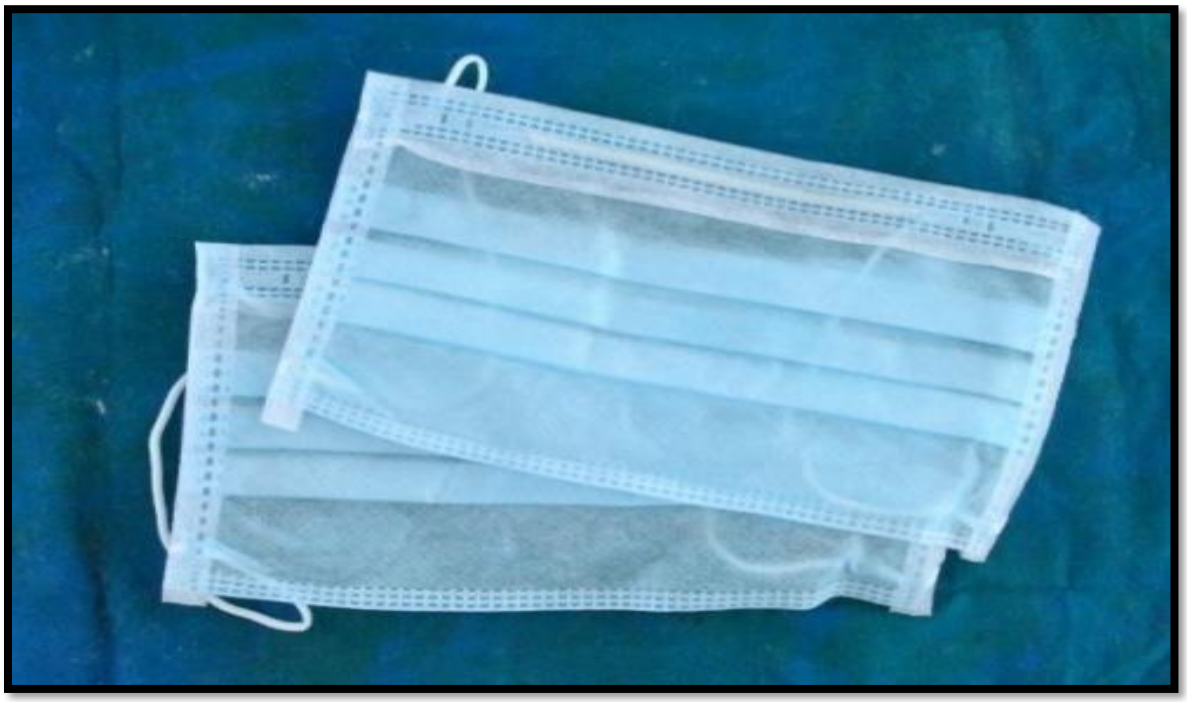


100
GLOVES
DENTAL SAFE
RAMSON'S

- **Waste Control (UG &PG Section)**

Blue Bag Plastic Waste (Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

- **Yellow Bag**

Infected waste, anatomical parts, and lab waste (Impression materials, cotton)

- **Can (White)**

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)


HAND WASH

The waste material is segregated within the department after 3 pm, and transported by the attender to the disposal area, located at the back of the college.

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Biomedical Waste Segregation, Transportation and Disposal

Infection Control Protocol

- **Hand washing and Hand Hygiene**
  Perform hand hygiene with anti-microbial soap and water when hands are visibly dirty or contaminated with blood or other potentially infectious material. If hands are not visibly soil, an alcohol-based hand rub can be used **(Sterillum).**
- **Personal protective equipment**
  Wear gloves, mask, and eye protection. Disposable single use item should never be used on more than one patient.
- **Complete asepsis of operating area**
  All the items that will be touched during the treatment .eg: suction tips, bracket table handle etc. should have barrier protection and the dental chairs should be cleaned and disinfected.
- **Instrument sterilization.**
  All instruments should be washed in running water and cleaning with brush to remove visible debris. Instruments that cannot be autoclaved should be subjected to cold sterilization in glutaraldehyde. Orthodontic instruments is cleaned and placed in autoclave. Chairside use of glass bead sterilizer for individual use is encouraged.
- Before treatment dental chair water lines should be flushed for 2 minutes at the start of the day and subsequently for 30 sec, between the patients.
- Proper handling and disposal of biomedical waste should be followed. Immunization of all operating staff for Hepatitis B and Tetanus is essential.

Schedule of training of undergraduate and post graduate students about infection control and biomedical waste

Training:

✓ Undergraduate students are trained regarding biomedical waste management on the first day of posting in the department of Orthodontics.

✓ Postgraduate students are educated before entering clinics about biomedical waste management to be practiced throughout their course.

✓ Training programme conducted for the paramedical staff and attenders regarding infection control and biomedical waste management in the department of orthodontics both postgraduate and undergraduate sections.

Staff in-charge: Dr Sameena B.M Attender in-charge: Sarvotham & Rani

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Research Centre Department of Orthodontics and Dentofacial Orthopedics

Infection Control and Biomedical Waste Management Report

I. Sterilization - (UG &PG Section)

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave

Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven. Chairside use of glass bead sterilizer for individual use is encouraged.

II. Waste Control - (UG &PG Section)

Blue Bag-

Plastic Waste

(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

Yellow Bag

Infected waste, anatomical parts, and lab waste (Impression materials, cotton)

Can (White)

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

III. Segregation, Transportation and Disposal

The waste material is segregated within the department after 3 P.M, and transported by the attender to the disposal area, located at the back of the college.

Department of Pedodontics And Preventive Dentistry
Standard Operating Procedure

Infection Control

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

1. Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions, and excretions.
2. Contact with contaminated equipment and medical apparatus.
3. Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

1. Use liquid hand wash from dispenser when possible.
2. While replenishing the dispenser, clean the dispenser before refilling.
3. Routine hand washing must be done
    a) Before and after eating
    b) After going to toilet/blowing nose/grooming.

Technique:

I. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10-15seconds.
II. Rinse under running water.
III. Pat dry using paper towel.

Scrub Technique

Sterillum

Hand washing in clinics must be done:

I. Before any Non- surgical procedure
II. Before any surgical procedure
III. Before handling any instrument/ equipment
IV. Before or after routine wearing of gloves
V. Before contact with patients (examination)

Technique:

- Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1 minute.
- Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
- Pat dry using paper towel.

Method of washing:

- ✓ Palm to palm
- ✓ Palm over dorsum
- ✓ Palm to palm (fingers interlocked)
- ✓ Back to fingers to opposing palms
- ✓ Rotate hands in palms
- ✓ Rotate fingers in palms

Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

- Wash nails, hands, forearms thoroughly.
- Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
- Commence washing with the forearms and finish with the hands.
- Rinse thoroughly, keep hands above the elbows.
- Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

1. Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
2. Wear general purpose utility gloves for housekeeping.
3. Examination gloves must be used only once.
4. Provision should be made to utilize non-latex products for individuals with latex allergy.

Fingernail Care

1. Keep fingernails clean and trimmed to avoid puncturing the gloves.
2. Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

1. Change into uniform while working in the clinics.
2. Don't wear uniform outside the practice.
3. Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

1. Wear protective eyewear prior to commencing of any procedure.
2. Place protective eyewear on patients.
3. It must be clean, clear, anti-fog, distortion free, close fitting and shielded

Masks

1. Wear when likelihood of blood/fluids or aerosols or droplets may occur.
2. Must be fluid repellent deflector mask.
3. Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone or enter or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat, or chemicals.

Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.

2. **Semi-critical instruments** are those that do not penetrate soft tissues or bone but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays.

They should be sterilized after every use.

3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

All critical and semi-critical dental instruments that are heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (eg. Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

1. a dedicated sink for cleaning and rinsing instruments
2. hand washing facilities
3. specific bins for waste disposal (biohazards and non-hazardous waste)
4. smooth bench top surfaces without cracks or crevices
5. adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

1. Fully disassemble instruments.
2. Immerse instruments in a sink filled with hot water and disinfectant.
3. Scrub instruments with a sterilized brush, while holding instruments under water.
4. Rinse instruments in hot water.
5. Allow instruments to dry, or dry with a lint free cloth.
6. When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being recontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Autoclave and Packaged instruments

Thermosealer& Steripacks

Sterilization of Hand Piece and Bur

Handpieces as well as various burs used in everyday clinical practice are sterilized before use. Also, handpieces are cleaned using brush followed by enclosing in a special pouch airtightly sealed either with a self-adhesive tape or a thermosealer for autoclaving. Burs are sterilized in glass bead sterilizer or using spirit solution.

Handpiece & Glass Bead Sterilizer

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed colour
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects, and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items. If items are correctly processed and stored, they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection area.

Syringe Needle Destroyer

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

1. Blood
2. Dried blood
3. Saliva
4. Non-intact skin
5. Mucous membranes

The precautions staff must take when dealing with these substances include the following:
Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in a biohazard waste container in a biohazard waste container.
Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick and Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.

If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

Department of Pedodontics

Infection control practices in the department

- Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
- Sterilized instruments are stored with the lids on the trays.
- Use of disposable gloves, face masks & head caps for personnel protection.
- Use of disposable head caps & disposable drapes for patients.
- Eye protection by using proper eye wears during the procedures.
- Use of disposable tin foils to cover the exposed areas of the chair.
- Working condition of the dental chairs is checked on daily basis.
- Dental Chairs are cleaned & disinfected on daily basis.
- Suction tips changed for each patient.
- Basic hand scrub technique, gloving procedure followed.
- All the used instruments are thoroughly cleaned, dried & packed for sterilization.
- At the end of the day all the suction lines are flushed with water & the chairs are raised.
- Drains are checked for maintenance & cleaned on regular basis.
- Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Disposable Syringe and Suction Tips

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PG Clinic

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair

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PG Clinic

Autoclave

Handpiece & Glass Bead Sterilizer

Formalin Tray

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UG Clinic

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Biomedical Waste Segregation Protocol in The Department

- Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
- Measures are taken to segregate & recheck the waste before disposing.
- All the support staff is provided with the utility gloves for the same.
- Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
- Alginate & dental waste are segregated separately & disposed.

PG Clinic

UG Clinic

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Department of Oral Pathology
Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections
Infection control procedures are required for the following in the department:

- Hematology laboratory – Deals with handling of blood and fluid samples
- Histopathology and exfoliative cytology – Deal with handling of tissue and aspirate specimens
- Patient examination

1. Hematology:

This section of the department deals with the screening of the patients by blood tests advised to the patients by the doctors of the operating departments. The laboratory tests are done as a part of routine investigations for any dental procedure to check for any variation in the normal constituents of blood, serum and to check for any suspected infectious disease. The laboratory investigations begin with the collection of a clinical specimen for examination. Proper collection of an appropriate clinical specimen is the first step in obtaining an accurate laboratory diagnosis.2 steps:

2. **Collection of the specimen under asepsis:**
    1. Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
    2. Strict aseptic techniques are followed throughout the procedure.
    3. Hands of the doctor/ technician are washed before and after the collection.

    A. Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
    B. Mouth masks and sterile gloves are worn by the personnel.
    C. The sample collected is transferred to an appropriate labelled sterile container for further investigations.
    D. Disposable needles are used.
    E. The used needle is burnt by the needle burner and the syringe is disposed in the red colour coded bag.
    F. Sterile autoclaved cotton swabs are used for every patient.
    G. Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical sterilant.
3. **Storage of the sample:**
    The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

4. Histopathology:

The biopsy and aspirate specimen are received by the department in Labelle formalin bottles and syringes respectively. The specimen received are inspected by the personal wearing mouth masks and gloves. Formalin and the tissue processing fluids are changed periodically.

- **Patient examination:**

Patient examination is done wearing aprons, disposable gloves, mouth masks.
Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used. These instruments are sealed in plastic autoclavable pouches and then autoclaved. The pouches are opened just prior to patient examination.
The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation. Hands are washed using water and soap followed by an antimicrobial solution After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter. In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon. Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:

- Special rollers and plasticized paper sheets,
- Cellulose film,
- Aluminum foil,
- Self-adhesive films,
- Nylon cases,
- Latex and vinyl cases. These protective coverings are replaced after every contact and every patient.

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Department of Public Health Dentistry
SOP of Infection Control

Terminologies: -

- Alcohol based hand subject: - alcohol containing preparation designed for reducing number of viable microorganisms on hands.
- Anti- microbial soaps- detergent containing antimicrobial agent, germicide used on skin or living tissue for inhibiting or destroying microorganisms.
- Asepsis: - free of pathogenic microorganisms, method to protect against infection.
- De-contamination: - process renders equipment or surfaces safe to handle.
- Disinfection: - destruction of pathogens by thermal or chemical means. Less lethal than sterilization, as it does not kill spores. Degree of safety is less.
- Germicide: - it destroys pathogenic organisms. It can be used to inactivate micro-organisms on tissue surfaces.
- Hand hygiene: - technique of scrubbing hands with anti-microbial hand washes for surgical hand anti-sepsis.

Standard precaution taken to reduce risk of cross transmission of pathogens in healthcare settings.

Sterile means free from all micro-organisms. OSHA prescribes employer duty to provide safe and healthy workplace for everyone on premises. Policy accountability and responsibility. Policy framework for infection control. Comprehensive program for information and training. Eliminating risk factors, modifying, or changing procedures.

Standard Precautions: Blood and blood products Body substances Non- intact skin and mucous membrane.

Safe work practices include hand hygiene.

Appropriate use of gloves Protective glasses and mouth mask. Impenetrable (water proof) aprons. Proper scrubbing using appropriate hands wash technique beforehand after patient care. Hand scrubbing for 30-60 seconds for non-surgical and3-5 minutes for surgical.

Gloving Technique: -

1. Gloves should be worn touching the internal surface by the ungloved hand and external surface by gloved.
2. If gloves are compromised at any step during treatment, it should be removed, scrubbing is done again and fresh pair is worn.
3. It is better to use double gloves technique.
4. All the hand accessories like rings, watches and wrist accessories should be removed during patient contact.

5. Fingernails should be kept maximum to 0.5 cm and no nail accessories.
6. Patient and visitors should also follow some amount of hand hygiene.
7. Disposable gloves should not be re-used.

Mask and Eyewear: -

1. Mask should be water- resistant and should be worn according to manufacturer instructions.
2. Should not be touched by hands while worn.
3. Both mouth and nose should be covered.
4. If the mask is moist, barriers is breached, mask is no longer to be used.
5. Mask must be touched only by the loops.
6.
7. Protective glass or face mask should also be water resistant to prevent aerosol, water, blood and body secretions splattering.
8. Eyewear must be clear, anti-fog, scratch-free, closed fitting and shielded.
9. Should be properly cleaned and stored dry.

Additional Precautions: -

Airborne, droplet and contact precautions should be taken to prevent cross- contamination.

Extra care should be taken for immune-compromised, children, geriatrics patient.

Fitting test should be done for eyewear, mask and apron.

Needle Stick Injury: -

Needle stick injury or exposure to blood and blood products, body fluids should be reported in accordance with health

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2017-2018

Department of Oral Medicine and Radiology
Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections
Infection control procedures are required for the following in the department:

I. Patient examination
II. Biopsy
III. Radiology

- **Patient examination:**

1. Patient examination is done wearing aprons, disposable gloves, mouth masks.
2. Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
3. These instruments are sealed in plastic autoclavable pouches and then autoclaved.
4. The pouches are opened just prior to patient examination.
5. The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
6. Hands are washed using water and soap followed by an antimicrobial solution
7. After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
8. In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
9. Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
    - Aluminum foil
    - Transparent cling wrap
10. These protective coverings are replaced after every contact and every patient.

- **Biopsy;**

A. Collection of the specimen under asepsis:

1. Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
2. Strict aseptic techniques are followed throughout the procedure.
3. Hands of the doctor/ technician are washed before and after the collection.
4. Disposable syringes are used for every patient and the seal of the syringe is opened in

front of the patient.

5. Mouth masks and sterile gloves are worn by the personnel.
6. The sample collected is transferred to an appropriate labelled sterile container for further investigations.
7. Disposable needles are used.
8. The used needle is burnt by the needle burner and the syringe is disposed in the red colour coded bag.
9. Sterile autoclaved cotton swabs are used for every patient.
10. Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilizations process of cleaning and immersion into chemical sterilant.

A. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

a. Radiology

1. Patient examination is done using gloves and mouth mask.
2. Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
    - Aluminum foil
    - transparent cling wrap

   These protective coverings are replaced after every contact and every patient.
3. Processing solutions, developer, water, and fixer are kept in different containers to prevent the contamination of solutions
4. During processing of x ray films, the lead foils and black paper are put into separate bins.

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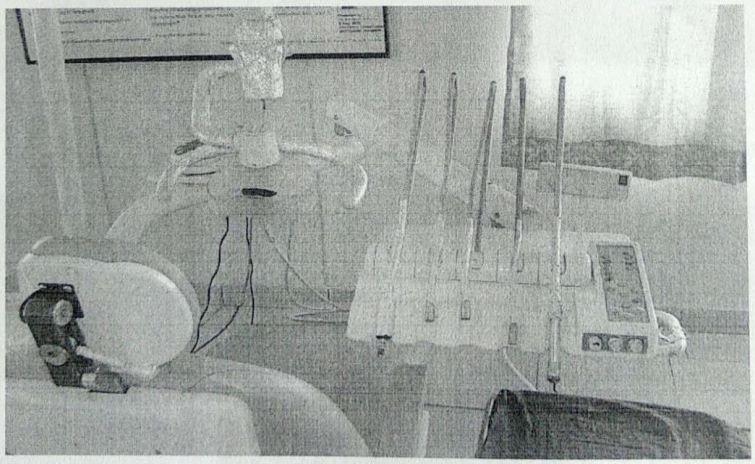
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

2017-2018

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair



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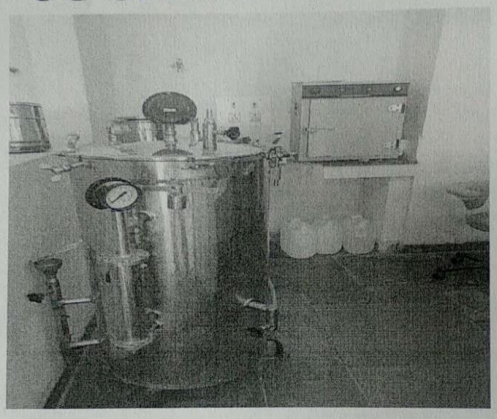
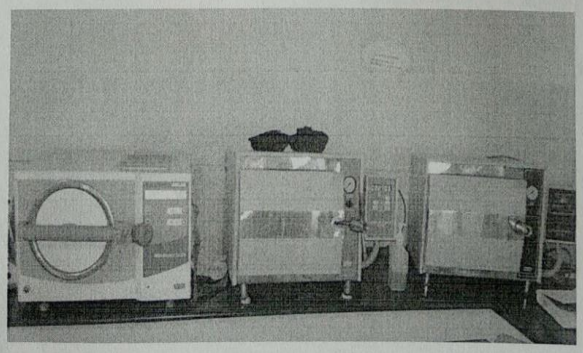
UG CLINIC



PG CLINIC



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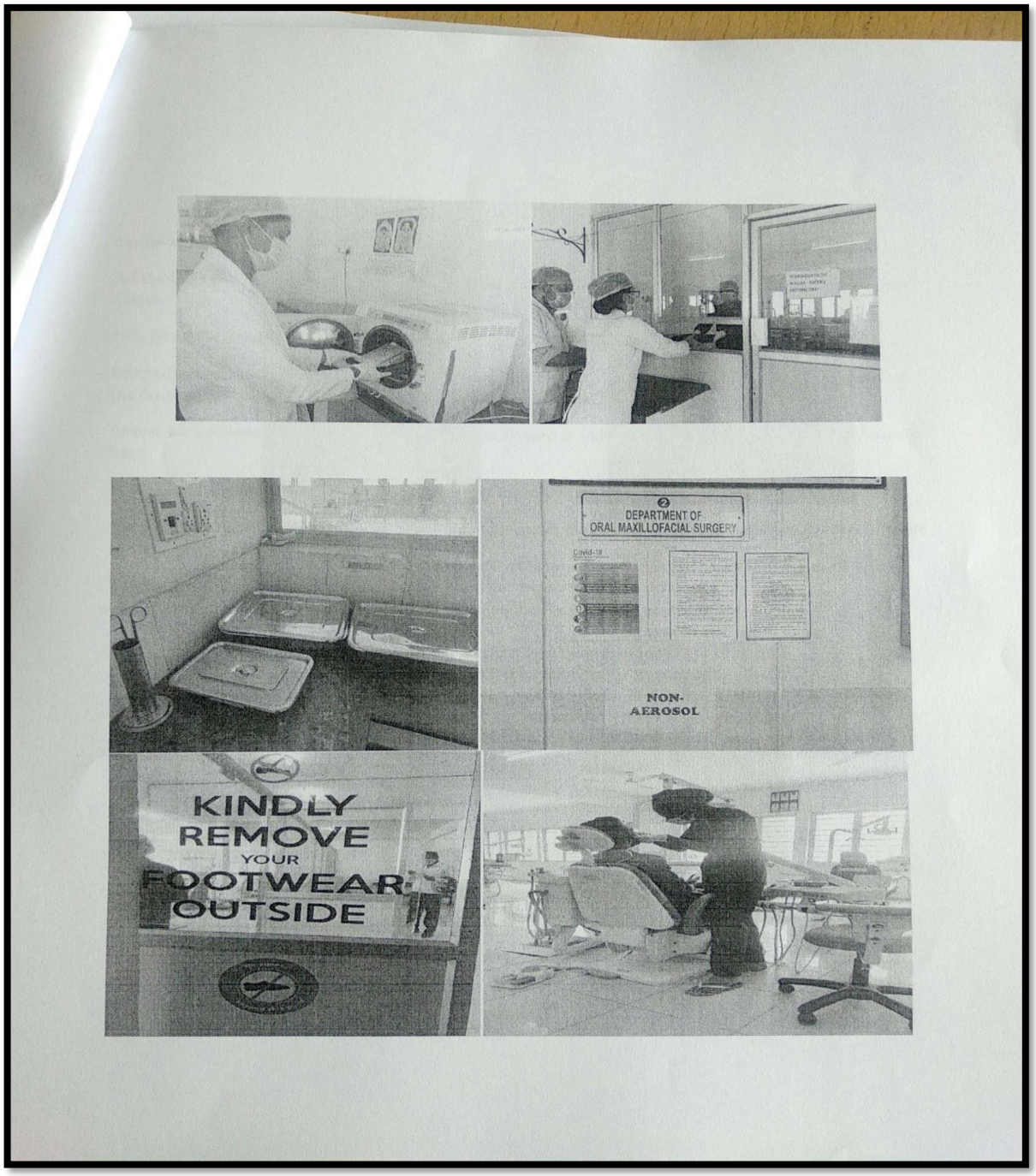

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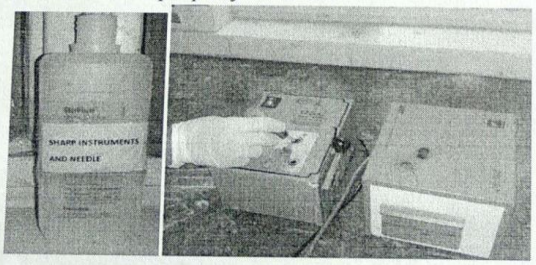
Biomedical Waste Segregation Protocol In The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.



SYRINGE NEEDLE DESTROYER

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Training of UGs & PGs

All the UGs and PGsare well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings.

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

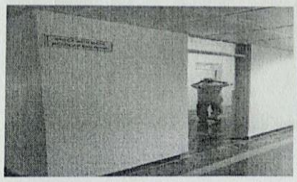
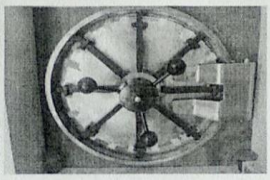
PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

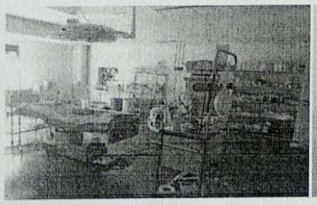
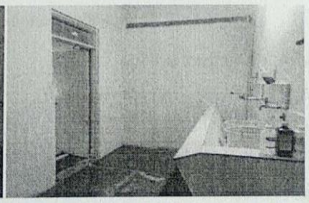
Support staff is also trained and on weekly basis the measures are reinforced.

- **Layout of the OT**
- Outer Zone
- (Main Access corridor, transfer area, supervisor office or control station, documentation area, preoperative patient holding area(s), the changing facilities).

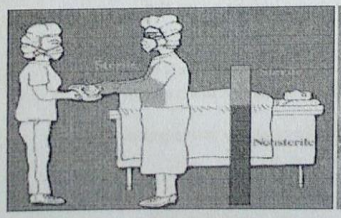
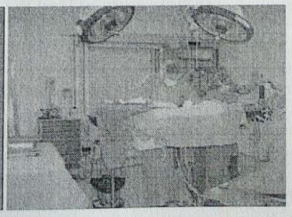
- Clean/ Semi restricted zone
- (Clean corridor, sterile and equipment sterile store, anesthesia and recovery room, rest areas)

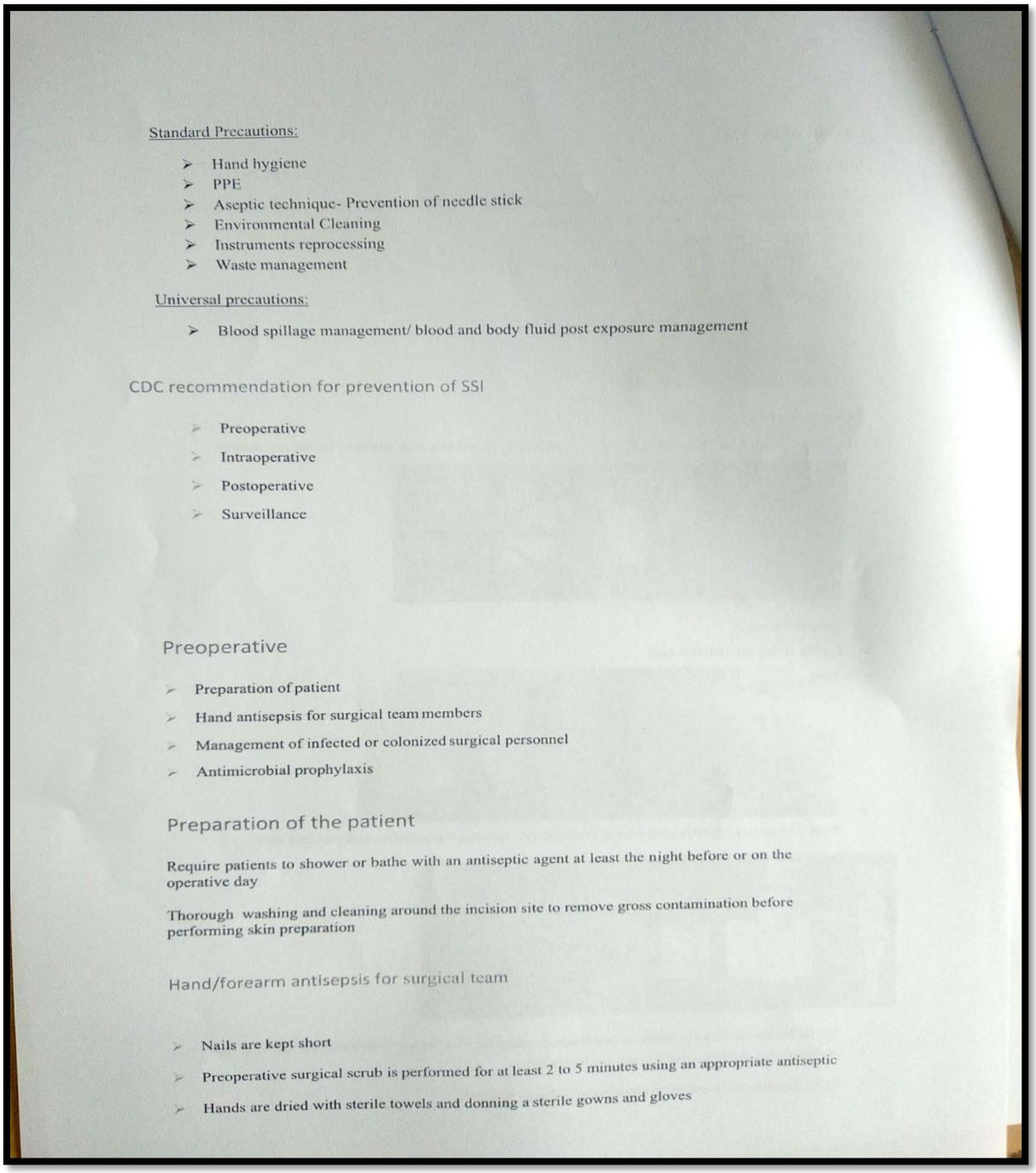
- Restricted zone
- (scrub sinks, operation room)

- Staff change into theatre clothes and shoes before entering the clean/ semi restricted area

- Sterile personnel is not allowed to reach across unsterile areas or to touch unsterile items, or vice versa
- Standard and universal precautions are followed



Standard Precautions:

- Hand hygiene
- PPE
- Aseptic technique- Prevention of needle stick
- Environmental Cleaning
- Instruments reprocessing
- Waste management

Universal precautions:

- Blood spillage management/ blood and body fluid post exposure management

CDC recommendation for prevention of SSI

- Preoperative
- Intraoperative
- Postoperative
- Surveillance

Preoperative

- Preparation of patient
- Hand antisepsis for surgical team members
- Management of infected or colonized surgical personnel
- Antimicrobial prophylaxis

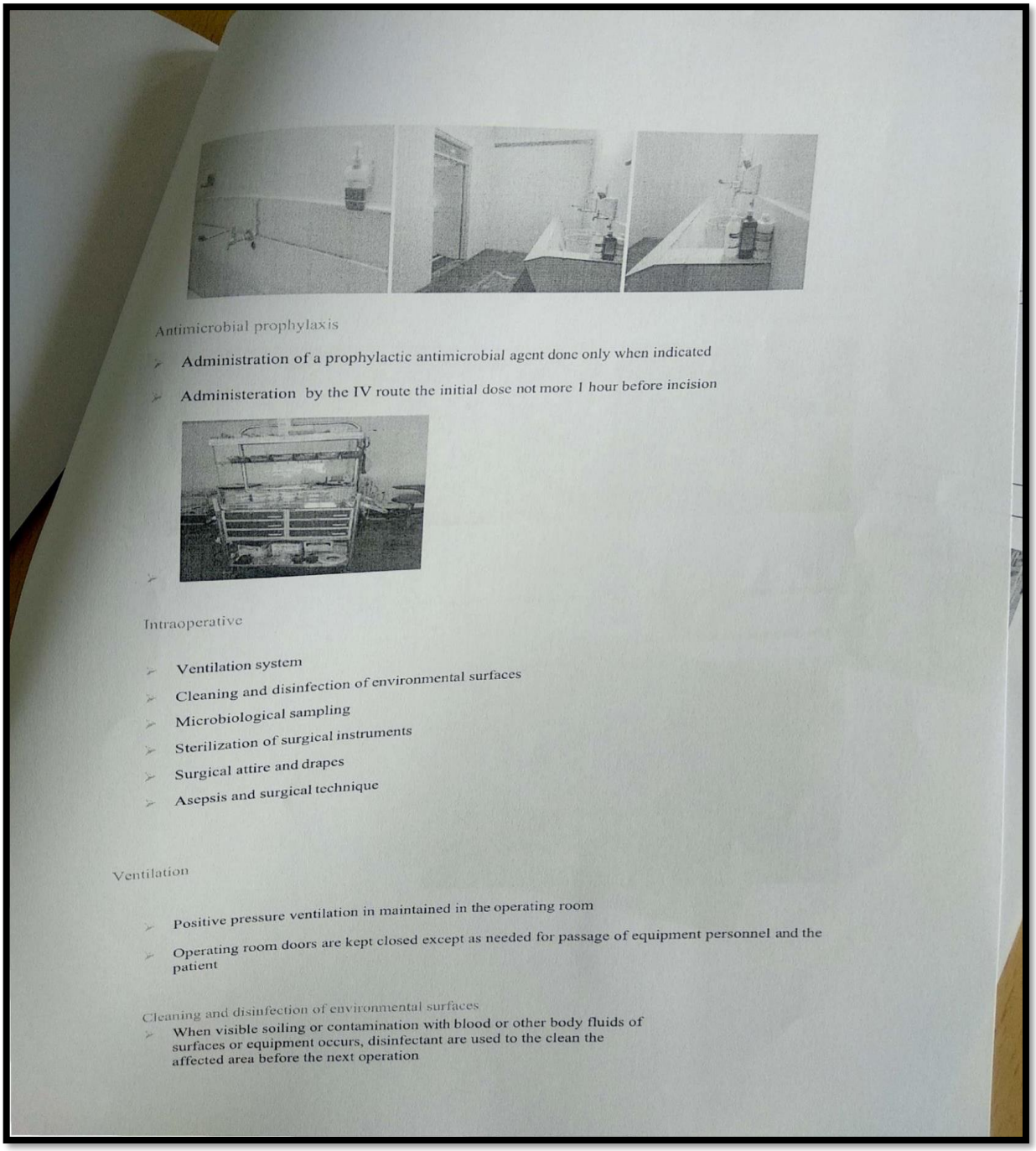
Preparation of the patient

Require patients to shower or bathe with an antiseptic agent at least the night before or on the operative day

Thorough washing and cleaning around the incision site to remove gross contamination before performing skin preparation

Hand/forearm antisepsis for surgical team

- Nails are kept short
- Preoperative surgical scrub is performed for at least 2 to 5 minutes using an appropriate antiseptic
- Hands are dried with sterile towels and donning a sterile gowns and gloves



Antimicrobial prophylaxis

- Administration of a prophylactic antimicrobial agent done only when indicated
- Administeration by the IV route the initial dose not more 1 hour before incision

Intraoperative

- Ventilation system
- Cleaning and disinfection of environmental surfaces
- Microbiological sampling
- Sterilization of surgical instruments
- Surgical attire and drapes
- Asepsis and surgical technique

Ventilation

- Positive pressure ventilation in maintained in the operating room
- Operating room doors are kept closed except as needed for passage of equipment personnel and the patient

Cleaning and disinfection of environmental surfaces

- When visible soiling or contamination with blood or other body fluids of surfaces or equipment occurs, disinfectant are used to the clean the affected area before the next operation

Surgical attire and drapes

Surgical mask that fully covers the mouth and nose

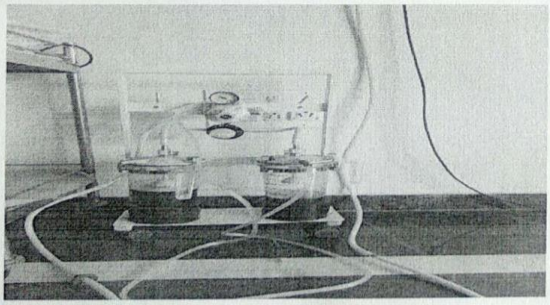
Cap or hood to fully cover hair on head and face

Sterile gloves

Impermeable sterile gowns

Change of scrub suits when visibly soiled or contaminated with blood or body fluids

When drainage is used , closed suction drain is used.



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Department of Conservative dentistry and Endodontics
Annual Report of 2017-18

Sterilization and cross-infection control in the dental practice
Educational aims

1. The overall aim of this module is to inform and educate the dental professionals on the basic principles of cross-contamination barriers and infection control measures in the dental health care facility.

2. Sterilization and cross-infection control are a core compulsory or recommended dental CPD (continuing professional development) topic in most European countries.

1. Taking protection measures prior to beginning work

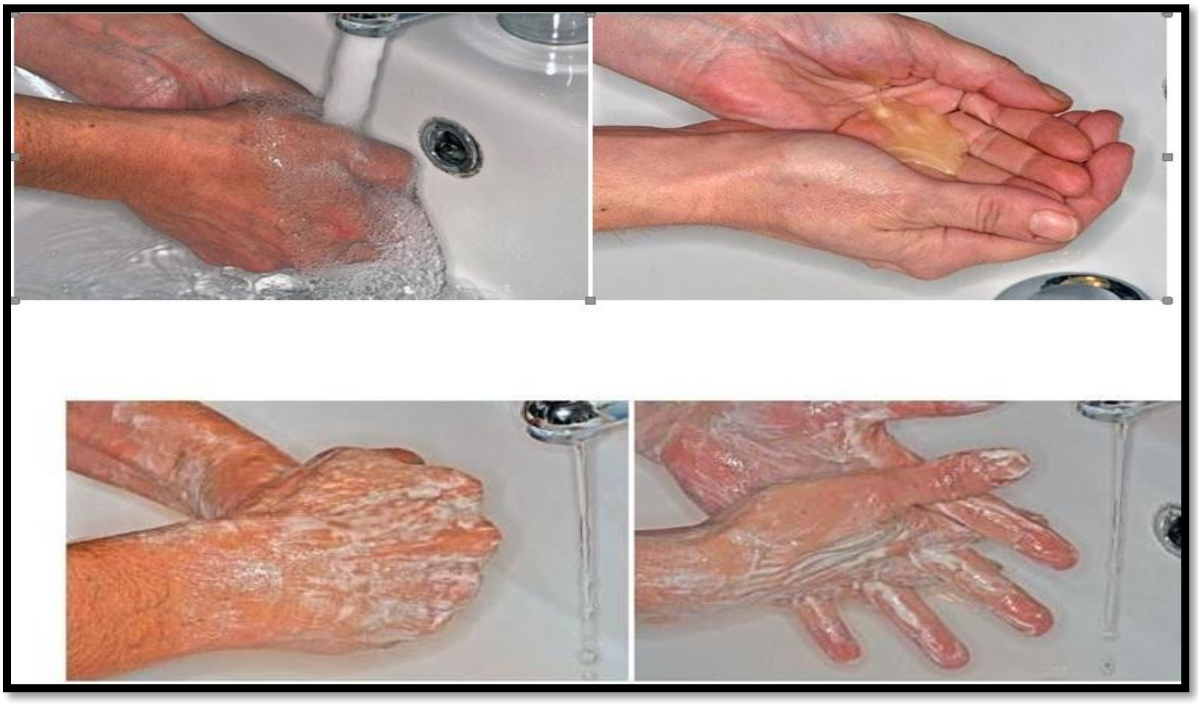
The dental staff must do the following before performing any dental work:

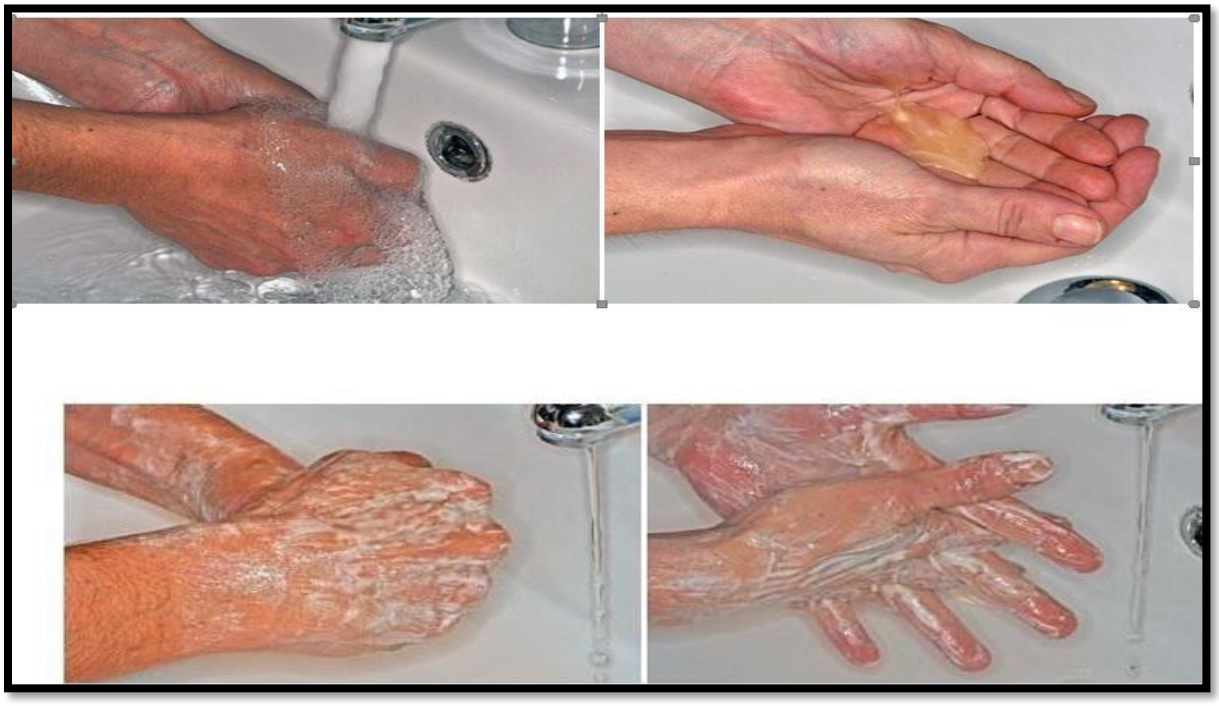
1. Get vaccinated against hepatitis B – It is an imperative.
2. Take a detailed medical history. This is necessary to find out if the patient has been through some kind of active contamination or other diseases indicating immunosuppression or other systemic illnesses. Independently of the information you have collected from your patient, you
3. must consider him/her potentially contaminated and take the precautions advised for all patients.
4. Make sure all the instruments are sterilized. Any instruments used to penetrate soft tissues or bones, such as tweezers, chisels, cleaning scoops, scrapers, must be sterilized after use.
5. Protect working surfaces.
6. Make sure they have at their disposal all the disinfectant fluids and waste containers necessary.

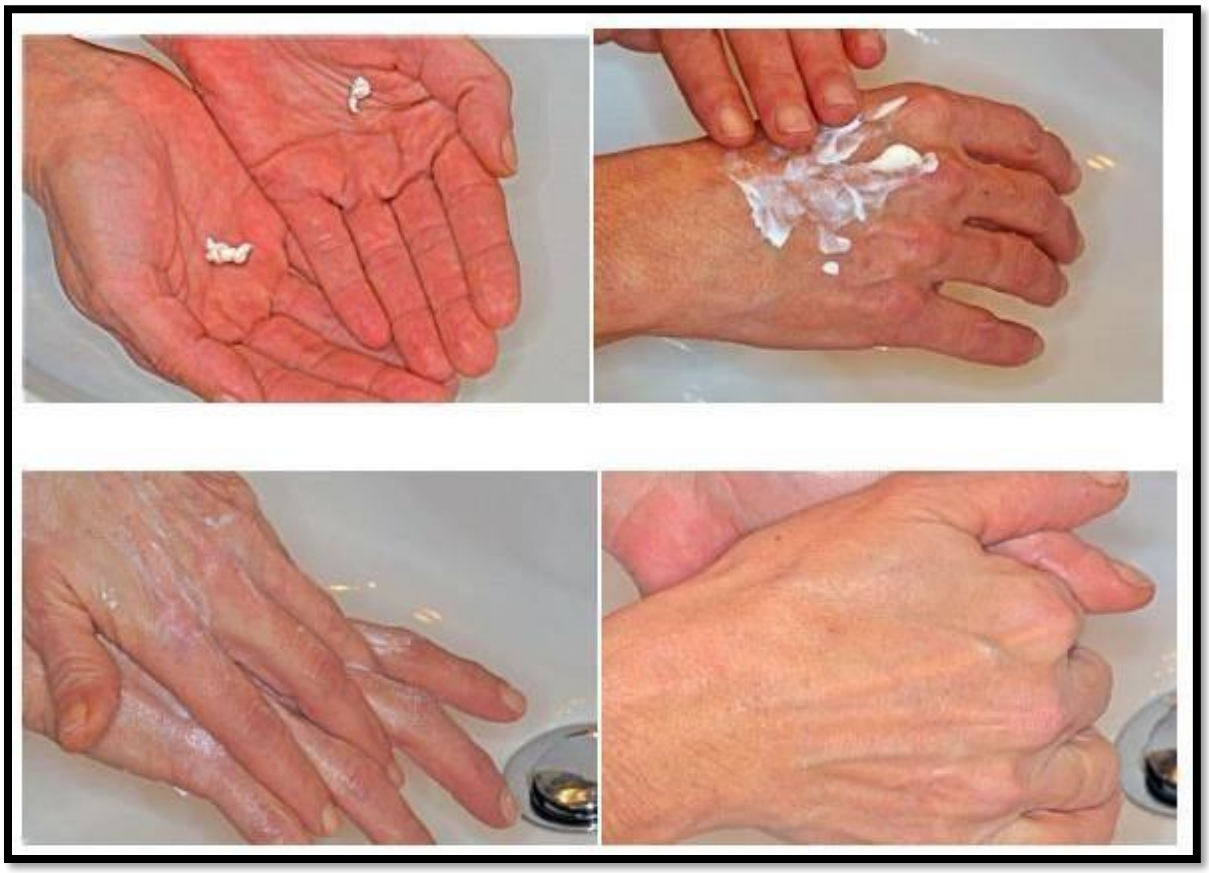
A. Hand washing

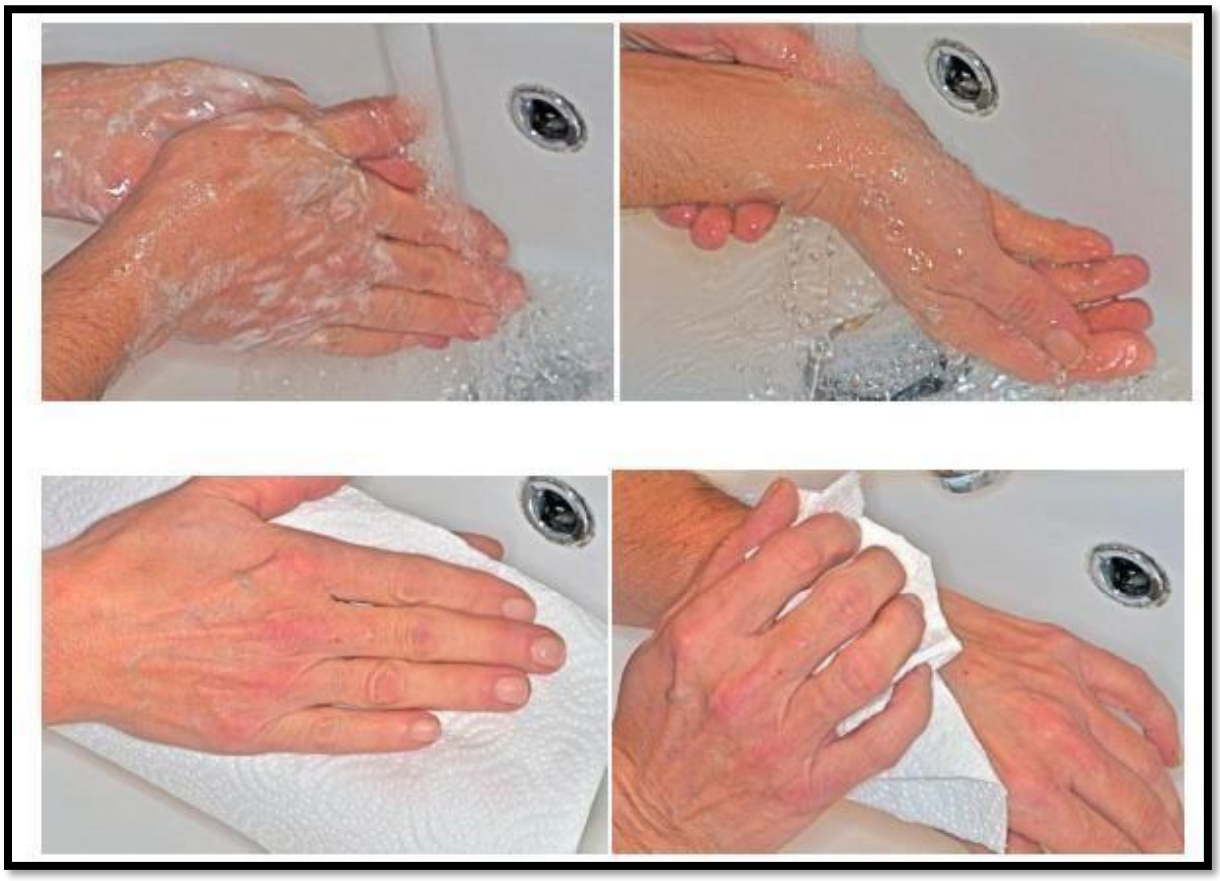
Hand washing is the cornerstone of the 'patient – doctor – auxiliary
staff' protection circle aiming at the prevention of cross infection.

1. The dental personnel are obliged to wash their hands before and after coming in contact with the
2. patient (or the instruments used) independently of wearing gloves or not during the operation.
3. Hand washing must be performed meticulously so that every hand surface is adequately cleaned.
4. Special attention must be paid to hand surfaces usually neglected when washed.









The pictures illustrate the areas requiring special attention so that hands are properly cleaned.


Various methods for drying hands

5. After removing the gloves hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
6. Although frequent hand washing is a necessity, sometimes problems may appear such as dry skin and dermatitis. To avoid such problems special moisturizing lotions are recommended. These lotions, moisturizing creams etc. should be applied at the end of the day as they may cause the gloves to develop pinholes, due to their chemical composition, in which case no protection is offered by the gloves.
7. In most kinds of dental work, water and soap followed by an antimicrobial solution are sufficient.
8. In case of an injury, scratch or exudative injury, the person should postpone treating patients until the wound is healed. If this is not possible, the use of a double pair of suitable and tolerable gloves is recommended. As regards to antimicrobial solutions, although their use is not required, solutions with prolonged action are preferable. Their contribution to hand antisepsis is significant as pinholes may pre-exist or develop when the gloves are in use allowing the penetration of oral fluids and blood.
9. When an antimicrobial solution remains effective for a long time after its application, adequate hand protection from the development of germs on the skin surface below the gloves is provided.
10. Using antimicrobial solutions without prior meticulous hand washing is a defective and

inefficient procedure.

11. Alcohol antiseptic solutions or gels are effective in destroying the germs on the hand surface,
12. provided that their use is preceded by adequate cleaning.

13. Hand washing before and after patient contact is absolutely necessary
14. Antimicrobial solutions contribute to hand antisepsis
15. Solutions are not used are the only antiseptic means

- **Gloves**

1. The medical and auxiliary staff is obliged to always wear latex (or vinyl or nitrile) gloves during any dental work which involves contact with blood or saliva containing blood or mucus.
2. These gloves should not necessarily be sterilized unless an operation is going to take place, particularly on patients with HIV infection.
3. Hands must be meticulously washed before wearing gloves.
4. The same procedure must be followed after removing gloves.
5. Gloves are used during any dental work, for a single patient only and, afterwards, they are removed and discarded.
6. Washing the gloves and performing any dental work to another patient is strictly forbidden.
7. In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves
8. are used for the protection of the surgeon.
9. If during any dental work it is necessary to use an extra device or material, gloves should be covered with an extra pair of nylon gloves so that contamination of those surfaces is prevented.

   If there are injuries, scratches or exudative injuries and the operation cannot be avoided, double gloving is recommended for extra protection.

   Hand washing is necessary before wearing gloves. Gloves are discarded after each patient
   Double gloves are recommended for patients with HIV, HBV, HCV infection

- **Mask and glasses**

1. During the examination or any dental work, an appropriate mask and eye protectors are necessary.
2. These masks must follow certain specifications regarding the size, the thickness and the material, excluding those designed for structural or technical occupations due to intense particle penetration ability.
3. Masks must be able to withhold at least 95% of the microorganisms.
4. In case the dental patient suffers from an airborne disease (tuberculosis), the mask

must be enhanced and fully adaptable to the wearer's face. Also, it must be able to withhold particles and microorganisms with a diameter up to 1µm, at a percentage of 95%.

5. If the mask gets wet it must be immediately discarded and replaced.


Mask, glasses and head cover

6. Eye protectors may include various types of glasses or plastic masks or shields made of transparent materials.
7. The side frame should be wide enough to cover adequately the eye.
8. These protectors must be rinsed with abundant water and get disinfected in case they get stained in between the patients.

Masks and eye protectors enhance dentist and patient safety

1. Dental clothing & Surface coverings

1. Blouses should cover a big part of the dentist's body and hands.
2. They must be changed on a daily basis and definitely as soon as they get stained.
3. If the operation is expected to involve a large amount of bleeding or the patient is likely to be
4. seropositive, it is highly recommended that specially designed single-use clothing be used.
5. Reusable clothing must be washed in a machine washer at an appropriate

temperature, using a

6. detergent and always separately from domestic and non-medical clothing.

Surface coverings

1. Any surfaces, devices, electric switches, door handles, drawer knobs, taps, handles and device tubes not able to be sterilized or disinfected, should be meticulously covered with appropriate materials, such as:
2. special rollers and plasticized paper sheets,
3. cellulose film,
4. aluminum foil,
5. nylon cases,
6. latex and vinyl cases.

1. **These protective coverings should be replaced after every contact and every patient**
   1. Dental blouses are changed daily and washed separately
   2. Surfaces not being able to be sterilized are covered with appropriate material


DentCPD
© 2012
Unit surfaces cover


DentCPD
© 2012
Headrest cover


DentCPD
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Handpiece cover
DentCPD

1. Cleaning and Sterilization of dental instruments

1. Any dental hand instrument used during a dental incident must undergo a cleaning and sterilization procedure.
2. Step 1. Right after the completion of the incident (examination, restoration, surgery) the instruments must be discarded in a special plastic container filled with an appropriate
   disinfectant solution or enzyme solution with a proteolytic action.
3. Step 2. After leaving the instruments within the solution for as long as the manufacturer recommends, they are transferred to the machine washer where they undergo thorough mechanical cleaning using the appropriate detergents.
   If dental materials (cements, pastes, oxides, etc) have been fixed on the instruments, the latter must be cleaned with ultrasonic devices and appropriate solutions. Manual cleaning is not recommended due to the high risk involved in causing injuries and because it is inferior to mechanical cleaning in terms of quality.
4. Step 3. After the instruments have been cleaned, they are packaged in special bags or perforated cassettes, and they are taken to the autoclaves to be sterilized.
5. The autoclave is programmed to operate depending on the packaging of the instruments and according to the default parameters set by the manufacturer, e.g. 134o C for 3 minutes or 121 C for 20 minutes or 121oC for 13 minutes, etc. it should be noted that the above times do not include warm up or air removal.
6. The completion of the cycle and the sterilization process is confirmed through electronic instrument indications as well as changes in the color or shape of the indicators.

Autoclaves

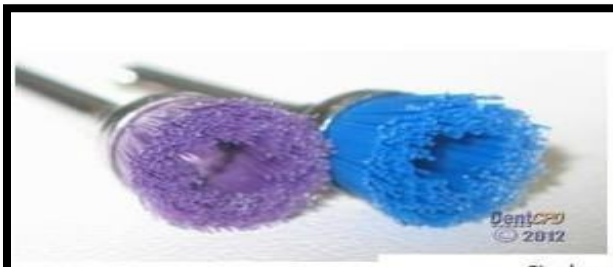
6a. Single use instruments

These instruments are divided into two categories:

1. Obligatory single use instruments. They can only be used once and be discarded afterwards.
   Anesthetic needles, Scalpel blades, Suture needles, Saliva ejectors, Dental cups, Surgical suction nozzles, Pulp instruments, Wedges, Rubber cups, Artificial walls, Fluoride gel trays.
2. Optionally single use instruments
   Certain mirrors, Artificial wall retainers, Napkin holders, Various types of burrs, impression trays, Material mixing pads, Low speed handpieces for polishing after cleaning, High speed handpieces for cavity and stump formation in sero positive patients.


Single use disposable needles for etching


DentCPD
2012
Single use wood wedges



Single use brushes

Disposable single use examining set

6b. Use and care of sharp instruments and needles

1. Sharp instruments, having been in contact with blood and saliva, should be used with special care so that injuries are prevented.
2. Place any surgical blade and needle within a solid, hard plastic container for sharp instruments. Do not cap, bend or destroy the needles before you discard them.
3. Do not overfill the plastic container, close tightly and, finally, discard.
4. Used needles must not be recapped with both hands or any other technique and care must be taken so that the needle does not point towards the body.
5. The 'one hand' technique to recap the needle or a mechanical means designed to hold the cap should always be used. Recently, the use of needle destroyers which melt the metallic edge of the instrument has been suggested.
6. Dental instruments must undergo a cleaning and sterilization procedure
7. Sharp instruments and needles must be managed with special care

1. Sterilization of handpieces and burrs

1. Low and high-speed handpieces as well as various burrs used in everyday clinical practice should be sterilized before use so that all conditions ensuring harmless dental care provided to all population groups are met.
2. Sterilizing the handpieces requires special attention and suitable preparation so that any damages to their interior are avoided and, consequently, defective operation and financial burden are prevented.
3. After the completion of any dental work, the external surfaces of the handpiece have come in contact with saliva, blood, dental tissue debris and residues of dental materials. However, it is likely that the internal tubes of the handpieces are infected due to various hydrodynamic phenomena taking place on their tip:
4. *when cavities are formed sub gingivally,*
5. *opening a coronal cavity during endodontic therapy,*
6. *forming stumps,*
7. *polishing gingival restorations,*
8. *polishing the cervical areas of the tooth after a periodontal treatment.*
9. Several ways to control the spread of contaminating matter between two patients have been recommended.

The most common methods of asepsis control are the following:

1. Protection from any contact with the fluid's existent in the oral environment
2. Chemical disinfection
3. Thermal sterilization
4. Disinfection via irrigation
5. Single use handpieces

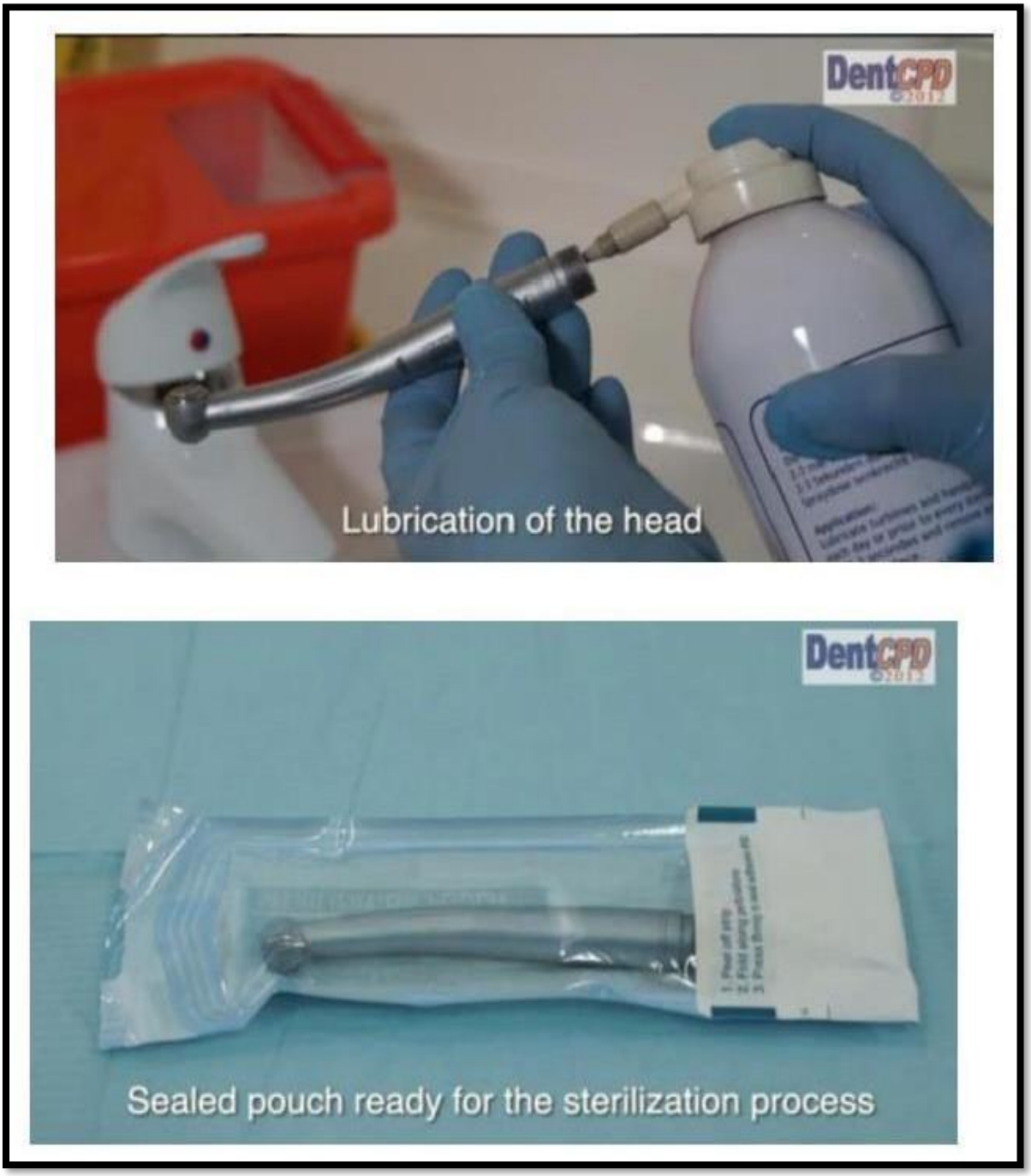
6. **Among the above techniques, moist heat using saturated water vapors (autoclave) offers the best results as regards the sterilization of handpieces in a very short time.**

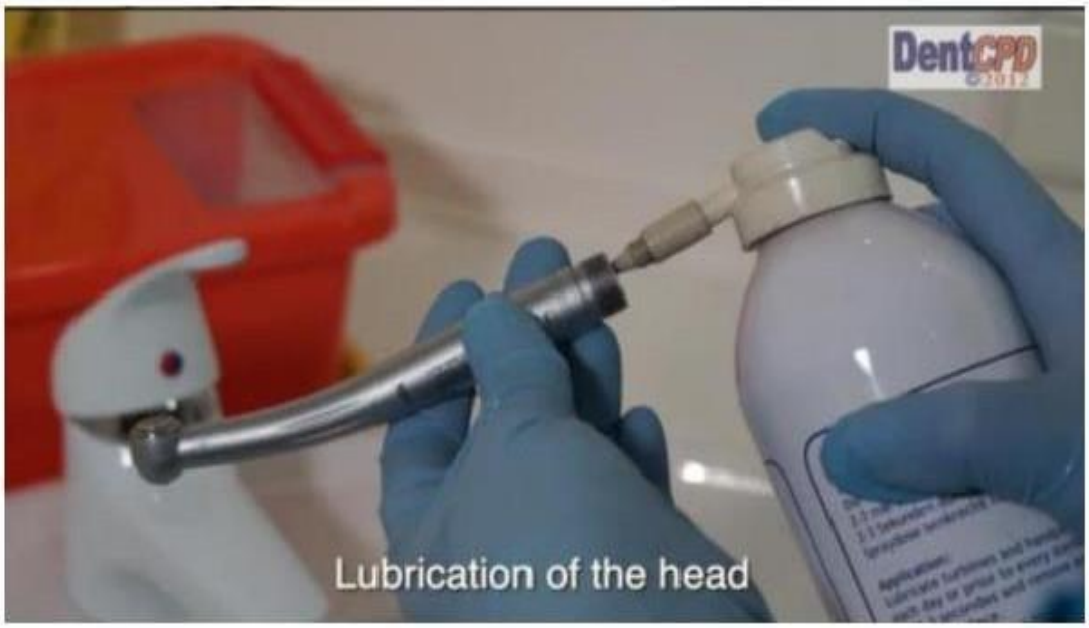
7a. Sterilization of handpieces

1. **Step 1.** After the end of the dental work the handpiece must operate for 5-10 seconds over the wash basin or a similar container while ejecting water and air.
2. **Step 2.** Then, after being detached from the tubes connecting it with the unit it must be meticulously washed and brushed under running water.
3. **Step 3.** Finally, it must be dried with an absorbent paper.
4. **Step 4.** After external cleaning, the handpiece is reconnected to the tubes and operates for 3-5 seconds only with air so that any water residues are removed from the interior of the tubes and the impellers.
5. **Step 5.** Then, the handpiece is lubricated with the lubricant recommended by the manufacturer and operates again for 10-20 seconds only with air so that the lubricant is properly distributed throughout the sensitive areas of the head.
6. **Step 6.** After the end of this procedure, the handpiece along with the burr extractor are enclosed in a special pouch airtightly sealed either with a self-adhesive tape or a thermosealer.
7. **Step 7.** The handpiece is placed in the autoclave where care should be taken for the pouches not to be clambered so that the air passes unhampered.
8. The pouch with the handpiece must also include a sterilizations indicator which could be
9. either a special tape or a vial with carbon grains.
10. This is not necessary if the pouch includes a system controlling the length of stay and the vapour temperature within the autoclave.
11. Depending on the manufacturer's indications, the autoclave is programmed to operate at 121oC for 20 minutes or at 127oC for 13 minutes or at 134oC for 3 minutes.
12. After these cycles have finished and after the indicators have confirmed that the conditions worked properly, the handpieces and the extractors are sterilized and are ready to use.
13. Step 8. Right before using them, some handpieces must be lubricated again with an appropriate lubricant which, this time, must be either sterilized or new and generally different from the one used to lubricate the septic handpiece before being placed in the autoclave.


DentCPD
Dentin debris and blood contaminated handpiece


DentCPD
Drying with absorbent paper


DentCPD
Lubrication of the head
DentCPD
Sealed pouch ready for the sterilization process


DentCPD
Lubrication of the head


DentCPD
Sealed pouch ready for the sterilization process

7b. Sterilization of burrs

- Burrs should be sterilized independently of their type or mouth area they have worked in.
- Step 1. A necessary step prior to sterilizing a burr is meticulous cleaning from tooth tissue debris, residues of dental materials, blood clots or a paste-like mixture of all the above with saliva. The most widely accepted cleaning method for burrs and other micro instruments are ultrasonic devices (baths) using suitable fluids and with the addition of enzymes with proteolytic action. In these baths using suitable fluids at a temperature of about 60°C, burs vibrate at a frequency of 60-80 kHz for at least 15 minutes. After the end of this procedure, burs are free from foreign matter as well as oxides very often being deposited on their stem.
- **Step 2.** After taken out of the ultrasonic bath, burrs must be dried using an absorbent paper and hot air.
- **Step 3.** They must be placed in an appropriate device for sterilization, depending on the material they are made of: burrs made of common carbon steel should not be placed in the autoclave because they are oxidized. on the contrary, burrs made of stainless steel or tungsten carbide are not affected.

  dry heat ovens, ovens for chemical vapor Sterilization and ethylene oxide ovens are suitable for sterilizing all types of burrs. However, dry heat ovens, due to prolonged heating involved, may seriously damage the cutting edge of the burrs. using various aldehydes and phenols for at least 30 minutes offers adequate sterilization while after 10 hours chemical sterilization is achieved. Nevertheless, they may damage the integrity of rotating cutting instruments.

New burrs (left) and damaged burrs after repeated usage and sterilization (right)

- Note: It is a fact that no technique can fully remove organic debris and, therefore, result in successful sterilization. For these reasons, burrs intended for single patient use and discarded afterwards have recently been introduced.

Preparing impressions for the Lab

- After removing the tray from the oral cavity, all impressions must be cleaned and sterilized in a certain way and using suitable solutions.
- More specifically:

- **Step 1.** After making the impression the tray must be transferred to the wash basin where the flow of tap water will remove any visible organic contaminants (blood, saliva etc.).
- **Step 2.** Afterwards, the tray is sprayed with or immersed in a suitable disinfectant solution depending on the properties of the material each impression is made of.
- **Step 3**. Impressions must be packaged in a suitable plastic box or a pet bag so that they are safely sent to the dental lab.

1. **Taking protection measures after ending work**
    1. Before you clean the working surfaces, **wear thick work gloves**, so that your hands are covered and are not exposed to blood and other biological fluids left on surfaces or instruments.
    2. **Remove any protective cover.** If the cover has been stained with blood, place it in a red bag.
    3. If the blood is completely dry or the cover has not been contaminated, place it in a regular bag.
    4. Use absorbent paper in case blood has penetrated the protective cover and put the absorbent paper in the red bag. Use an appropriate disinfectant.
    5. **Clean and sterilize all the instruments** and disinfect the working surfaces with an appropriate disinfectant solution (phenolic, alcoholic, quaternary ammonium compounds).
    6. Sterilize in the autoclave or dry heat oven any instruments having been in close contact with tissues.
    7. A special tape indicating that they have been sterilized must be attached on the instruments so that one is sure that sterilization has been carried out. This procedure is performed by specialized personnel.
    8. All handpieces must be sterilized in between patients.
    9. Follow the instructions recommended by the manufacturers. Chemical sterilization is not safe. Ultrasonic handpieces, scrapers and air syringes must be washed and sterilized. This procedure is performed by specialized personnel.
    10. Place and remove any used waste. All plastic bags must be collected on a daily basis to prevent the spread of infectious diseases.
    11. Clean and disinfect the impressions. Any impression or mapping should not be sent to the lab before being cleaned or disinfected.
    12. Remove your gloves and wash your hands with a disinfectant and water. If more

patients are waiting to be examined, place back the protective covers and repeat the procedure.

- **What must be done in case of an accident and exposure to infected material**

1. Although the transmission probability of HIV after an accident is below 0.5%, it is imperative that protection measures are taken.
2. In case of professional exposure to HIV after been pierced with an infected needle or other sharp instrument used on a patient diagnosed with HIV infection, the following actions must be taken:
3. Prompt and meticulous washing of the injured area.
4. Immediate placing of a gauze with a disinfectant solution on the injury (e.g. Cidex, formaldehyde, povidone iodine or 75% alcohol etc.) for at least 15 minutes.
5. The professional must be examined as soon as possible.
6. HIV can be detected in antigen presenting cells and peripheral ganglia within 72 hours after the infection while viraemia develops in about five days. The latter allows a 72-hour-period within which treatment can be provided.
7. Chemoprophylaxis with antiretroviral drugs must begin as soon as possible after the incident.
8. After 72 hours have passed, there is no point in administering chemoprophylaxis medication.
9. **Post exposure prophylaxis, PEP**
10. Depending on the size of the injury and the viral load of the patient two or three antiretroviral drugs are used (two nucleosides with the addition or not of a protease inhibitor). These same drugs are used to treat HIV infected people.

Operating Procedures for Biomedical Waste Management

Biomedical waste includes any solid or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Objective: To segregate the biomedical waste from the general waste to avoid cross infection.

Procedure:

1. **Categorize the BMW into the following:**
    - Contaminated waste – Used cotton swabs
    - Waste sharps– Needles, lancets, scalpel and other blades.

1. Segregation:

I. Refers to the separation of different type of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.

II. Prevents mixture of medical waste with general waste

III. Prevents illegal reuse of certain components of medical waste such as syringes, needles and other plastic

IV. Recycled plastics can be used for non-food grade applications.

V. All the bio waste is segregated according to their nature

VI. The BMW are segregated into the appropriate colour coded containers and bags red, yellow and white cardboard boxes

VII. Needles, sharps is disposed using needle burner.

VIII. Storage of sharp instruments using containers.

IX. Use of personal protective equipment's like gloves and masks by attenders during the waste handling.

X. Disposal of bags containing BMW to the designated central collection point.

Clinicals:

Red bin: gloves, mouth mask, cotton.

Yellow bin: Blood-soaked cotton and all infected waste Sharps: vials, needles and blades

Amalgam disposal:

To be immersed in closed bottles filled with fixer solution.

Radiology waste segregation:

a. Never mix x ray developer and used x ray fixer because the silver containing x ray fixer is hazardous waste.

b. Most of the silver content of x ray film is removed during processing of X-ray film, so only traces of silver are present in developed X- ray film and it can be discarded into the trash.

c. Return unused expired x ray film to the manufacturers.

d. Developer solution is discharged by diluting with water into the sewer.

e. Use silver recovery unit to reclaim silver from fixer solution and mix de silvered fixer with developer, dilute it and discharge to the sewage

f. Lead foils:

g. Recycling of lead foils.

h. Biomedical waste disposal company accept lead foils.

i. Do not throw lead foil into general or non-hazardous waste.

j. Do not reuse lead foil packet for any other purpose.

k. Do not hand over lead foil packets to patients as they can throw them into regular garbage or can use for other purpose.

l. Proper labelling of the bins

- The bins are properly covered with the colored bags.
- BMW is disposed accordingly.

m. Collection of the BMW:

- All the personnel involved in the collection are trained accordingly to use personal protective equipment's while handling the BMW.
- Collection of the waste is done once daily or once in thrice in a week depending upon the waste collected.

n. **Storage:** Waste is stored in a proper place and marked with a caution sign.

o. The used fixer solution is stored in white container

p. Transportation:

- Transportation is done in trolleys and manual loading is avoided.
- Container containing BMW is lidded before transportation.
- Before transportation the BMW is accompanied with a signed document from the doctor.
- The collected BMW is sent to the central collection point and then transported to

the main disposal area.

- The collected used fixer solution in the white cans are sent to reclaim the silver content.


Do not mix your Hospital Waste
PLEASE DISPOSE THESE ITEMS
VIALS & GLASS BOTTELS.
DONOT MIX HOSPITAL WASTE
PLEASE DISPOSE THESE ITEMS
COTTON WASTE & SOILED COTTON / DRESSINGS


Do not mix your Hospital Waste
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VIALS & GLASS BOTTELS
DONOT MIX HOSPITAL WASTE
PLEASE DISPOSE THESE ITEMS

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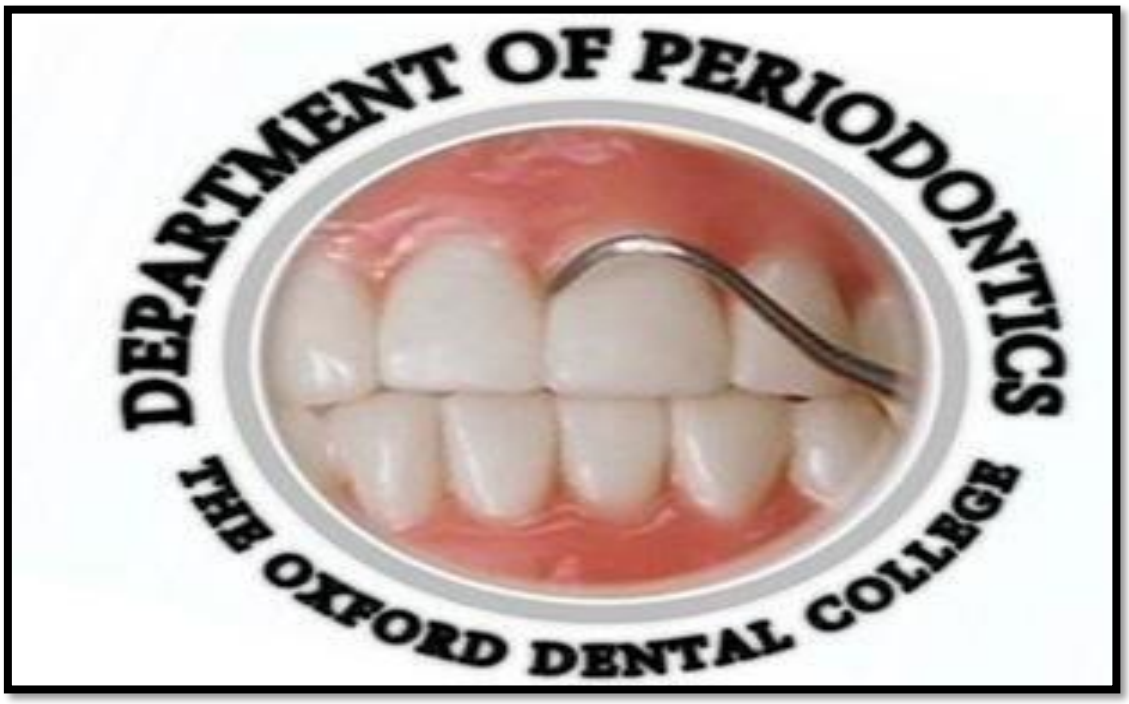
Infection Control Practice



Department of Periodontics the Oxford Dental College Bangalore-560076

Contents: -

1. Infection Control Policy
2. Cleaning and Sterilizing of Instruments
3. Hazardous Waste Management
4. Standard Operative Procedure

1. Infection Control: -

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions, and excretions.
- Contact with contaminated equipment and medical apparatus. Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene: -

Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done
- Before and after eating/smoking
- After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10- 15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Hand Washing in Clinics Must Be Done:

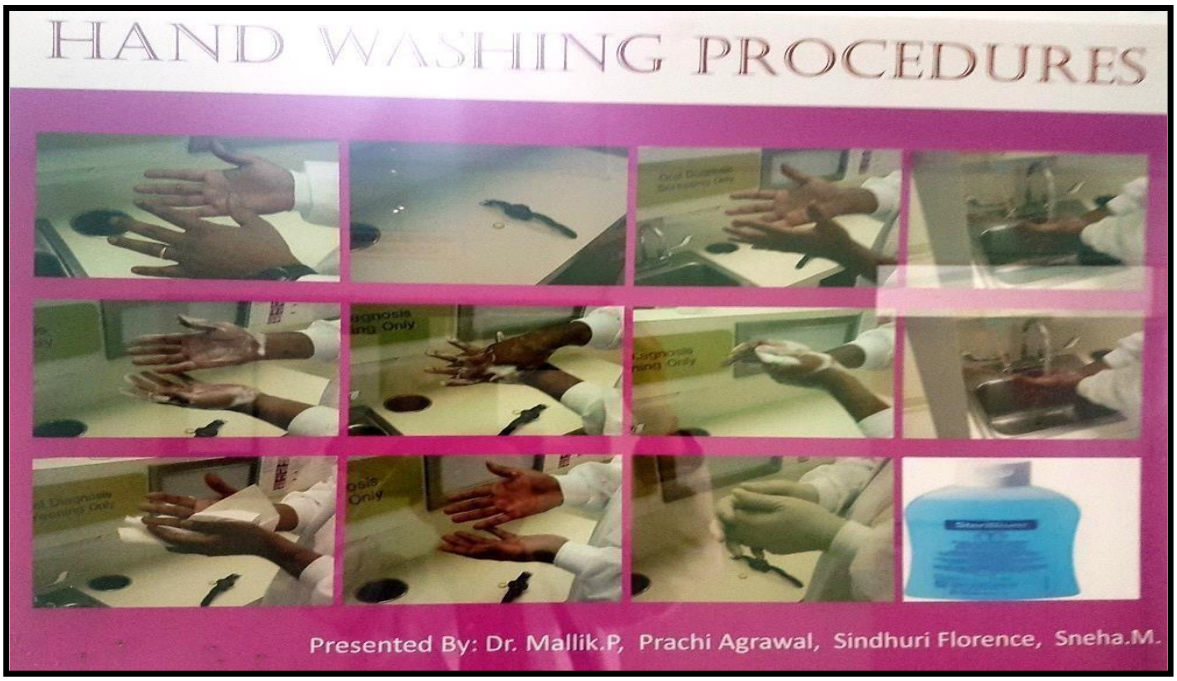
- Before any Non- surgical procedure
- Before any non-surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1minute.
2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to palm
2. Palm over dorsum
3. Palm to palm (fingers interlocked)
4. Back to fingers to opposing palms
5. Rotate hands in palms
6. Rotate fingers in palms
7. Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.



Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

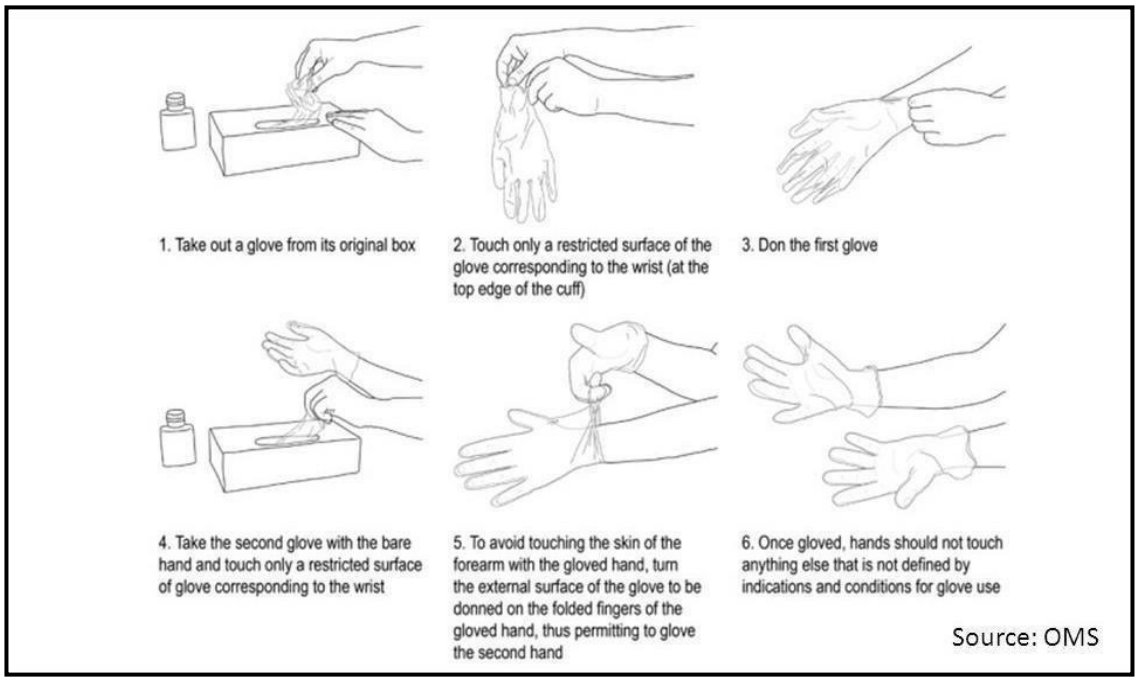
1. Wash nails, hands, forearms thoroughly.
2. Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
3. Commence washing with the forearms and finish with the hands.
4. Rinse thoroughly, keep hands above the elbows.
5. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.
- Examination gloves must be used only once and should be worn as per the below mentioned illustration.
- Provision should be made to utilize non-latex products for individuals with latex allergy.



Fingernail Care

- Keep fingernails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

2. Cleaning and sterilizing of instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

CATEGORY	DESCRIPTION	EXAMPLES OF ITEMS
Critical	Penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue	Surgical instruments, scalers, curettes, scalpel blades, surgical burs
Semicritical	Contact mucous membranes, but will not penetrate soft tissue, contact bone or enter into or contact the bloodstream or normally sterile tissue	Dental mouth mirrors, amalgam dispensers, reusable impression trays, dental handpieces
Noncritical	Contact with intact skin	Blood pressure cuff, stethoscope, pulse oximeter

Source: Organization for Safety, Asepsis and Prevention, "From Policy to Practice: OSAP's Guide to the Guidelines. www.osap.org.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone or enter into or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals.

   Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.
2. **Semi-critical instruments** are those that do not penetrate soft tissues or bone but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

   All critical and semi-critical dental instruments that heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g. Aluminum instruments).
4. **Cleaning**

   Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

   When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments under water.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used. Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed colour
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin

- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

4. Hazardous Waste

Management Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely stored in the waste collection area.

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in biohazard waste container in a biohazard waste container.

Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.

If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

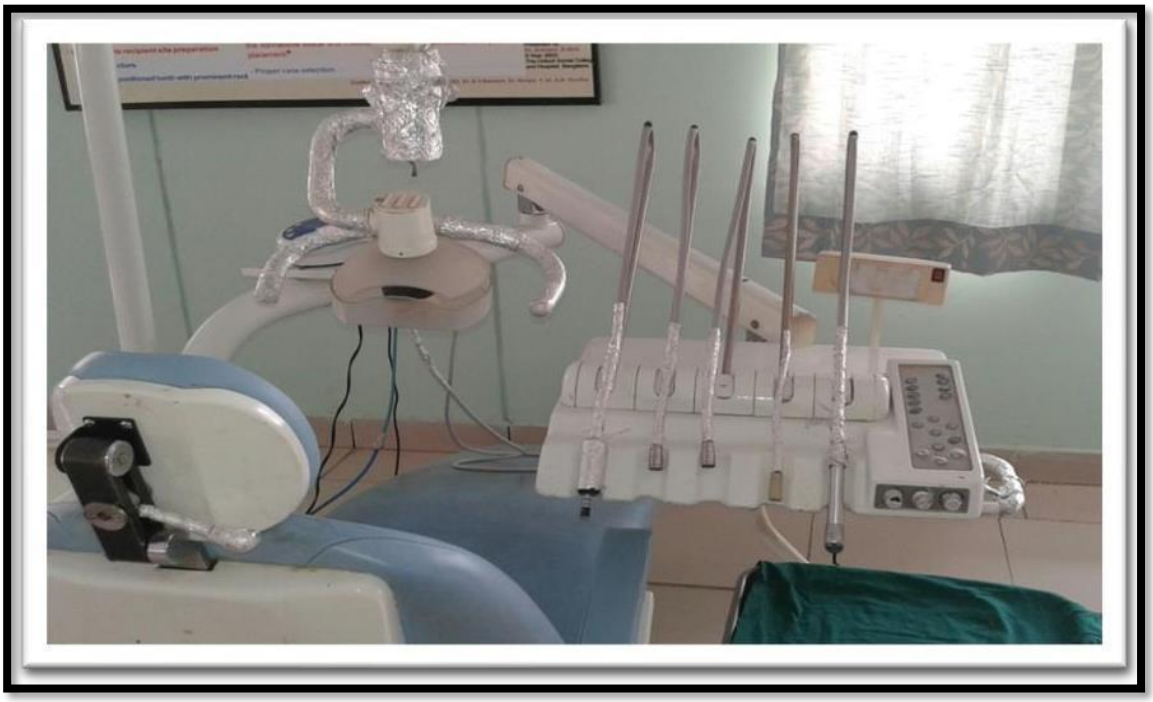
It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

Department of Periodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.

2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.



Use of Disposable Tin Foils to Cover the Exposed Areas of The Chair

UG Clinic

PG Clinic

Biomedical Waste Management: -

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental waste are segregated separately & disposed.

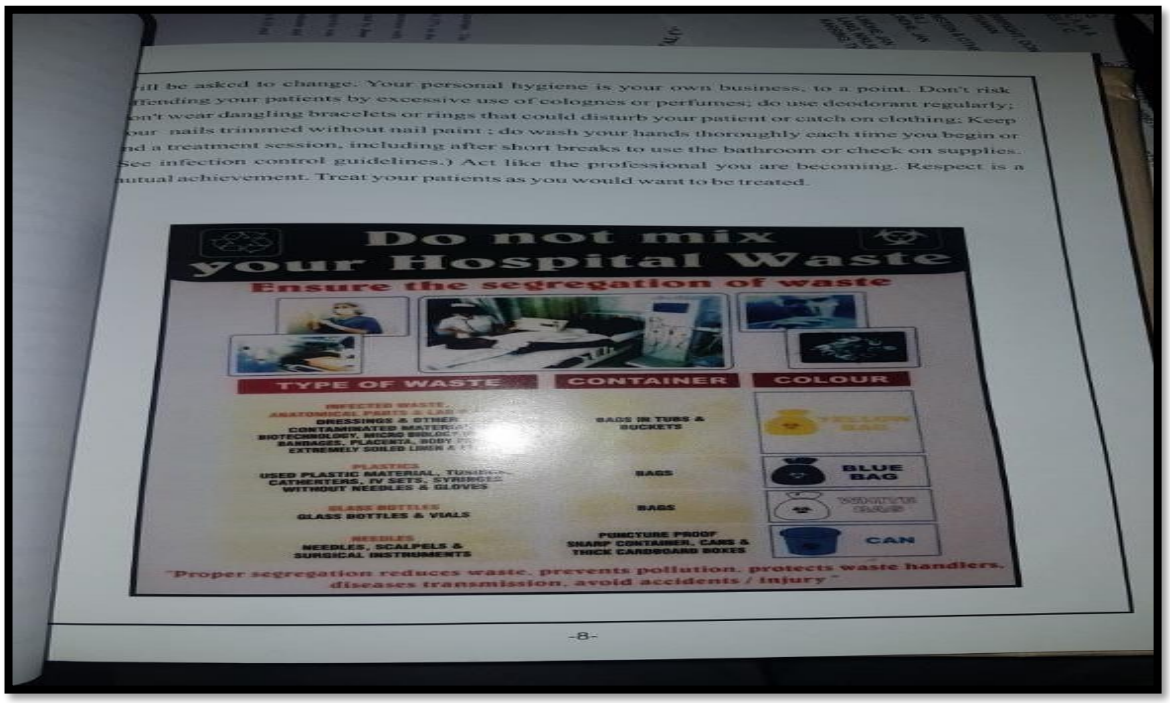

Sterillium
SHARP INSTRUMENTS
AND NEEDLE
PRECAUTION

Training of UGs & PGs

All the UGs and PGs are well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings and is added to their curriculum in their clinical logbook

Syringe Needle Destroyer


Do not mix
your Hospital Waste
Ensure the segregation of waste
TYPE OF WASTE
CONTAINER
COLOUR
BAGS IN TUBS & BUCKETS
BAGS
BLUE BAG
BAGS
PUNCTURE PROOF SHARP CONTAINER, CANS & THICK CARDBOARD BOXES
CAN
"Proper segregation reduces waste, prevents pollution, protects waste handlers, diseases transmission, avoid accidents / injury"

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics. Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis. PGs present seminar on the same topic & most of the important issues are discussed. Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management. Support staff is also trained and on weekly basis the measures are reinforced.

Standard Operative Procedure

It is a process document that describes in detail the way an operator should perform a given operation.

Periodontics is the specialty of dentistry that encompasses prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of teeth and dental implants. The specialty includes maintenance of the health, function, and esthetics of all supporting structures and tissues (gingiva, periodontal ligament, cementum, alveolar bone, and sites for tooth replacements). Tissue regeneration, management of periodontal-endodontic lesions, and providing dental implants as tooth replacements are, when indicated, integral components of comprehensive periodontal therapy. Tooth extraction and implant site development may accompany either periodontal or implant therapy.

The goals of periodontal therapy are to preserve the natural dentition, periodontium and peri-implant tissues; to maintain and improve periodontal and peri-implant health, comfort, esthetics, and function. Currently accepted clinical signs of a healthy periodontium include the absence of inflammatory signs of disease such as redness, swelling, suppuration, and bleeding on probing; maintenance of a functional periodontal attachment level; minimal or no recession in the absence of interproximal bone loss; and functional dental implants.

Periodontal Examination

All patients should receive a comprehensive periodontal examination. Such an examination includes discussion with the patient regarding the chief complaint, medical and dental history review, clinical examination, and radiographic analysis. Microbiologic, genetic, biochemical, or other diagnostic tests may also be useful, on an individual basis, for assessing the periodontal status of selected patients or sites.

Some or all the following procedures may be included in a comprehensive periodontal examination:

1. Extra- and intraoral examination to detect non- periodontal oral diseases or conditions.
2. General periodontal examination to evaluate the topography of the gingiva and related structures; to assess probing depth, recession, and attachment level; to evaluate the health of the subgingival area with measures such as bleeding on probing and suppuration; to assess clinical furcation status; and to detect endodontic-periodontal lesions.
3. Assessment of the presence, degree and/or distribution of plaque, calculus and gingival inflammation.

4. Dental examination, including caries assessment, proximal contact relationships, the status of dental restorations and prosthetic appliances, and other tooth- or implant-related problems.
5. Determination of the degree of mobility of teeth and dental implants.
6. Occlusal examination.
7. Interpretation of a satisfactory number of updated, diagnostic quality periapical and bite- wing radio- graphs or other diagnostic imaging needed for implant therapy.
8. Evaluation of potential periodontal systemic inter- relationships.
9. Assessment of suitability to receive dental implants.

Establishing A Diagnosis and Prognosis

The purpose of the comprehensive periodontal examination is to determine the periodontal diagnosis and prognosis and/ or suitability for dental implants. This process includes an evaluation of periodontal and peri-implant tissues to determine the suitability of the patient for treatments including nonsurgical, surgical, regenerative and reconstructive therapy, or dental implant placement. This information should be recorded in the patient's chart and communicated to the patient and the referring dentist when appropriate.

Periodontal Diseases and Conditions

Diseases of the periodontium may be categorized as gingival diseases, periodontitis, necrotizing periodontal diseases, abscesses of the periodontium, and developmental or acquired deformities and conditions.

1. **Gingivitis** is gingival inflammation without attachment loss or with non-progressing attachment loss. Other gingival diseases may be modified by systemic factors, medications or malnutrition.
2. **Periodontitis** is gingival inflammation with progressing attachment loss. Different forms include, but are not limited to, **chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease, necrotizing ulcerative periodontitis, and periodontitis associated with endodontic lesions.**

Periodontitis may be further characterized by degree of attachment loss as slight, moderate, or severe; by extent as localized or generalized; and by post-treatment status as recurrent or refractory. Facial recession involving loss of periodontal attachment and gingival tissue affects children and adults. The prevalence increases with age and adults over 50 have the greatest degree of involvement. This mucogingival condition is often treatable. Edentulous ridge defects result from loss of osseous tissue and can compromise esthetics or complicate future implant placement.

Development of a Treatment Plan

The clinical findings together with a diagnosis and prognosis should be used to develop a logical plan of treatment in order to eliminate or alleviate the signs and symptoms of periodontal diseases and thereby arrest or slow further disease progression. The treatment plan should be used to establish the methods and sequence of delivering appropriate periodontal treatment. When indicated, the plan should include:

1. Medical consultation or referral for treatment when appropriate.
2. Periodontal procedures to be performed.
3. Consideration of adjunctive restorative, prosthetic, orthodontic and/or endodontic consultation or treatment.
4. Provision for re-evaluation during and after periodontal or dental implant therapy.
5. Consideration of chemotherapeutic agents for ad- junctive treatment.
6. Consideration of diagnostic testing that may include microbiological, genetic or biochemical assessment or monitoring during the course of periodontal therapy.
7. Periodontal maintenance program.

Informed Consent and Patient Records

Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, informed consent should be obtained prior to the commencement of therapy. The information given to the patient in these circumstances should include the following:

1. The diagnosis, etiology, proposed therapy, possible alternative treatment(s), and the prognosis with and without the proposed therapy or possible alternatives.
2. Recommendations for referral to other health care providers as necessary.
3. The reasonably foreseeable inherent risks and potential complications associated with the proposed therapy, including failure with the ultimate loss of teeth or dental implants.
4. The need for periodontal maintenance treatment after active therapy due to the potential for disease recurrence.

A record of the patient's consent to the proposed therapy should be maintained. Moreover, complete records of diagnosis, treatment, results, and recommended follow-up are essential, starting with the initial examination and continuing for as long as the patient is under care. Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, it is advisable to obtain the informed con-sent in writing prior to commencement of therapy.

Treatment Procedures

A broad range of therapies exist in periodontics. No single treatment approach can provide the only means of treating any one or all periodontal diseases. One treatment modality may be appropriate for one section of the mouth while another approach may be suitable at other sites. When indicated, treatment should include:

1. Patient education, training in personal oral hygiene, and counseling on control of risk factors (eg, smoking, medical status, stress) with referral when appropriate.
2. Removal of supragingival and accessible subgingival bacterial plaque and calculus is accomplished by periodontal scaling. Comprehensive periodontal root planning is used to treat
3. root surface irregularities or alterations caused by periodontal pathoses. In some instances, these procedures may be incorporated into the surgical treatment.
4. Finishing procedures, which include post-treatment evaluation with review and reinforcement of personal daily oral hygiene when appropriate.

The following courses of treatment maybe indicated in addition to the above outlined procedures:

1. Chemotherapeutic agents. These agents may be used to reduce, eliminate, or change the quality of microbial pathogens; or alter the host response through local or systemic delivery of appropriate agent(s).
2. Resective procedures. These procedures are designed to reduce or eliminate periodontal pockets and create an acceptable gingival form that will facilitate effective oral hygiene and periodontal maintenance treatment. Soft tissue procedures include gingivectomy, gingivoplasty, and various mucogingival flap procedures. Osseous procedures include ostectomy and osteoplasty. Dental tissue procedures include root resection, tooth hemi section, and odontoplasty. Combined osseous and dental tissue procedures may be required for management of endodontic-periodontal lesions.
3. Periodontal regenerative procedures include: soft tissue grafts, bone replacement grafts, root biomodification, guided tissue regeneration, and combinations of these procedures for osseous, furcation, and recession defects. Periodontal reconstructive procedures include guided bone regeneration, ridge augmentation, ridge preservation, implant site development, and sinus grafting.
4. Periodontal plastic surgery for gingival augmentation, for correction of recession or soft tissue defects, or for other enhancement of oral esthetics.
5. Occlusal therapy, which may include: minor tooth movement, occlusal adjustment, splinting, or provision of devices to reduce occlusal trauma.
6. Periprosthetic periodontal procedures include: exploratory flap surgery, resective procedures, regenerative or reconstructive procedures, or crown lengthening surgery,

performed to facilitate restorative or prosthetic treatment plans.

7. Selective extraction of teeth, roots, or implants when indicated, in order to facilitate periodontal therapy, implant therapy, implant site development, or im- plant, restorative and/or prosthetic treatment plans.
8. Replacement of teeth by dental implants.
9. Procedures to facilitate orthodontic treatment including, but not limited to, tooth exposure, frenulectomy, fiberotomy, gingival augmentation, and implant placement.
10. Management of periodontal systemic interrelationships when appropriate.

Periodontal Maintenance Therapy

Upon completion of active periodontal treatment, follow-up periodontal maintenance visits should include:

1. Update of medical and dental histories.
2. Evaluation of current extra- and intraoral, periodontal and peri-implant soft tissues as well as dental hard tissues and referral when indicated (eg, for treatment of carious lesions, pulpal pathosis, or other conditions)
3. Assessment of the oral hygiene status with reinstruction when indicated.
4. Mechanical tooth cleaning to disrupt/remove dental plaque and biofilms, stain, and calculus. Local delivery or systemic chemotherapeutic agents may be used as adjunctive treatment for recurrent or refractory disease.
5. Elimination or mitigation of new or persistent risk and etiologic factors with appropriate treatment.
6. Identification and treatment of new, recurrent, or refractory areas of periodontal pathoses.
7. Establishment of an appropriate, individualized interval for periodontal maintenance treatment.

The patient should be kept informed of:

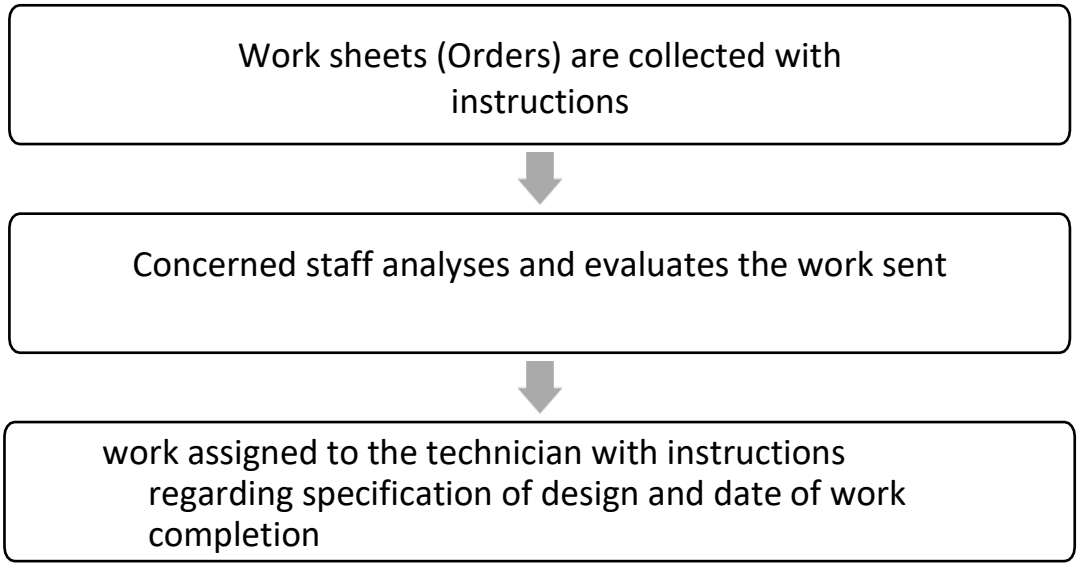
1. Areas of persistent, recurrent, refractory, or new periodontal disease.
2. Changes in the periodontal prognosis.
3. Advisability of further periodontal treatment or re- treatment of indicated sites.
4. Status of dental implants.
5. Other oral health problems noted that may include caries, defective restorations, and non-periodontal mucosal diseases or conditions.

Evaluation of Therapy

Upon completion of planned periodontal therapy, the record should document that:

1. The patient has been counseled on why and how to perform an effective daily personal oral hygiene program.
2. Accepted therapeutic procedures have been per- formed to arrest the progression of the periodontal disease(s).
3. Periodontal root planning has left subgingival root surfaces without clinically detectable calculus deposits or rough areas.
4. Gingival crevices are generally without bleeding on probing or suppuration.
5. A recommendation has been made for the correction of any tooth form, tooth position, restoration, or prosthesis considered to be contributing to the periodontal disease process.
6. An appropriate periodontal maintenance program, specific to individual circumstances, has been recommended to the patient for long-term control of the disease, as well as for the maintenance of dental implants, if present.

Department of prosthodontics
[**Standard operating procedures**]
Standard operating procedure follows



- **Lab safety procedures:**
  - Disinfection of all the materials used and sterilization of allinstruments accompanied by a clean laboratory
  - Laboratory decorum followed
  - No eatables allowed in the lab.
  - Covered overalls separate from that used outside the lab.
  - Safety protocol (Complete hygiene of technician that includes Mouth mask, Safety glass, Gloves and Lab coat)
  - Re-use of metals
  - Metal can't be re-used more than twice.

- **Protocol for complete dentures**

Fabrication of primary cast from collected primary impression and construction of special/custom tray (given in 2 working days)

↓

Fabrication of Master cast from procured Secondary impression and construction of denture base with occlusal rims (given in 2 working

↓

Articulating the casts in the procured jaw relation (done in 1 working day)

↓

Teeth setting (given for try-in in 2 working days)

↓

Flasking, dewaxing, packing and curing procedures carried on, followed by trimming and finishing of denture (denture delivered in 3 working days)

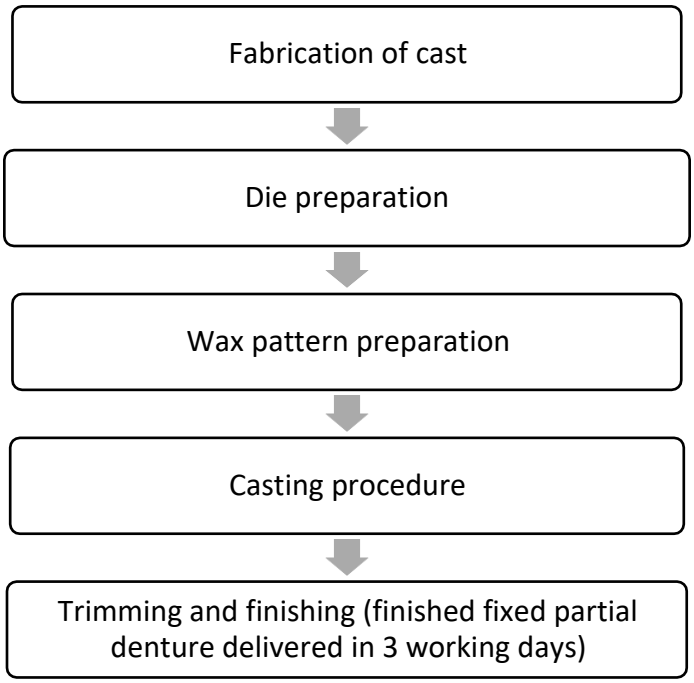
- **Protocol for Cast partial denture**

Fabrication of primary cast from the procured primary impression followed by construction of denture base with occlusal rims (given in 2 working days)

Articulation and teeth setting (given for try-in in 2 working days)

Investing, dewaxing, packing and curing procedure followed by denture trimming and polishing (denture delivered in 2 working days)

- **Protocol for fixed partial denture**



Schedule for supplying materials

✓ Consumables

- Materials supplied on every Monday (9-10am) for the usage of that week
- On exhaustion of material, re-issued on every Thursday (9-10am)

✓ Non-Consumables

- Available to technician on all days (Monday-Saturday (9-12.30am)]
- Stocked on the first working day of every month.

Areas of Responsibility:

- Dental Providers (Dentists/Hygienists)
- Dental Support Staff (DSS)

Procedure:

- Dental Providers (Dentists/Hygienists)
- Have a basic understanding of the Dental Sterilization Process.
- The Infection Prevention/Control (IPC)/Safety Officer (Hygienist) for each dental clinic is

responsible for training and monitoring the dental sterilization process. If there is a breach in the sterilization process it is their responsibility to report this to the Dental Clinic Director and the Infection Prevention/Control Advisor for the Dental Department.

- In the event of a breach in the sterilization process, the Clinic IPC/Safety Officer, the Dental Clinic Director, and the Infection Prevention/Control Advisor for the Dental Department will ensure the appropriate steps are taken to correct the situation.
- Dental Support Staff
- Instruments/cassettes which need to be heat sterilized are to be transported from the dental operatory to the sterilization (instrument processing) area in the approved transport container.
- Instruments are defined as any instruments or dental devices (ex: bite block, lab spatula, xcp's) not contained in a cassette that require heat sterilization.
- Cassettes are defined as any instruments which are contained in a cassette that require heat sterilization. They may be sterilized in either a multi parameter pouch or blue surgical wrap.
- The sterilization (instrument processing) area should be divided into the following four sections:
- Receiving, Debridement, and Decontamination.
- Preparation and Packaging.
- Sterilization.
- Holding Aerotor sterilized pouches/wrapped cassettes waiting to be returned to the operatory and storage areas.
- The sterilization area should be divided by walls, partitions, or adequate spatial separations to control traffic flow and contain contaminants generated during processing.
- Receiving/debridement/decontamination of the instruments/cassettes:
- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
- The debridement/decontamination process is to be completed immediately after the instruments/cassettes are brought to the sterilization area in order to reduce the risk of microorganisms becoming encapsulated on the instrument/cassette surfaces.
- Instruments/cassettes need to be debrided/decontaminated by one of the following methods:

When using the ultrasonic:

- The preferred procedure is to place instruments/cassettes directly into the ultrasonic

using the appropriate inserts immediately after being received in the sterilization area.

- If there is a load already running in the ultrasonic, the instruments/cassettes should be kept in a presoak of the approved ultrasonic cleaner and run through the ultrasonic as soon as possible.
- Manual debridement of the instruments/cassettes is strongly discouraged. If it is absolutely necessary, the instruments/cassettes are to be debrided with a long-handled brush and placed into the ultrasonic as soon as possible.
- The ultrasonic is filled at the beginning of each day with the approved ultrasonic cleaner.
- If the ultrasonic cleaner becomes diluted due to excessive use, it may be necessary to change the ultrasonic cleaner during the day.
- The ultrasonic is to run for the appropriate time according to the manual.
- The instruments/cassettes are then thoroughly rinsed with tap water and set on a rack to dry.
- If this is the last cycle of the day, the instruments/cassettes maybe left after the rinse has been completed.
- The instruments/cassettes will need to be packaged and sterilized the next day.
- The ultrasonic is to be drained at the end of each day and sprayed with the approved surface disinfectant.
- DSS are responsible for keeping the sterilization area neat and organized.
- Place the loose instruments neatly in the drying area in order to prevent damage to the instruments/cassettes.
- When Using the Miele (Dental Washer Disinfector), follow the "Instrument Handling Recommendations" which are found in the manual:
- Instruments/cassettes should not be pre-soaked, rinsed, or hand scrubbed.
- Instruments/cassettes are placed directly into the Miele Dental Washer Disinfector.
- The Miele Dental Washer Disinfector serves as the "dirty storage area" and will clean and disinfect instruments/cassettes that have been sitting for up to 6 hours; however, instruments/cassettes cannot be left to sit overnight.
- Instruments should be placed into plastic cassettes within the metal mesh basket in the Miele to prevent damage to the tips of the instruments. Tips of the instruments can become caught in the metal mesh.
- The recommended cycle is the Disinfection VARIO with the optional 10-minute drying cycle.
- The Miele cannot be left running when the DSS leave for the day. The cycle must be

complete, and the door of the Miele must be left slightly opened.

- Do not leave the door to the Miele completely opened because it is a safety hazard.
- The door of the Miele needs to be opened immediately after the cycle ends to release hot air and steam and to let instruments cool. This prevents rust and corrosion from forming on the instruments/cassettes.
- If this is the last cycle of the day and there is not enough time to run the Disinfection VARIO cycle, the Miele may run through one of the following cycles:
- The 30-minute cycle with a cold-water pre-rinse and a detergent phase. When this cycle is completed, the DSS will need to open the door to the Miele, and they may leave for the day.
- Instruments/cassettes may be packaged and sterilized the following day.
- The 10-minute cycle with a cold-water pre-rinse only. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day. The instruments/cassettes are not ready for packaging and sterilization.
- Instruments/cassettes will need to be run through the Disinfection VARIO cycle at the beginning of the following day.
- Instruments/cassettes may then be packaged and sterilized.
- Hand pieces:
- Hand pieces are to be cleaned and oiled by the hand-held air driven method.
- Preparation/packaging of the instruments/cassettes:
- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
- After the debridement/decontamination process is completed, the instruments/cassettes are prepared for heat sterilization through the following steps:
- Place instruments/cassettes in the appropriate sized multiparameter pouches (Multi parameter meaning the appropriate levels for heat, temperature, and time have been achieved).
- Affix the self-sealing adhesive strip to the designated place on the multi parameter pouch to ensure a complete seal.
- If using blue surgical wrap, a small piece of autoclave indicator tape needs to be inserted into the middle of the cassette (internal indicator). The outside of the package needs to be secured with autoclave indicator tape (external indicator).
- The pouches/wrapped cassettes now need to have the current date marked on them with a regular point black Sharpie permanent marker. The date will read as: 09-13-13.

(Not 09/13/13).

- Any clinic with more than one heat sterilizer (ex: Statim/Autoclave) needs to designate which sterilizer the pouches/wrapped cassettes have run through. (ex: red Sharpie permanent marker=Statim; blue Sharpie permanent marker=Autoclave 1; green Sharpie permanent marker=Autoclave 2; orange Sharpie permanent marker=Autoclave 3)
- Sterilization of the pouches/wrapped cassettes:
- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated pouches and wrapped cassettes.
- Pouches/wrapped cassettes are to be placed correctly on the trays for each heat sterilizer (refer to the "Guidelines for Loading Trays" which may be found in the sterilizer manual).
- Before sterilizers are started, the water levels need to be checked. (Ex: Autoclave=tubing indicator inside the door/Statim=the lid covering the mesh trap on the top of the unit). Make sure the collection container which drains under the Statimis not full. If sterilizers need to have water added to the units, use only distilled water. No tap or filtered water is to be used in these sterilizers.
- The recommended cycle for the Statim is the "Wrapped" cycle which will run at
- 275^0 F (135^0 C) for 10 minutes.
- The recommended cycle for the Autoclave is the "Packs" cycle which will run at
- 250^0 F (121^0 C) for 30 minutes.
- After the cycle for the autoclave has been selected, push the 'Start' button and listen for the sound of water filling the reservoir. The sterilizer will now show it has started and you may then fill out the log for that sterilizer. (Print your name, current date, note the time started and place your initials).
- It is imperative that the sterilizer run through the complete cycle from the "filling" phase through the "drying" phase. Do not interrupt the cycle at any point before the drying phase is complete.
- When the sterilizer shows the cycle is complete, the (DSS) may remove the sterilized pouches/wrapped cassettes.
- Holding area for the sterilized pouches/wrapped cassettes:
- When removing the sterilized pouches/wrapped cassettes from the sterilizer, the DSS will initial each sterilized pouch/wrapped cassette clearly with their written initials once they have verified the following three items:
  - ✓ The internal/external indicators have changed to the appropriate color (pink to

cocoa brown) according to the color chart.
- ✓ There is a clearly marked date of sterilization.
- ✓ There is a clearly marked sterilizer identifier.

- If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be placed in the holding area.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.
- When removing the sterilized pouches/wrapped cassettes from the Holding Area, the DSS will initial each sterilized pouch /wrapped cassette clearly with their written initials for a second time after they verify the following three items:
  - ✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.
  - ✓ There is a clearly marked date of sterilization.
  - ✓ There is a clearly marked sterilizer identifier.
- If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be taken to the operatory/storage area.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.
- When removing the sterilized pouches/wrapped cassettes from the storage areas and preparing for the next patient, the DSS will need to triple check the following three items:
- The internal/external indicators changed to the appropriate color (from pink to cocoa brown) according to the color chart.
- There is a clearly marked date of sterilization.
- There is a clearly marked sterilizer identifier.
- If the three previously stated items can be verified, the sterilized instruments and cassettes can be removed from the pouches and blue surgical wrap.
- The DSS can set up for the next procedure.
- Leave the sterilized pouches/blue surgical wrap on the counter for the dental provider/ DSS to verify.
- The pouches and blue surgical wrap can then be thrown away.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilizations process.

- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.
- Breach in the sterilization process:
- If a breach in the sterilization process is identified and the pouch/wrapped cassette has Not been used in a dental procedure involving a patient:
- The IPC/Safety Officer for the dental clinic will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
- The pouch/wrapped cassette will need to be re-packaged and re-run through the sterilization cycle.
- The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- If a breach in the sterilization process is identified and the pouch/wrapped cassette HAS been used in a dental procedure involving a patient:
- The IPC/Safety Officer will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
- The pouch/wrapped cassette will need to be pulled from the operatory/storage area.
- Any other pouches/wrapped cassettes which have the same date of sterilization and the same sterilizer identifier will also need to be pulled from the dental operatory/storage areas.
- The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- The Dental Clinic Director will need to notify the appropriate people in the Medical Department and the Administration Department. The plan for a Failed Dental Sterilization Process will be initiated.
- Important reminders:
  - ✓ The efficacy of the heat sterilizers is measured weekly through biological spore testing. Refer to the Spore Testing SOP.
  - ✓ Periodic maintenance (daily, weekly, monthly, quarterly, bi-annual and annual) needs to be completed and documented for each sterilizer (Autoclave/Statim).
- Each sterilizer has its own manual with the maintenance schedule outlined.
- Document the maintenance completed in a log specific to each sterilizer.
- At the beginning of the month send a copy of each of the maintenance logs via interoffice mail to the Quality Coordinator/Training Administration.
- Periodic maintenance (daily, every 2 weeks, and annually) needs to be completed on the

Miele as outlined in the manual.

- Periodic maintenance needs to be completed on the Ultrasonic as outlined in the manual.
- Periodic maintenance needs to be completed on the Assist in a as outlined in the manual.
- The countertops, door handles, and doors in the sterilization area are to be disinfected at least once per week. The proper PPE will need to be worn when using the dry 4X4s and the approved surface disinfectant.
- The biohazard (red) bag in the sterilization area needs to be taken to the large clinic biohazard container at least once per week.

CHILDREN'S EDUCATION SOCIETY (Regd.)
THE OXFORD DENTAL COLLEGE
(Recognized by the Govt. of Karnataka, Affiliated to Rajiv Gandhi University of Health Sciences, Karnataka & Recognised by Dental Council of India, New Delhi)
Bommanahalli, Hosur Road, Bangalore – 560 068.
Ph: 080-61754680 Fax : 080 – 61754693E-mail:deandirectortodc@gmail.com
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The Oxford Dental College and Hospital

Department of Orthodontics and Dentofacial Orthopedics
For the year 2019
Note on Infection Control in The Department

Hand Hygiene

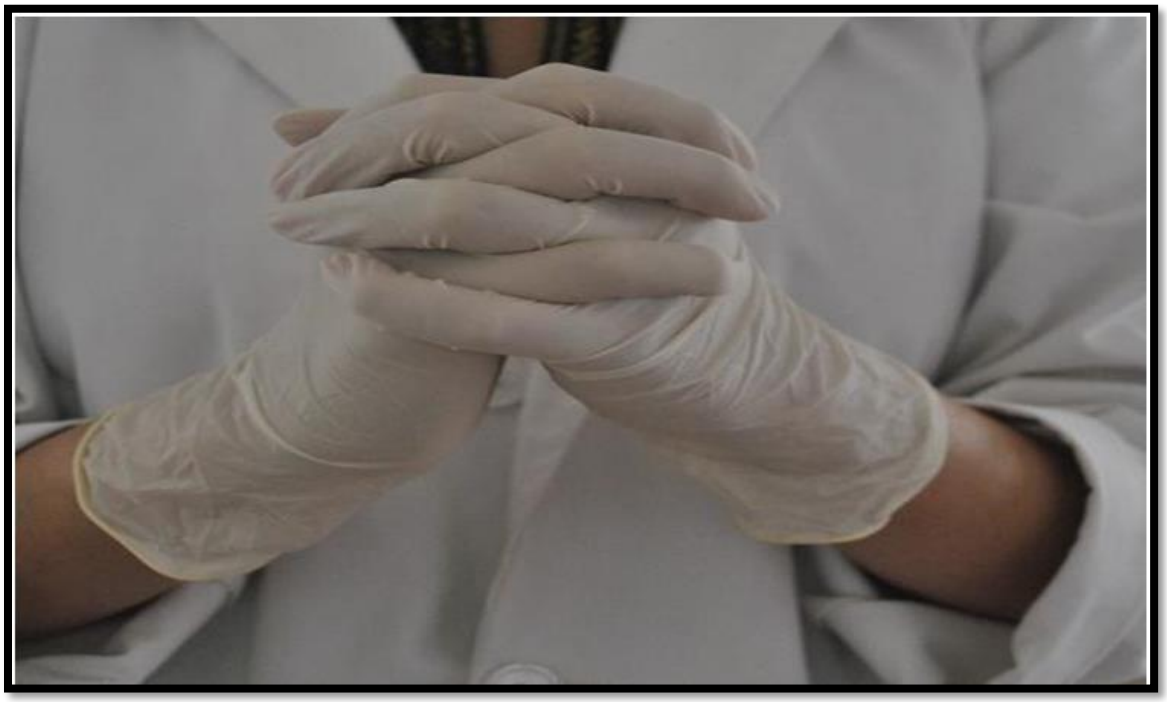
Hand contact is one of the main routes of transmission of multi drug resistant bacteria, etc. Hand hygiene reduces the risk of bacterial transmission to patient and health care personnel.

We maintain hand hygiene:

- before and after treating each patient (before glove placement and after glove removal)
- after barehanded touching of objects that most likely to be contaminated with blood or saliva
- before leaving dental operatory.

Gloves

We in the department wear gloves to prevent contamination of our hands when in contact with p a t i e n t s mouth to reduce the risk of transmission of microorganisms from our hands to the patient during performing dental procedures.



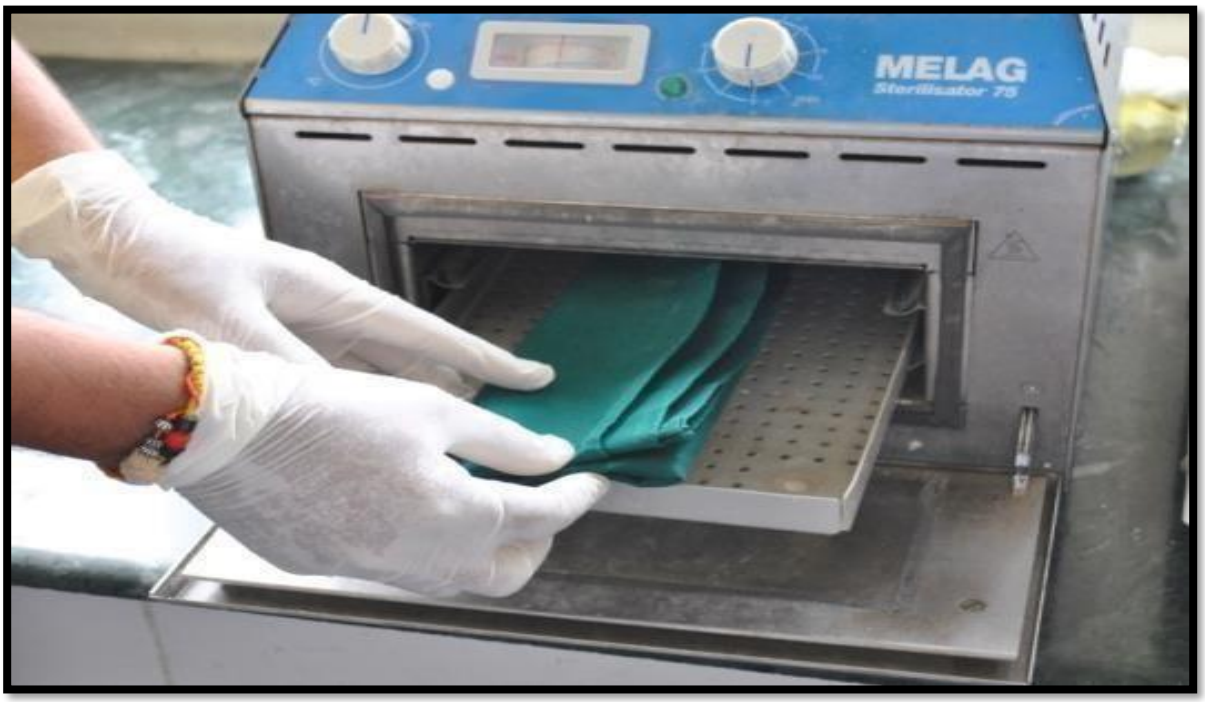
Mouth Mask, Head Cap and Protective Eye Wear

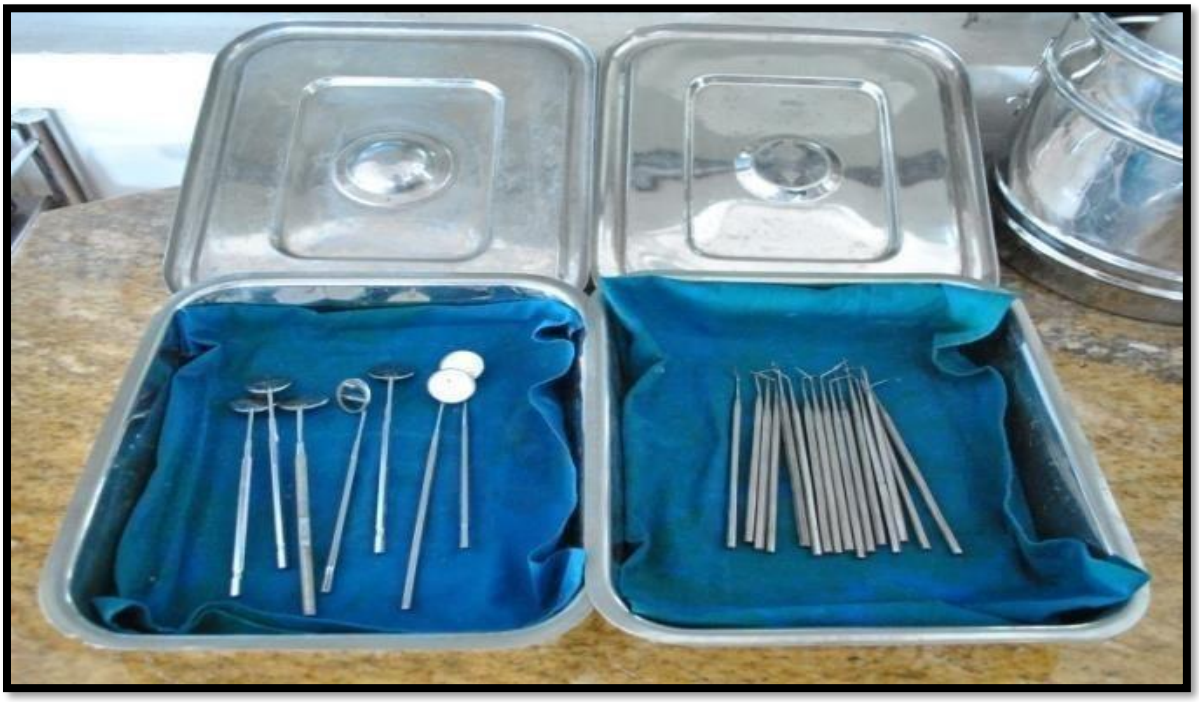
- **Mouth Mask** is worn to cover both nose and mouth during procedures to prevent splashes or spray of blood or body fluids. A mouth mask protects the patient against microorganisms from the wearer and also protects us from droplets that may contain bloodborne pathogens. A mouth mask is changed between each patient in our department.

- **Head Cap** is used during every dental procedure to prevent splashes of blood and body fluids.

- **Protective Eye Wear** is used in our department during examination or any dental procedures which is likely to generate splashes or sprays of blood or saliva. It protects the eyes from contact with microorganisms. It is always kept clean after use of each patient.

- **Cleaning and Sterilization of Dental Instruments**


MELAG
Sterilisator 75



The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave.

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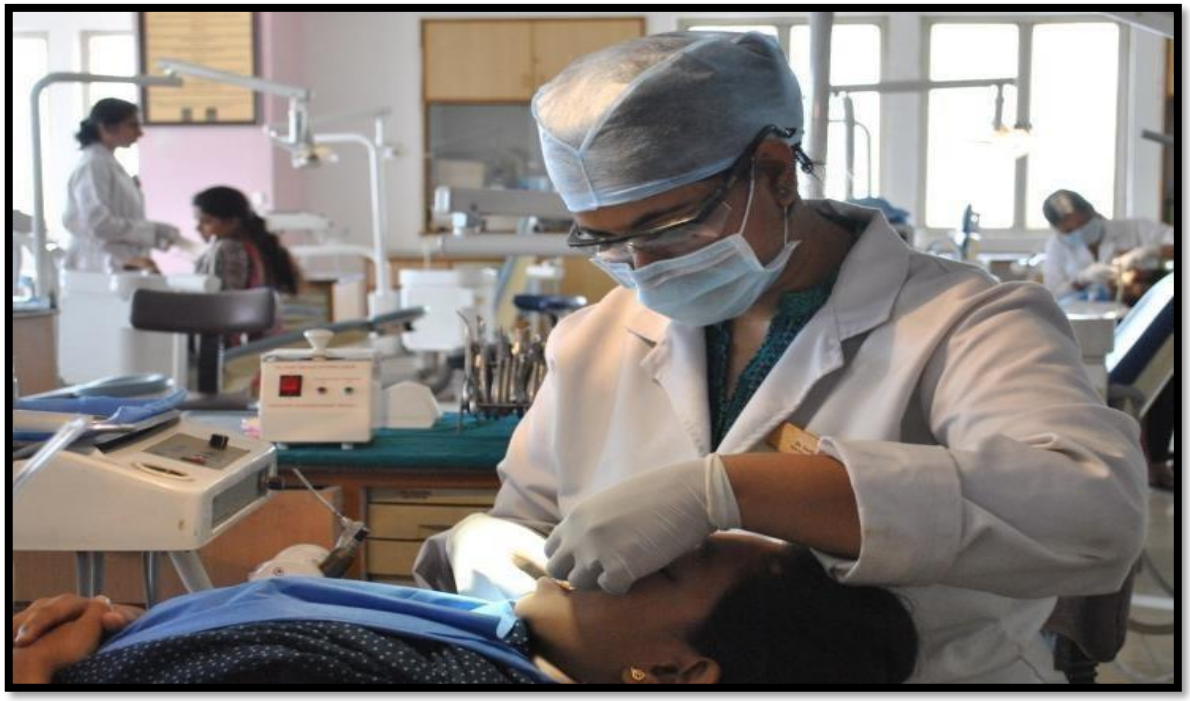
Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven.



Each post graduate student has an individual chairside glass bead sterilizer.

Single Use Materials (Disposed after single use)

- suction tips
- disposable glasses
- gloves
- mouth masks
- drapes
- head cap

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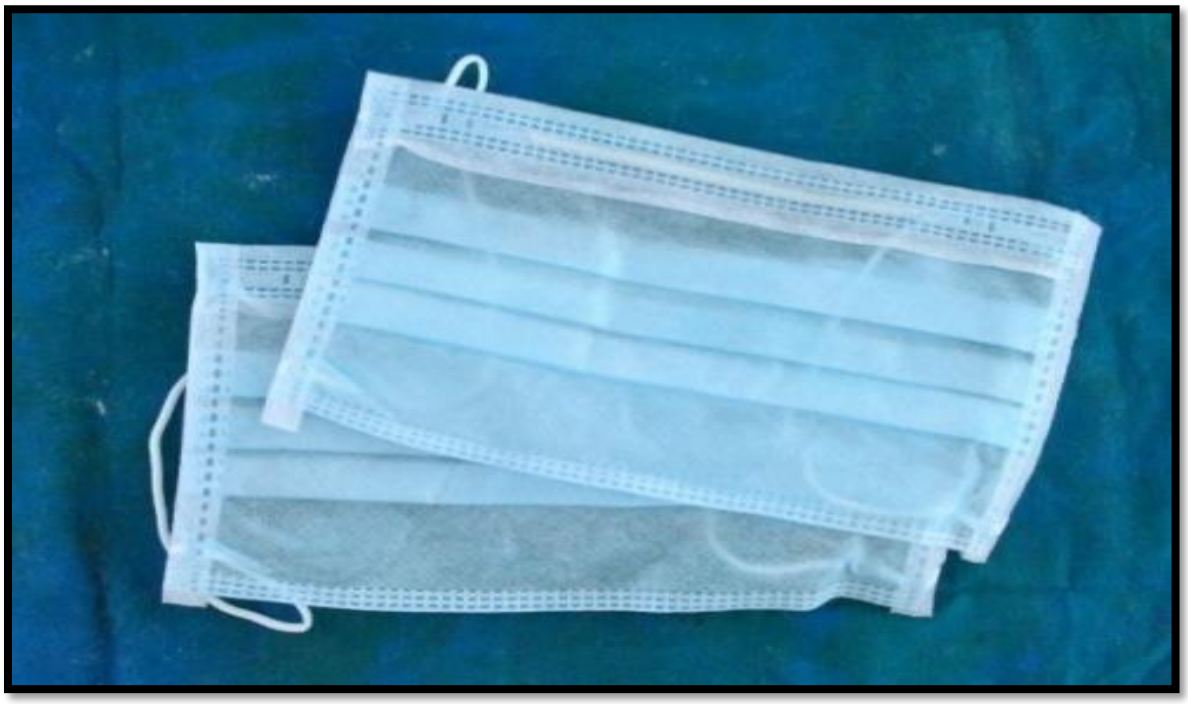


100
DENTAL SAFE
RAMSON'S

Blue Bag
Plastic Waste
(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

yellow bag
Infected waste, anatomical parts and lab waste (Impression materials, cotton)

Can (white)
Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

Biomedical Waste Segregation, Transportation and Disposal

The waste material is segregated within the department after 3 pm and transported by the attender to the disposal area, located at the back of the college.


TOUGH 'N'
DURABLE

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Infection Control Protocol

1) **Hand washing and Hand Hygiene**
   Perform hand hygiene with anti-microbial soap and water when hands are visibly dirty or contaminated with blood or other potentially infectious material. If hands are not visibly soil, an alcohol-based hand rub can be used **(Sterillum).**
2) **Personal protective equipment**
   Wear gloves, mask, and eye protection. Disposable single use item should never be used on more than one patient.
3) **Complete asepsis of operating area**
   All the items that will be touched during the treatment .eg: suction tips, bracket table handle etc. should have barrier protection and the dental chairs should be cleaned and disinfected**.**
4) **instrument sterilization.**
   All instruments should be washed in running water and cleaning with brush to remove visible debris. Instruments that cannot be autoclaved should be subjected to cold sterilization in glutaraldehyde. Orthodontic instruments are cleaned and placed in autoclave. Chairside use of glass bead sterilizer for individual use is encouraged.
5) Before treatment dental chair water lines should be flushed for 2 minutes at the start of the day and subsequently for 30 sec, between the patients.
6) Proper handling and disposal of biomedical waste should be followed. Immunization of all operating staff for Hepatitis B and Tetanus is essential.

Schedule of training of undergraduate and post graduate students about infection control and biomedical waste

Training:

a. Undergraduate students are trained regarding biomedical waste management on the first day of posting in the department of Orthodontics.
b. Postgraduate students are educated before entering clinics about biomedical waste management to be practiced throughout their course.
c. Training programme conducted for the paramedical staff and attenders regarding infection control and biomedical waste management in the

department of orthodontics both postgraduate and undergraduate sections.
Staff in-charge: Dr Sameena B.M Attender in-charge: Sarvotham & Rani

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Research Centre

Department of Orthodontics and Dentofacial Orthopedics

Infection Control and Biomedical Waste Management Report

I) Sterilization - (UG &PG Section)

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven. Chairside use of glass bead sterilizer for individual use is encouraged.

II) Waste Control- (UG &PG Section)

Blue Bag- Plastic Waste (Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

Yellow Bag Infected waste, anatomical parts and lab waste (Impression materials, cotton) Can (White) Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

III) Segregation, Transportation and Disposal

The waste material is segregated within the department after 3 P.M, and transported by the attender to the disposal area, located at the back of the college.

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Department of Pedodontics And Preventive Dentistry

Standard Operating Procedure

Infection Control

Infection is caused by the transmission of disease-causing microorganisms between people.

Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus.

Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done
- Before and after eating
- After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10-15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Scrub Technique

Sterillum

Hand washing in clinics must be done:

- Before any Non- surgical procedure
- Before any surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1 minute.
2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to palm
2. Palm over dorsum
3. Palm to palm (fingers interlocked)
4. Back to fingers to opposing palms
5. Rotate hands in palms
6. Rotate fingers in palms

Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

1. Wash nails, hands, forearms thoroughly.
2. Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
3. Commence washing with the forearms and finish with the hands.
4. Rinse thoroughly, keep hands above the elbows.
5. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.
- Examination gloves must be used only once.
- Provision should be made to utilize non-latex products for individuals with latex allergy.

Fingernail Care

- Keep finger nails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone or enter or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat, or chemicals. Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.
2. **Semi-critical instruments** are those that do not penetrate soft tissues or bone but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant. All critical and semi-critical dental instruments that are heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour (e.g. Aluminum instruments)

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle. When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments under water.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used. Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Sterilization of Hand Piece and Bur

Handpieces as well as various burs used in everyday clinical practice are sterilized before use. Also, handpieces are cleaned using brush followed by enclosing in a special pouch airtightly sealed either with a self-adhesive tape or a thermosealer for autoclaving. Burs are sterilized in glass bead sterilizer or using spirit solution.

Thermosealer & Steripacks

Handpiece & Glass Bead Sterilizer

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed colour
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items. If items are correctly processed and stored they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease. The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.
When three-quarters full, sharps safe should securely stored in the waste collection area.

Syringe Needle Destroyer

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

- Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.
- Place the contamination in a biohazard waste container in a biohazard waste container. Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.
- Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts water. If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

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Department of Pedodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Disposable Syringe and Suction Tips

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PG Clinic

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair

Autoclave

Handpiece & Glass Bead Sterilizer

UG Clinic

Hot Water Bath

Formalin Tray

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Biomedical Waste Segregation Protocol in The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental waste are segregated separately & disposed.

PG Clinic

UG Clinic

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Department of Oral Pathology

Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections
Infection control procedures are required for the following in the department:

a. Hematology laboratory – Deals with handling of blood and fluid samples
b. Histopathology and exfoliative cytology – Deal with handling of tissue and aspirate specimens
c. Patient examination
d. Hematology:
e. This section of the department deals with the screening of the patients by blood tests advised to the patients by the doctors of the operating departments.
f. The laboratory tests are done as a part of routine investigations for any dental procedure to check for any variation in the normal constituents of blood, serum and to check for any suspected infectious disease.
g. The laboratory investigations begin with the collection of a clinical specimen for examination.
h. Proper collection of an appropriate clinical specimen is the first step in obtaining an accurate laboratory diagnosis.

2 steps:

3 Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.
- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red colour coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilizations process of cleaning and immersion into chemical sterilant.

4.Storage of the sample: The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

1. **Histopathology:**
   - The biopsy and aspirate specimen are received by the department in labelled formalin bottles and syringes respectively.
   - The specimen received are inspected by the personal wearing mouth masks and gloves.
   - Formalin and the tissue processing fluids are changed periodically.

2. **Patient Examination:**
   - Patient examination is done wearing aprons, disposable gloves, mouth masks.
   - Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
   - These instruments are sealed in plastic autoclavable pouches and then autoclaved.
   - The pouches are opened just prior to patient examination.
   - The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
   - Hands are washed using water and soap followed by an antimicrobial solution
   - After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
   - In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
   - Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
     - Special rollers and plasticized paper sheets,
     - Cellulose film,
     - Aluminum foil,
     - Self-adhesive films,
     - Nylon cases,
     - Latex and vinyl cases.

   These protective coverings are replaced after every contact and every patient.

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Department of Public Health Dentistry
Sop of Infection Control

Terminologies: -

1. Alcohol based hand subject: - alcohol containing preparation designed for reducing number of viable microorganisms on hands.
2. Anti- microbial soaps- detergent containing antimicrobial agent, germicide used on skin or living tissue for inhibiting or destroying microorganisms.
3. Asepsis: - free of pathogenic microorganisms, method to protect against infection.
4. De-contamination: - process renders equipment or surfaces safe to handle.
5. Disinfection: - destruction of pathogens by thermal or chemical means. Less lethal than sterilization, as it does not kill spores. Degree of safety is less.
6. Germicide: - it destroys pathogenic organisms. It can be used to inactivate micro-organisms on tissue surfaces.
7. Hand hygiene: - technique of scrubbing hands with anti-microbial hand washes for surgical hand anti-sepsis.

Standard precaution taken to reduce risk of cross transmission of pathogens in healthcare settings.

- Sterile means free from all micro-organisms.
- OSHA prescribes employer duty to provide safe and healthy workplace for everyone on premises.
- Policy accountability and responsibility.
- Policy framework for infection control.
- Comprehensive program for information and training.
- Eliminating risk factors, modifying, or changing procedures.

Standard Precautions: -

- Blood and blood products
- Body substances
- Non- intact skin and mucous membrane.

Safe work practices include hand hygiene.

- Appropriate use of gloves
- Protective glasses and mouth mask.
- Impenetrable (water proof) aprons.
- Proper scrubbing using appropriate hands wash technique before and after patient care.
- Hand scrubbing for 30-60 seconds for non-surgical and3-5 minutes for surgical.

Gloving Technique: -

- Gloves should be worn touching the internal surface by the ungloved hand and external surface by gloved.
- If gloves are compromised at any step during treatment, it should be removed, scrubbing is done again, and fresh pair is worn.
- It is better to use double gloves technique.
- All the hand accessories like rings, watches and wrist accessories should be removed during patient contact.
- Fingernails should be kept maximum to 0.5 cm and no nail accessories.
- Patient and visitors should also follow some amount of hand hygiene.
- Disposable gloves should not be re-used.

Mask and Eyewear: -

- Mask should be water- resistant and should be worn according to manufacturer instructions.
- Should not be touched by hands while worn.
- Both mouth and nose should be covered.
- If the mask is moist, barriers is breached, mask is no longer to be used.
- Mask must be touched only by the loops.
- Protective glass or face mask should also be water resistant to prevent aerosol, water, blood, and body secretions splattering.
- Eyewear must be clear, anti-fog, scratch-free, closed fitting and shielded.
- Should be properly cleaned and stored dry.

Additional Precautions: -

Airborne, droplet and contact precautions should be taken to prevent cross- contamination.

Extra care should be taken for immune-compromised, children, geriatrics patient.

Fitting test should be done for eyewear, mask, and apron.

Needle Stick Injury: -

Needle stick injury or exposure to blood and blood products, body fluids should be reported in accordance with health organization policy.

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2018-19

Department of Oral Medicine and Radiology

Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections

Infection control procedures are required for the following in the department:

A. Patient examination
B. Biopsy
C. Radiology

Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
    a. Aluminum foil
    b. Transparent cling wrap
- These protective coverings are replaced after every contact and every patient.

Biopsy.

1. Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.
- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.

- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red colour coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilizations process of cleaning and immersion into chemical sterilant.

1. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

a. Radiology

- Patient examination is done using gloves and mouth mask.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  a. Aluminum foil
  b. Transparent cling wrap
- These protective coverings are replaced after every contact and every patient.
- Processing solutions, developer, water, and fixer are kept in different containers to prevent the contamination of solutions
- During processing of x ray films, the lead foils and black paper are put into separate bins.

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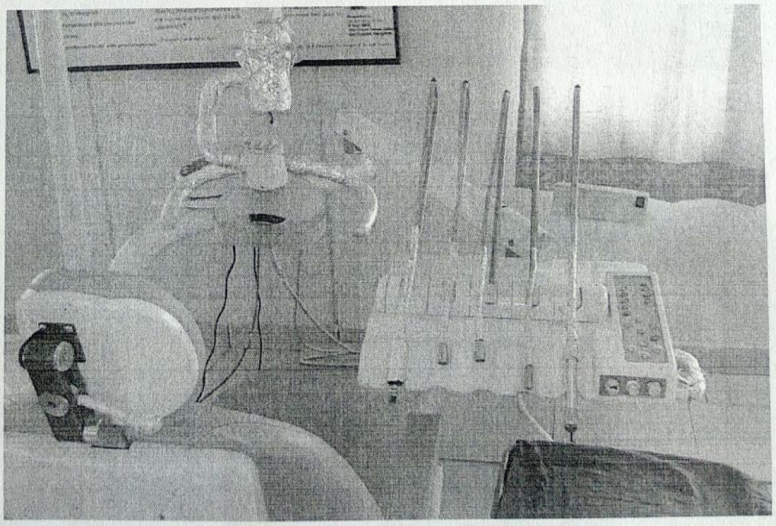
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

2018-2019

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair



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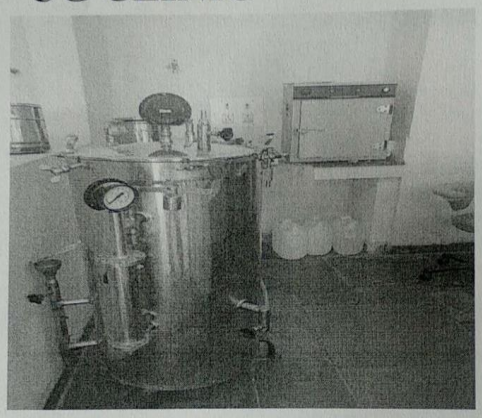
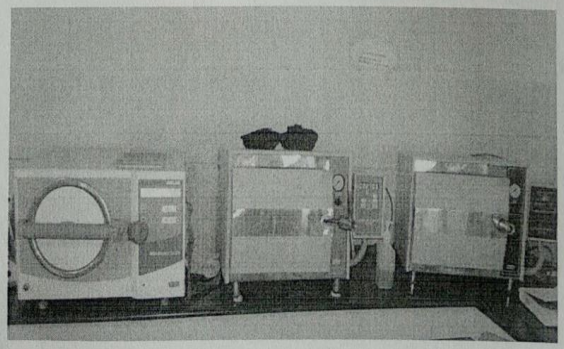
UG CLINIC



PG CLINIC



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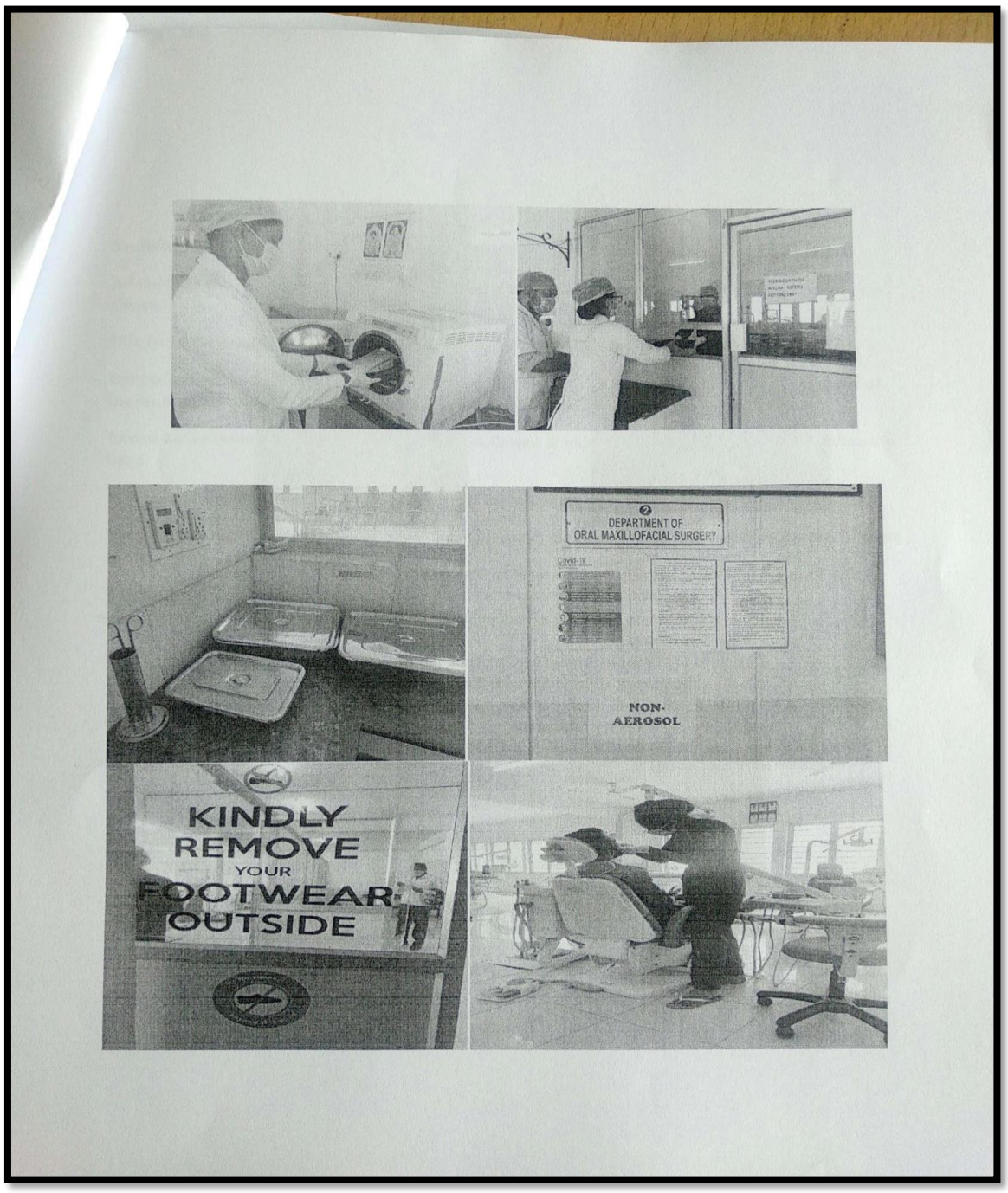

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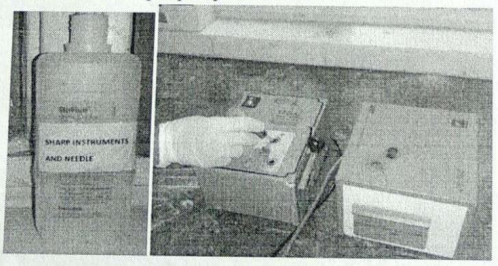
Biomedical Waste Segregation Protocol In The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.



SYRINGE NEEDLE DESTROYER

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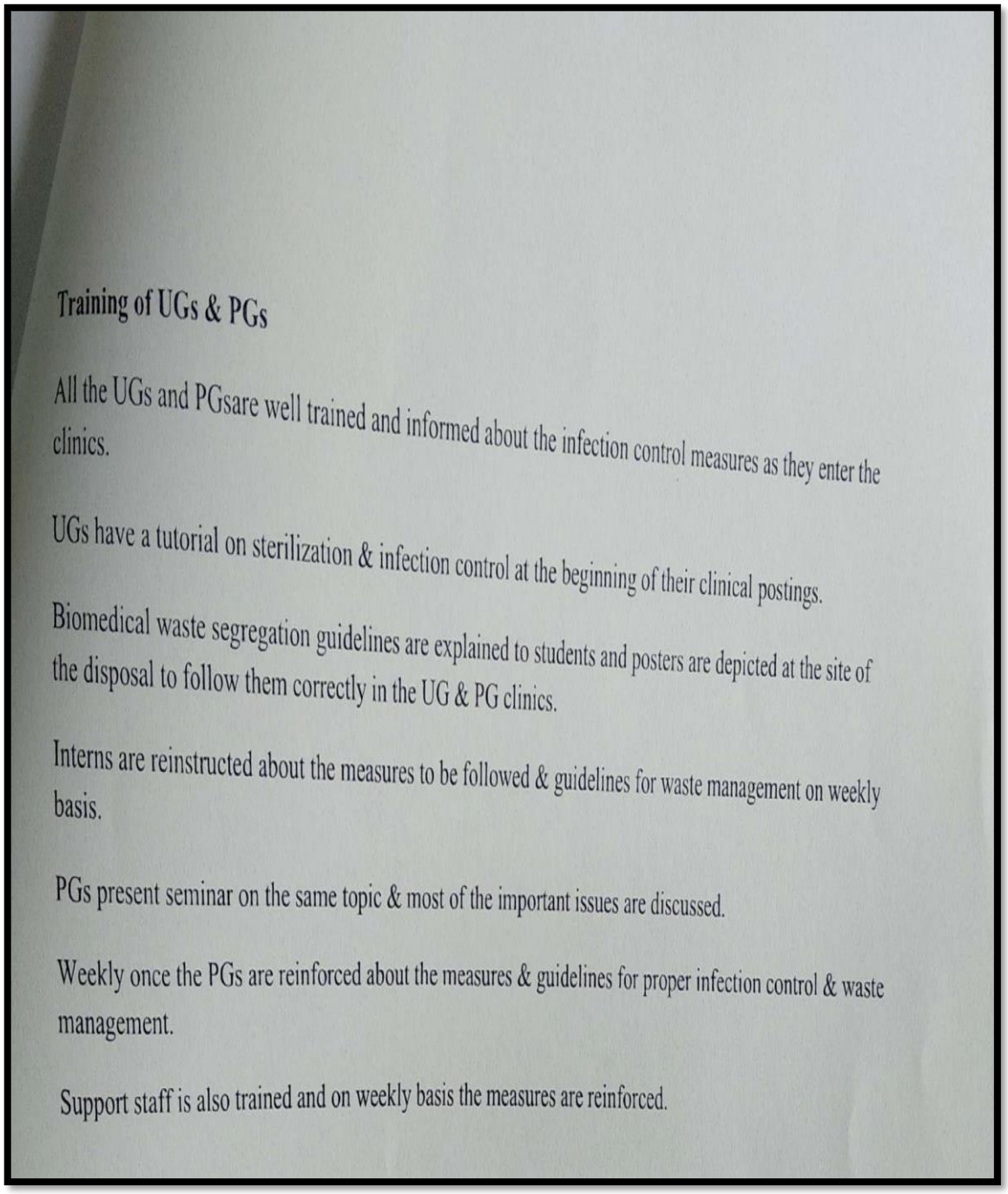


Training of UGs & PGs

All the UGs and PGsare well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings.

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

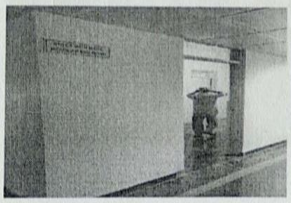
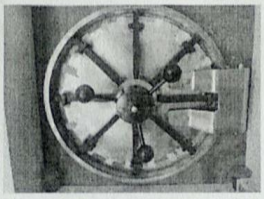
PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

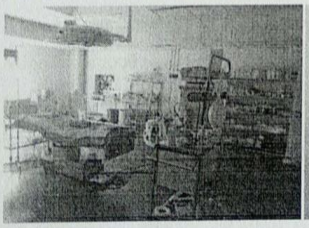
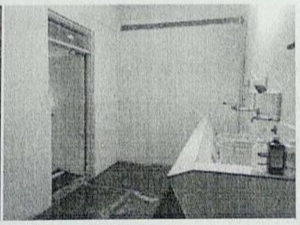
Support staff is also trained and on weekly basis the measures are reinforced.

- **Layout of the OT**
- Outer Zone
- (Main Access corridor, transfer area, supervisor office or control station, documentation area, preoperative patient holding area(s), the changing facilities).

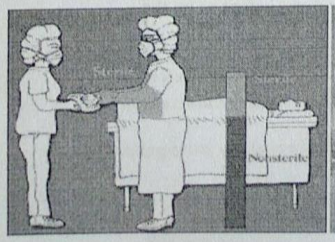
- Clean/ Semi restricted zone
- (Clean corridor, sterile and equipment sterile store, anesthesia and recovery room, rest areas)

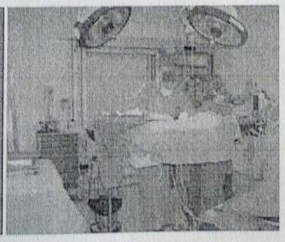



- Restricted zone
- (scrub sinks, operation room)

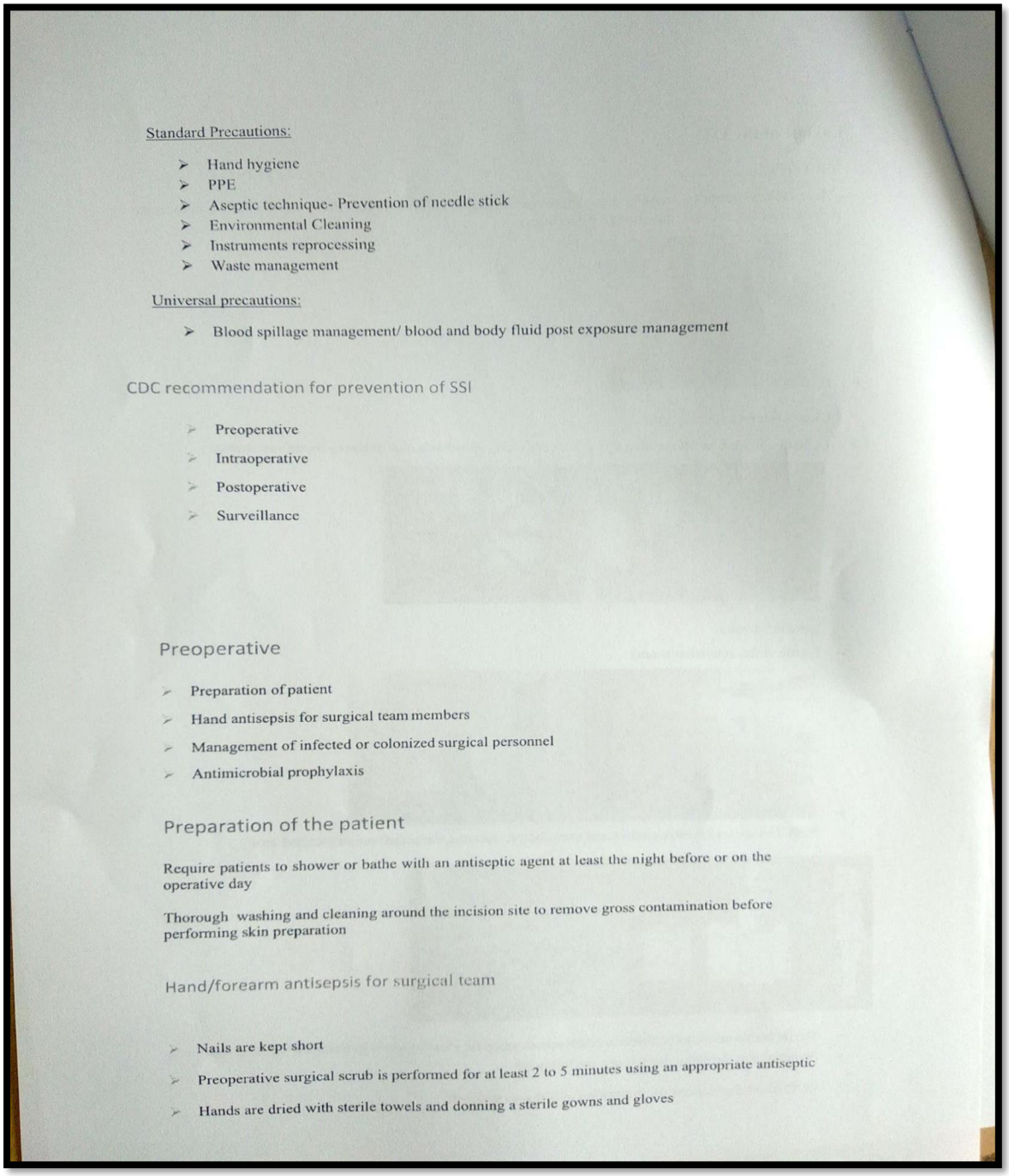



- Staff change into theatre clothes and shoes before entering the clean/ semi restricted area





- Sterile personnel is not allowed to reach across unsterile areas or to touch unsterile items, or vice versa
- Standard and universal precautions are followed



Standard Precautions:

- Hand hygiene
- PPE
- Aseptic technique- Prevention of needle stick
- Environmental Cleaning
- Instruments reprocessing
- Waste management

Universal precautions:

- Blood spillage management/ blood and body fluid post exposure management

CDC recommendation for prevention of SSI

- Preoperative
- Intraoperative
- Postoperative
- Surveillance

Preoperative

- Preparation of patient
- Hand antisepsis for surgical team members
- Management of infected or colonized surgical personnel
- Antimicrobial prophylaxis

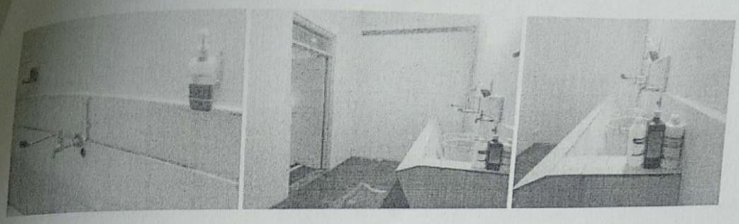
Preparation of the patient

Require patients to shower or bathe with an antiseptic agent at least the night before or on the operative day

Thorough washing and cleaning around the incision site to remove gross contamination before performing skin preparation

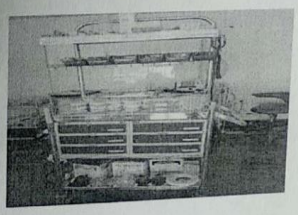
Hand/forearm antisepsis for surgical team

- Nails are kept short
- Preoperative surgical scrub is performed for at least 2 to 5 minutes using an appropriate antiseptic
- Hands are dried with sterile towels and donning a sterile gowns and gloves



Antimicrobial prophylaxis

- Administration of a prophylactic antimicrobial agent done only when indicated
- Administeration by the IV route the initial dose not more 1 hour before incision



Intraoperative

- Ventilation system
- Cleaning and disinfection of environmental surfaces
- Microbiological sampling
- Sterilization of surgical instruments
- Surgical attire and drapes
- Asepsis and surgical technique

Ventilation

- Positive pressure ventilation in maintained in the operating room
- Operating room doors are kept closed except as needed for passage of equipment personnel and the patient

Cleaning and disinfection of environmental surfaces

- When visible soiling or contamination with blood or other body fluids of surfaces or equipment occurs, disinfectant are used to the clean the affected area before the next operation

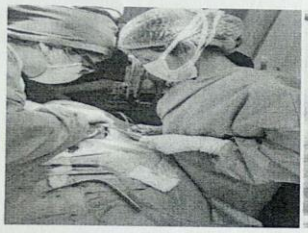
Surgical attire and drapes

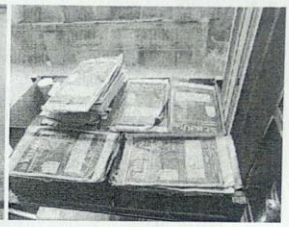
Surgical mask that fully covers the mouth and nose

Cap or hood to fully cover hair on head and face

Sterile gloves

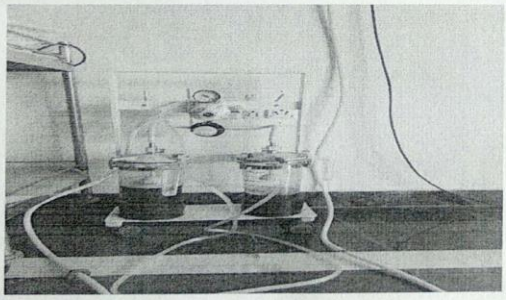
Impermeable sterile gowns





Change of scrub suits when visibly soiled or contaminated with blood or body fluids

When drainage is used , closed suction drain is used.



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Annual Report of 2018-19
Department of Conservative dentistry and Endodontics

Sterilization and cross-infection control in the dental practice
Educational aims

- The overall aim of this module is to inform and educate the dental professionals on the basic principles of cross-contamination barriers and infection control measures in the dental health care facility.
- Sterilization and cross-infection control are a core compulsory or recommended dental CPD (continuing professional development) topic in most European countries.

1. **Taking protection measures prior to beginning work**

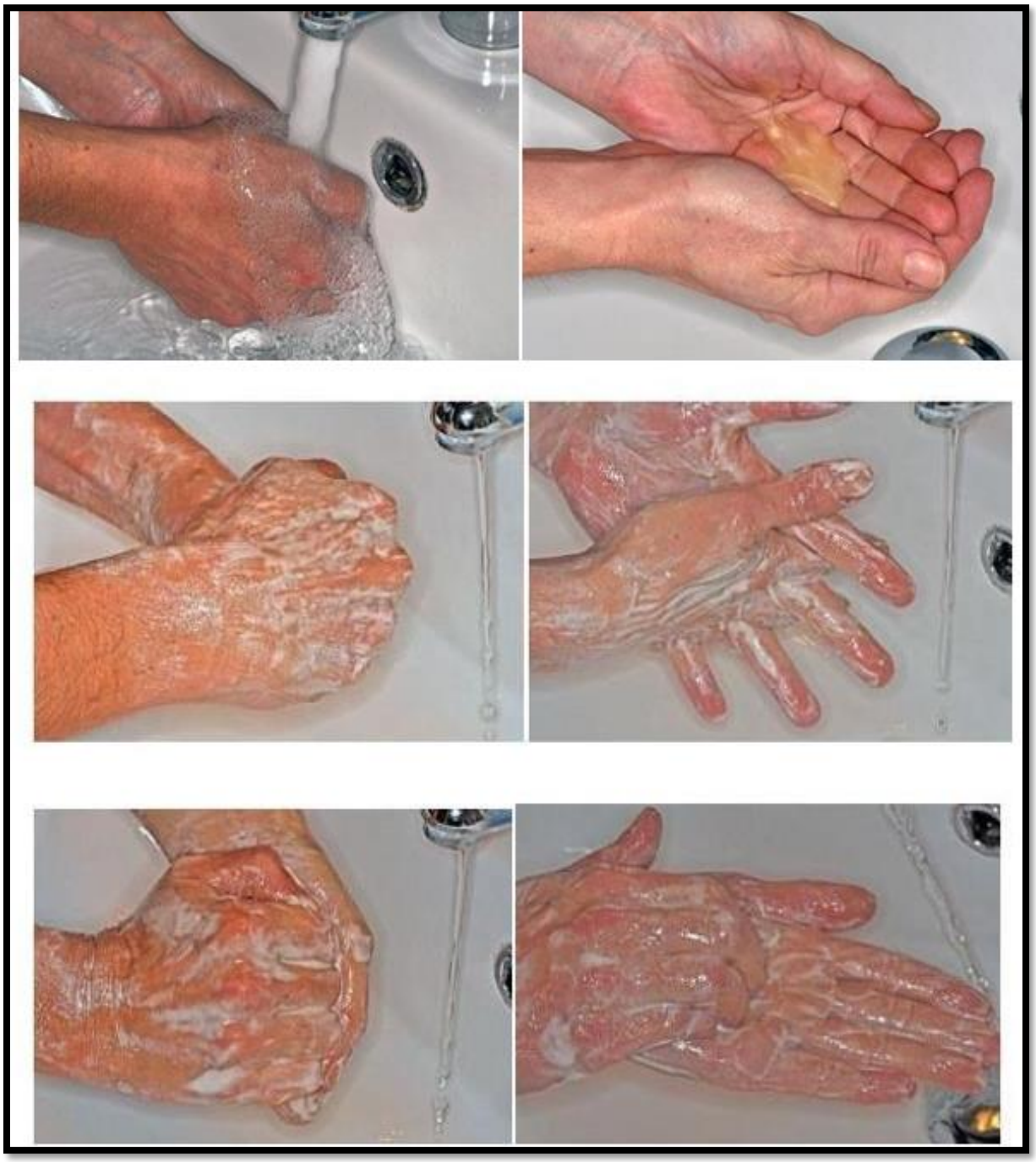
The dental staff must do the following before performing any dental work:

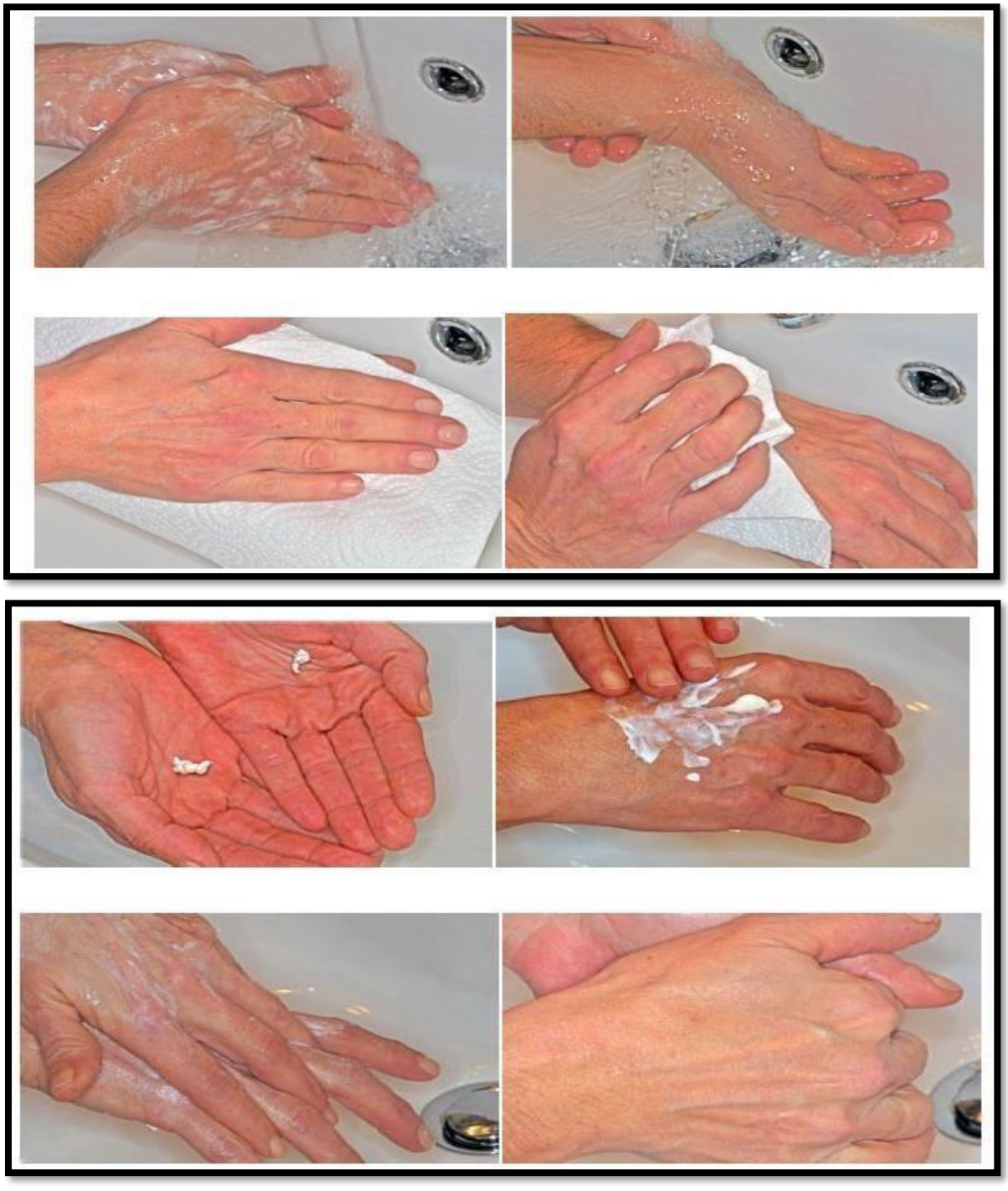
- Get vaccinated against hepatitis B – It is an imperative.
- Take a detailed medical history. This is necessary to find out if the patient has been through some kind of active contamination or other diseases indicating immunosuppression or other systemic illnesses. Independently of the information you have collected from your patient, you
- must consider him/her potentially contaminated and take the precautions advised for all patients.
- Make sure all the instruments are sterilized. Any instruments used to penetrate soft tissues or bones, such as tweezers, chisels, cleaning scoops, scrapers, must be sterilized after use.
- Protect working surfaces.
- Make sure they have at their disposal all the disinfectant fluids and waste containers necessary.

2. **Hand washing**

Hand washing is the cornerstone of the 'patient – doctor – auxiliary staff' protection circle aiming at the prevention of cross infection.

- The dental personnel are obliged to wash their hands before and after coming in contact with the
- patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hand washing must be performed meticulously so that every hand surface is adequately cleaned.
- Special attention must be paid to hand surfaces usually neglected when washed.





The pictures illustrate the areas requiring special attention so that hands are properly cleaned.

Various methods of drying hands

After removing the gloves,

- hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- Although frequent hand washing is a necessity, sometimes problems may appear such as dry skin and dermatitis. To avoid such problems special moisturizing lotions are recommended. These lotions, moisturizing creams etc. should be applied at the end of the day as they may cause the gloves to develop pinholes, due to their chemical composition, in which case no protection is offered by the gloves.
- In most kinds of dental work, water and soap followed by an antimicrobial solution are sufficient.
- In case of an injury, scratch or exudative injury, the person should postpone treating patients until the wound is healed. If this is not possible, the use of a double pair of suitable and tolerable gloves is recommended. As regards to antimicrobial solutions, although their use is not required, solutions with prolonged action are preferable. Their contribution to hand antisepsis is significant as pinholes may pre-exist or develop when the gloves are in use allowing the penetration of oral fluids and blood.
- When an antimicrobial solution remains effective for a long time after its application, adequate hand protection from the development of germs on the skin surface below the gloves is provided.
- Using antimicrobial solutions without prior meticulous hand washing is a defective and inefficient procedure.
- Alcohol antiseptic solutions or gels are effective in destroying the germs on the hand surface,
- provided that their use is preceded by adequate cleaning.
- Hand washing before and after patient contact is absolutely necessary
- Antimicrobial solutions contribute to hand antisepsis
- Solutions are not used are the only antiseptic means

Gloves

- The medical and auxiliary staff is obliged to always wear latex (or vinyl or nitrile) gloves during any dental work which involves contact with blood or saliva containing blood or mucus.
- These gloves should not necessarily be sterilized unless an operation is going to take place, particularly on patients with HIV infection.
- **Hands must be meticulously washed before wearing gloves**.
- The same procedure must be followed after removing gloves.
- Gloves are used during any dental work, for a single patient only and, afterwards, they are removed and discarded.
- **Washing the gloves and performing any dental work to another patient is strictly forbidden.**

- In patients with confirmed HIV or HBV and HCV infection, it is recommended that **double gloves** are used for the protection of the surgeon.
- If during any dental work it is necessary to use an extra device or material, gloves should be covered with an extra pair of nylon gloves so that contamination of those surfaces is prevented. *If there are injuries, scratches or exudative injuries and the operation cannot be avoided, double gloving is recommended for extra protection.* and washing is necessary before wearing gloves. Gloves are discarded after each patient Double gloves are recommended for patients with HIV, HBV, HCV infection

1. Mask and glasses

- During the examination or any dental work, an appropriate mask and eye protectors are necessary.
- These masks must follow certain specifications regarding the size, the thickness and the material, excluding those designed for structural or technical occupations due to intense particle penetration ability.
- Masks must be able to withhold at least 95% of the microorganisms.
- In case the dental patient suffers from an airborne disease (tuberculosis), the mask must be enhanced and fully adaptable to the wearer's face. Also, it must be able to withhold particles and microorganisms with a diameter up to 1µm, at a percentage of 95%.
- If the mask gets wet, it must be immediately discarded and replaced.
- Eye protectors may include various types of glasses or plastic masks or shields made of transparent materials.
- The side frame should be wide enough to cover adequately the eye.
- These protectors must be rinsed with abundant water and get disinfected in case they get stained in between the patients.

Unit surfaces cover


Mask, glasses and head cover

Masks and eye protectors enhance dentist and patient safety

1. **Dental clothing & Surface coverings**
   - Blouses should cover a big part of the dentist's body and hands.
   - **They must be changed on a daily basis and definitely as soon as they get stained.**
     If the operation is expected to involve a large amount of bleeding or the patient is likely to be seropositive, it is highly recommended that specially designed single-use clothing be used. Reusable clothing must be washed in a machine washer at an appropriate temperature, using a detergent and always separately from domestic and non-medical clothing.
   - **Surface coverings**
     Any surfaces, devices, electric switches, door handles, drawer knobs, taps, handles and device tubes not able to be sterilized or disinfected, should be meticulously covered with appropriate materials, such as:
     special rollers and plasticized paper sheets, cellulose film, aluminum foil, nylon cases, latex and vinyl cases.
   - **These protective coverings should be replaced after every contact and every patient**
     Dental blouses are changed daily and washed separately Surfaces not being able to be sterilized are covered with appropriate material


DentCPD
© 2012
Headrest cover


DentCPD
© 2012
Handpiece cover
DentCPD

1. **Cleaning and Sterilization of dental instruments**

Any dental hand instrument used during a dental incident must undergo a cleaning and sterilization procedure.

- **Step 1.** Right after the completion of the incident (examination, restoration, surgery) the instruments must be discarded in a special plastic container filled with an appropriate

disinfectant solution or enzyme solution with a proteolytic action.

- **Step 2**. After leaving the instruments within the solution for as long as the manufacturer recommends, they are transferred to the machine washer where they undergo thorough mechanical cleaning using the appropriate detergents. If dental materials (cements, pastes, oxides, etc) have been fixed on the instruments, the latter must be cleaned with ultrasonic devices and appropriate solutions.

Manual cleaning is not recommended due to the high risk involved in causing injuries and because it is inferior to mechanical cleaning in terms of quality.

- **Step 3.** After the instruments have been cleaned, they are packaged in special bags or perforated cassettes and they are taken to the **autoclaves** to be sterilized. The autoclave is programmed to operate depending on the packaging of the instruments and according to the default parameters set by the manufacturer, e.g. 134o C for 3 minutes or 121 C for 20 minutes or 121oC for 13 minutes, etc. it should be noted that the above times **do not include** warm up or air removal. The completion of the cycle and the sterilization process is confirmed through electronic instrument indications as well as changes in the color or shape of the indicators.

Autoclaves

6a. Single use instruments

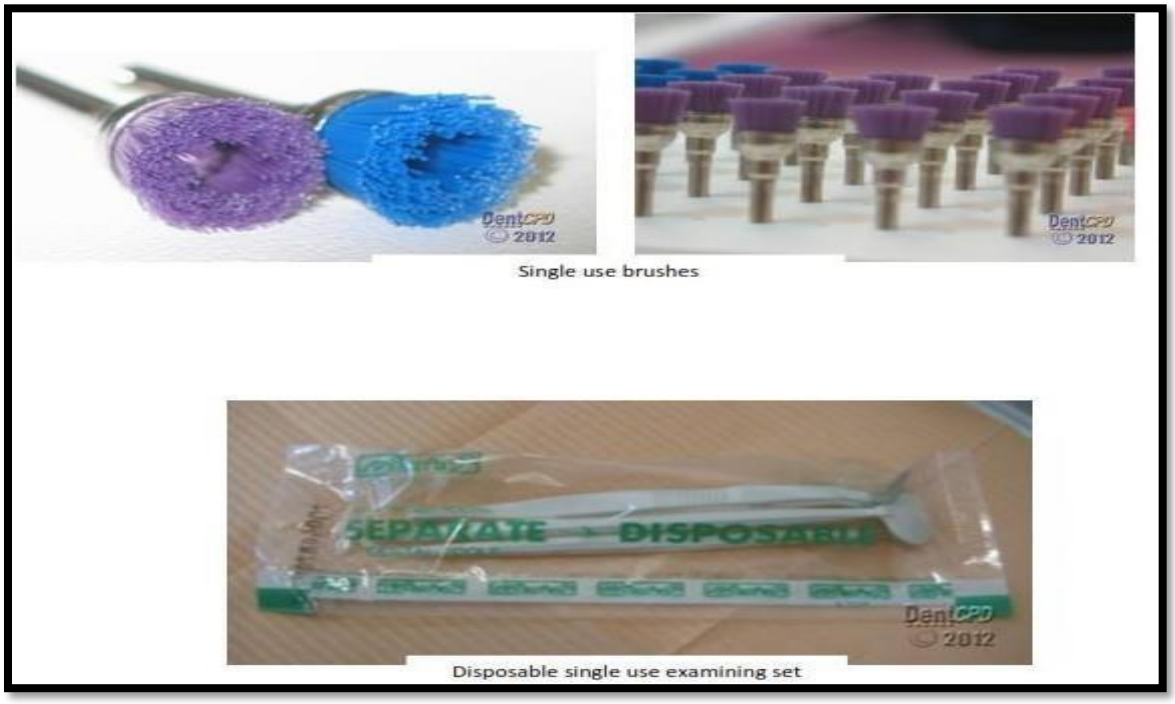
These instruments are divided into two categories:

Obligatory single use instruments. **They can only be used once and be discarded afterwards.** Anesthetic needles, Scalpel blades, Suture needles, Saliva ejectors, Dental cups, Surgical suction nozzles, Pulp instruments, Wedges, Rubber cups, Artificial walls, Fluoride gel trays. optionally single use instruments

Certain mirrors, Artificial wall retainers, Napkin holders, Various types of burrs, impression trays, Material mixing pads, Low speed handpieces for polishing after cleaning, High speed handpieces for cavity and stump formation in seropositive patients.


Single use disposable needles for etching


DenIOPD
2012
Single use wood wedges



6b. Use and care of sharp instruments and needles

- Sharp instruments, having been in contact with blood and saliva, should be used with special care so that injuries are prevented.
- Place any surgical blade and needle within a solid, hard plastic container for sharp instruments. Do not cap, bend or destroy the needles before you discard them.
- Do not overfill the plastic container, close tightly and, finally, discard.
- Used needles must not be recapped with both hands or any other technique and care must be taken so that the needle does not point towards the body.
- The **'one hand' technique to recap the needle** or a mechanical means designed to hold the cap should always be used. Recently, the use of needle destroyers which melt the metallic edge of the instrument has been suggested.
- Dental instruments must undergo a cleaning and sterilization procedure
- Sharp instruments and needles must be managed with special care

1. **Sterilization of handpieces and burrs**

- Low and high-speed handpieces as well as various burrs used in everyday clinical practice should be sterilized before use so that all conditions ensuring harmless dental care provided to all population groups are met.
- Sterilizing the handpieces requires special attention and suitable preparation so that any damages to their interior are avoided and, consequently, defective operation and financial burden are prevented.

- After the completion of any dental work, the external surfaces of the handpiece have come in contact with saliva, blood, dental tissue debris and residues of dental materials. However, it is likely that the internal tubes of the handpieces are infected due to various hydrodynamic phenomena taking place on their tip:

- *when cavities are formed Sub gingivally,*
- *opening a coronal cavity during endodontic therapy,*
- *forming stumps,*
- *polishing gingival restorations,*
- *polishing the cervical areas of the tooth after a periodontal treatment.*

Several ways to control the spread of contaminating matter between two patients have been recommended.

The most common methods of asepsis control are the following:
Protection from any contact with the fluid's existent in the oral environment

- Chemical disinfection
- Thermal sterilization
- Disinfection via irrigation
- Single use handpieces
- **Among the above techniques, moist heat using saturated water vapors (autoclave) offers the best results as regards the sterilization of handpieces in a very short time.**

7a. Sterilization of handpieces

- **Step 1.** After the end of the dental work the handpiece **must operate** for 5-10 seconds over the wash basin or a similar container while ejecting water and air.
- **Step 2.** Then, after being detached from the tubes connecting it with the unit it must be meticulously **washed and brushed** under running water.
- **Step 3.** Finally, it must be **dried** with an absorbent paper.
- **Step 4.** After external cleaning, the handpiece is reconnected to the tubes and operates for 3-5 seconds only with air so that any water residues are removed from the interior of the tubes and the impellers.
- **Step 5.** Then, the handpiece is **lubricated** with the lubricant recommended by the manufacturer and operates again for 10-20 seconds only with air so that the lubricant is properly distributed throughout the sensitive areas of the head.
- **Step 6.** After the end of this procedure, the handpiece along with the burr extractor are **enclosed in a special pouch** airtightly sealed either with a self-adhesive tape or a thermosealer.
- **Step 7.** The handpiece is placed in the autoclave where care should be taken for the pouches not to be clambered so that the air passes unhampered.
  The pouch with the handpiece must also include a sterilization indicator which could be

either a special tape or a vial with carbon grains. This is not necessary if the pouch includes a system controlling the length of stay and the vapour temperature within the autoclave. Depending on the manufacturer's indications, the autoclave is programmed to operate at 121oC for 20 minutes or at 127oC for 13 minutes or at 134oC for 3 minutes. After these cycles have finished and after the indicators have confirmed that the conditions worked properly, the handpieces and the extractors are sterilized and are ready to use.

- **Step 8.** Right before using them, some handpieces must be **lubricated again** with an appropriate lubricant which, this time, must be either sterilized or new and generally different from the one used to lubricate the septic handpiece before being placed in the autoclave.


DentCPD
Drying with absorbent paper


DentCPD
Lubrication of the head
DentCPD
Sealed pouch ready for the sterilization process

7b. Sterilization of burrs

Burrs should be sterilized independently of their type or mouth area they have worked in.

- **Step 1.** A necessary step prior to sterilizing a burr is **meticulous cleaning** from tooth tissue debris, residues of dental materials, blood clots or a paste-like mixture of all the above with saliva. The most widely accepted cleaning method for burrs and other micro instruments are

  Ultrasonic devices (baths) using suitable fluids and with the addition of enzymes with proteolytic action. In these baths using suitable fluids at a temperature of about 60°C, burs vibrate at a frequency of 60-80 kHz for at least 15 minutes. After the end of this procedure, burs are free from foreign matter as well as oxides very often being deposited on their stem.
- **Step 2.** After taken out of the ultrasonic bath, burrs must be **dried** using an absorbent paper and hot air.
- **Step 3.** They must be placed in an appropriate **device for sterilization**, depending on the material they are made of: burrs made of common carbon steel should not be placed in the autoclave because they are oxidized. on the contrary, burrs made of stainless steel or tungsten carbide are not affected. Dry heat ovens, ovens for chemical vapour sterilization and ethylene oxide ovens are suitable for sterilizing all types of burrs. However, dry heat ovens, due to prolonged heating involved, may seriously damage the cutting edge of the burrs. using various aldehydes and phenols for at least 30 minutes offers adequate sterilization while after 10 hours chemical sterilization is achieved. Nevertheless, they may damage the integrity of rotating cutting instruments.

- **Note:** It is a fact that no technique can fully remove organic debris and, therefore, result in successful sterilization. For these reasons, burrs intended for single patient use and discarded afterwards have recently been Introduced.

1. **Preparing impressions for the Lab**
   After removing the tray from the oral cavity, all impressions must be cleaned and sterilized in a certain way and using suitable solutions. More specifically:

- **Step 1.** After making the impression the tray must be transferred to the wash basin where the flow of tap water will remove any visible organic contaminants (blood, saliva etc.).\
- **step 2.** Afterwards, the tray is sprayed with or immersed in a suitable disinfectant solution depending on the properties of the material each impression is made of.
- **Step 3.** Impressions must be packaged in a suitable plastic box or a pet bag so that they are safely sent to the dental lab.

2. **Taking protection measures after ending work**
   Before you clean the working surfaces, **wear thick work gloves**, so that your hands are covered and are not exposed to blood and other biological fluids left on surfaces or instruments.

- **Remove any protective cover**. If the cover has been stained with blood, place it in a red bag. If the blood is completely dry or the cover has not been contaminated, place it in a regular bag. Use absorbent paper in case blood has penetrated the protective cover and put the absorbent paper in the red bag. Use an appropriate disinfectant.

- **Clean and sterilize all the instruments** and **disinfect the working surfaces** with an appropriate disinfectant solution (phenolic, alcoholic, quaternary ammonium compounds). Sterilize in the autoclave or dry heat oven any instruments having been in close contact with tissues. A special tape indicating that they have been sterilized must be attached on the instruments so that one is sure that sterilization has been carried out. This procedure is performed by specialized personnel. All **handpieces must be sterilized** in between patients. Follow the instructions recommended by the manufacturers. Chemical sterilization is not safe. Ultrasonic handpieces, scrapers and air syringes must be washed and sterilized. This procedure is performed by specialized personnel. **Place and remove any used waste**. All plastic bags must be collected on a daily basis to prevent the spread of infectious diseases. **Clean and disinfect the impressions**. Any impression or mapping should not be sent to the lab before being cleaned or disinfected. Remove your gloves and **wash your hands** with a disinfectant and water. If more patients are waiting to be examined, place back the protective covers and repeat the procedure.

1. **What must be done in case of an accident and exposure to infected material**
   Although the transmission probability of HIV after an accident is below 0.5%, it is imperative that protection measures are taken. In case of professional exposure to HIV after been pierced with an infected needle or other sharp instrument used on a patient diagnosed with HIV infection, the following actions must be taken. Prompt and meticulous washing of the injured area. Immediate placing of a gauze with a disinfectant solution on the injury (e.g. Cidex, formaldehyde, povidone iodine or 75% alcohol etc.) for at least 15 minutes. The professional must be examined as soon as possible. HIV can be detected in antigen presenting cells and peripheral ganglia within 72 hours after the infection while viraemia develops in about five days. The latter allows a 72-hour-period within which treatment can be provided. Chemoprophylaxis with antiretroviral drugs must begin as soon as possible after the incident. After 72 hours have passed, there is no point in administering chemoprophylaxis medication. **Post exposure prophylaxis, PEP**
   Depending on the size of the injury and the viral load of the patient two or three antiretroviral drugs are used (two nucleosides with the addition or not of a protease inhibitor). These same drugs are used to treat HIV infected people.

Operating Procedures for Biomedical Waste Management

Biomedical waste includes any solid or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Objective: To segregate the biomedical waste from the general waste to avoid cross infection.

Procedure:

I. **Categorize the BMW into the following:**
   1. Contaminated waste – Used cotton swabs
   2. Waste sharps– Needles, lancets, scalpel and other blades.

II. ***Segregation:***
   a. Refers to the separation of different type of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.
   b. Prevents mixture of medical waste with general waste
   c. Prevents illegal reuse of certain components of medical waste such as syringes, needles, and other plastic
   d. Recycled plastics can be used for non-food grade applications.
   e. All the bio waste is segregated according to their nature
   f. The BMW are segregated into the appropriate colour coded containers and bags red, yellow and white card board boxes)
   g. Needles, sharps is disposed using needle burner.
   h. Storage of sharp instruments using containers.
   i. Use of personal protective equipment's like gloves and masks by attenders during the waste handling.
   j. Disposal of bags containing BMW to the designated central collection point.

Clinicals:

Red bin: gloves, mouth mask, cotton.

Yellow bin: Blood soaked cotton and all infected waste **Sharps:** vials, needles and blades

Amalgam disposal:

To be immersed in closed bottles filled with fixer solution.

Radiology waste segregation:

- Never mix x ray developer and used x ray fixer because the silver containing x ray fixer is hazardous waste.
- Most of the silver content of x ray film is removed during processing of X-ray film, so only traces of silver are present in developed X- ray film and it can be discarded into the

trash.

- Return unused expired x ray film to the manufacturers.
- Developer solution is discharged by diluting with water into the sewer.
- Use silver recovery unit to reclaim silver from fixer solution and mix de silvered fixer with developer, dilute it and discharge to the sewage
- Lead foils
- Recycling of lead foils
- Biomedical waste disposal company accept lead foils.
- Do not throw lead foil into general or non-hazardous waste.
- Do not reuse lead foil packet for any other purpose
- Do not hand over lead foil packets to patients as they can throw them into regular garbage or can use for other purpose
- *Proper labelling of the bins*
- The bins are properly covered with the colored bags.

a. BMW is disposed accordingly.
   - *Collection of the BMW:*
   - *All the personnel involved in the collection are trained accordingly to use personal protective equipment's while handling the BMW.*
   - *Collection of the waste is done once daily or once in thrice in a week depending upon the waste collected.*

a. **Storage:** Waste is stored in a proper place and marked with a caution sign.
The used fixer solution is stored in white container

b. Transportation:
   - Transportation is done in trolleys and manual loading is avoided.
   - Container containing BMW is lidded before transportation.
   - Before transportation the BMW is accompanied with a signed document from the doctor.
   - The collected BMW is sent to the central collection point and then transported to the main disposal area.
   - The collected used fixer solution in the white cans are sent to reclaim the silver content.


Do not mix your Hospital Waste
Ensure the segregation of waste at source
Bio Medical Waste handling new rules 2016
Maridi Eco Industries Pvt. Ltd.
PLEASE DISPOSE THESE ITEMS
VIALS & GLASS BOTTELS.
DONOT MIX HOSPITAL WASTE
PLEASE DISPOSE THESE ITEMS
COTTON WASTE & SOILED COTTON / DRESSINGS
DONOT MIX HOSPITAL WASTE

CHILDREN'S EDUCATION SOCIETY (Regd.)
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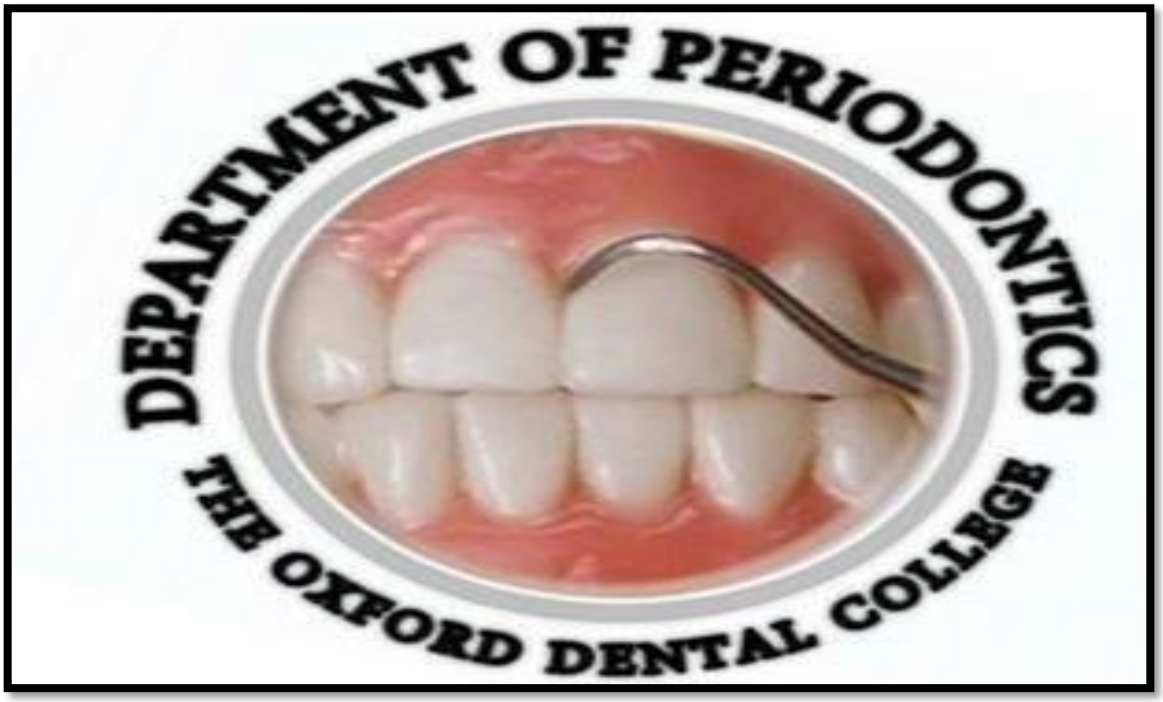
Infection Control Practice



Department of Periodontics

Contents: -

1. Infection Control Policy
2. Cleaning and Sterilizing of Instruments
3. Hazardous Waste Management
4. Standard Operative Procedure

1. Infection Control: -

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions, and excretions.
- Contact with contaminated equipment and medical apparatus.

Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene: -

Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done
- ✓ Before and after eating/smoking
- ✓ After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10- 15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Hand washing in clinics must be done:

- Before any Non- surgical procedure
- Before any non-surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

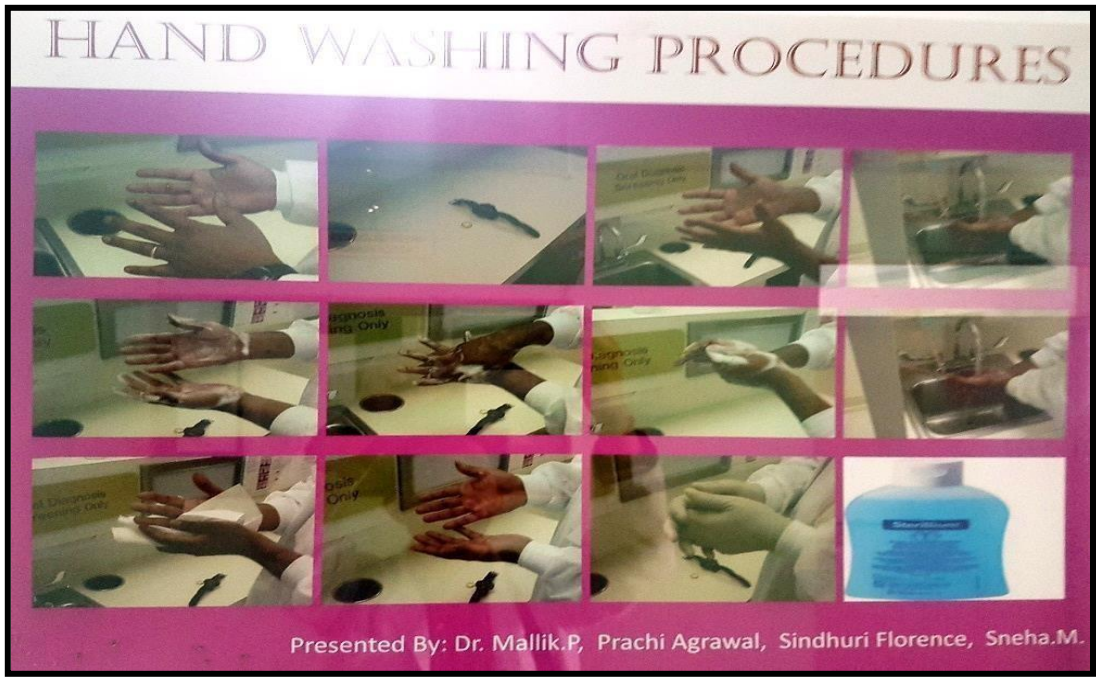
Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1minute.

2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to palm
2. Palm over dorsum
3. Palm to palm (fingers interlocked)
4. Back to fingers to opposing palms
5. Rotate hands in palms
6. Rotate fingers in palms



Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

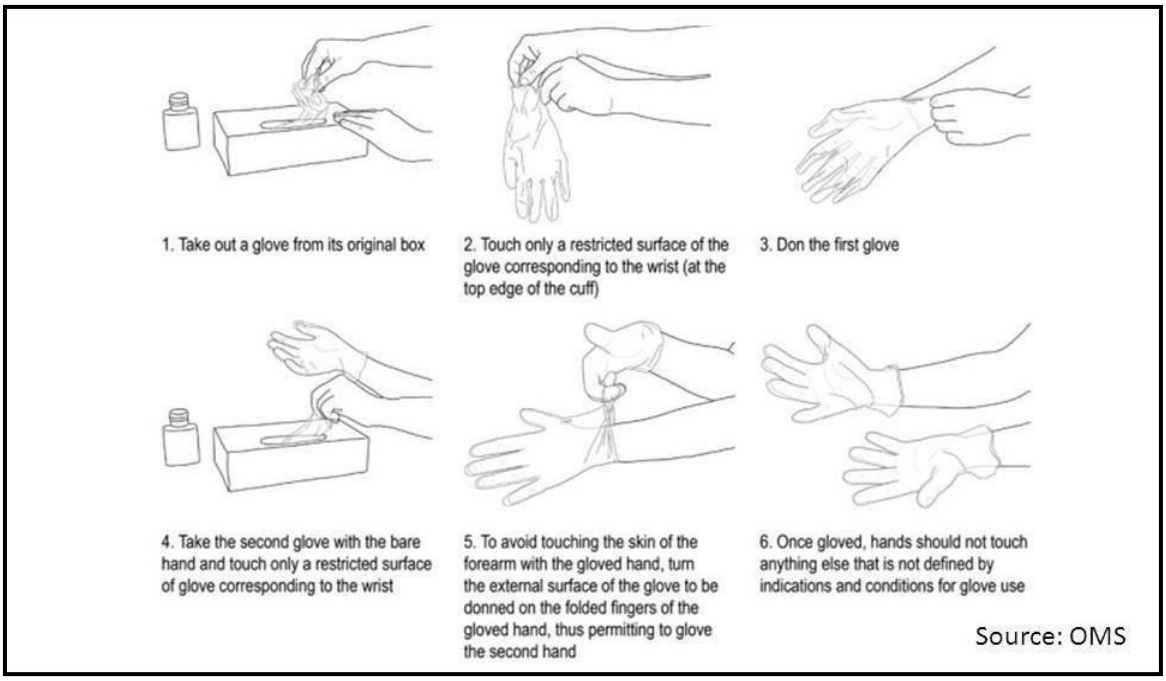
1. Wash nails, hands, forearms thoroughly.
2. Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
3. Commence washing with the forearms and finish with the hands.
4. Rinse thoroughly, keep hands above the elbows.
5. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.
- Examination gloves must be used only once and should be worn as per the below mentioned illustration.
- Provision should be made to utilize non-latex products for individuals with latex allergy.



Fingernail Care

- Keep fingernails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

2. **Cleaning and Sterilizing of Instruments**

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

CATEGORY	DESCRIPTION	EXAMPLES OF ITEMS
Critical	Penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue	Surgical instruments, scalers, curettes, scalpel blades, surgical burs
Semicritical	Contact mucous membranes, but will not penetrate soft tissue, contact bone or enter into or contact the bloodstream or normally sterile tissue	Dental mouth mirrors, amalgam dispensers, reusable impression trays, dental handpieces
Noncritical	Contact with intact skin	Blood pressure cuff, stethoscope, pulse oximeter

Source: Organization for Safety, Asepsis and Prevention, "From Policy to Practice: OSAP's Guide to the Guidelines. www.osap.org.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone or enter into or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals.
   Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.

2. **Semi-critical instruments** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays.
   They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

All critical and semi-critical dental instruments that heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g., Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron, and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilization.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments under water.

- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being recontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed colour
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage.

Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Management Sharps

Sharps are needles and scalpel blades must be disposed off safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately

after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items**: ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items**: ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

When three-quarters full, sharps safe should securely stored in the waste collection area.

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in a biohazard waste container in a biohazard waste container.

Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

1. Waste disposed of as sharps and infectious waste often contain many items of general waste.
2. All waste contains much that could be recycled.
3. Less waste, particularly sharps and infectious waste, means lower practice costs.
4. Waste containment is achieved through streamlined work practices

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick and Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.

If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

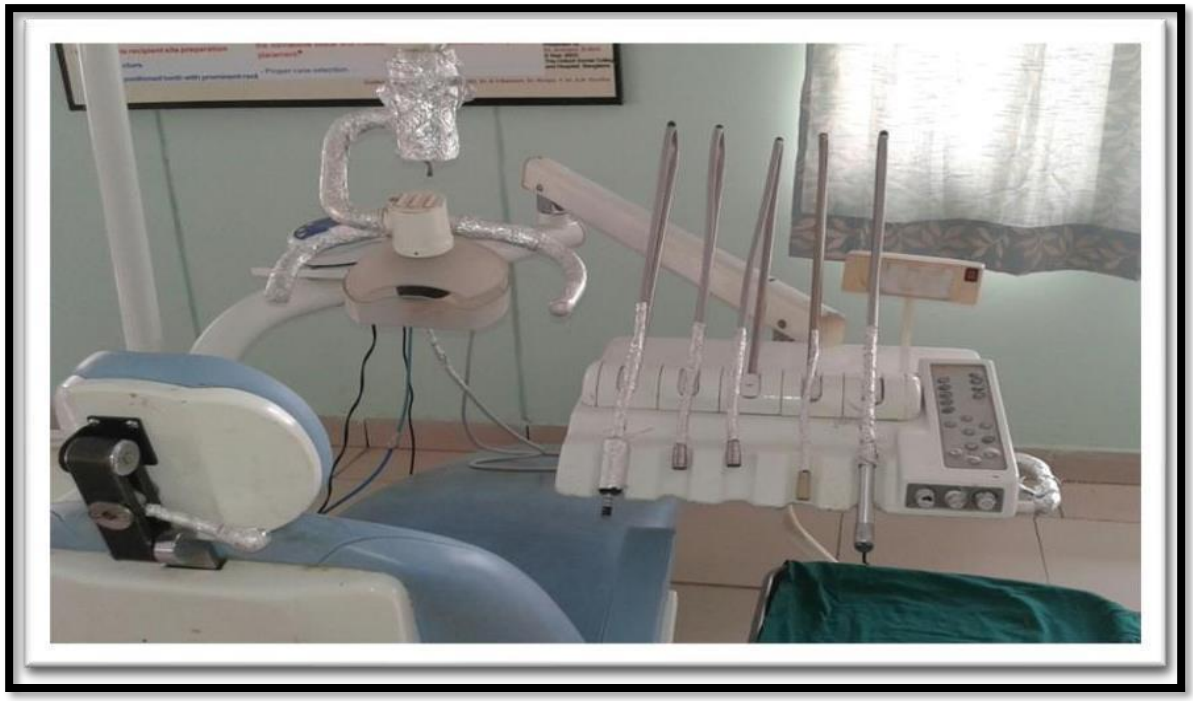
It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

Department of Periodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.

14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.



Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair

UG Clinic

Biomedical Waste Management: -

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental waste are segregated separately & disposed.

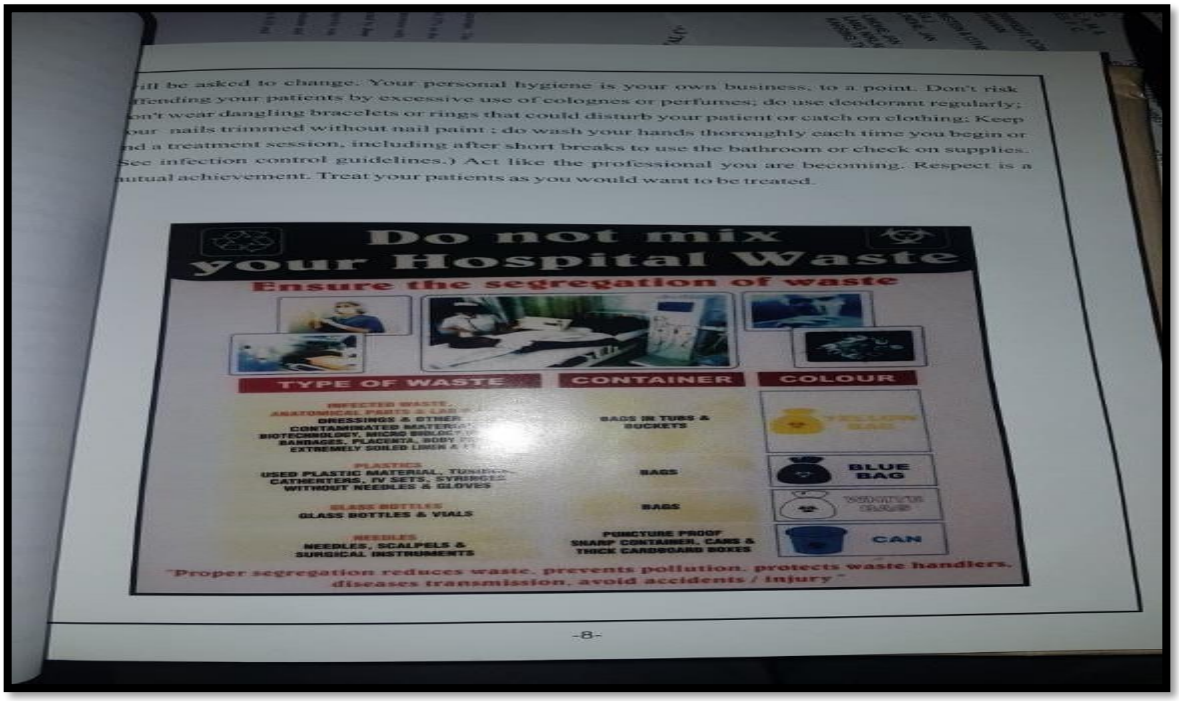
Syringe Needle Destroyer


Sterillium
SHARP INSTRUMENTS
AND NEEDLE
PRECAUTION :

Training of UGs & PGs

All the UGs and PGs are well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings and is added to their curriculum in their clinical logbook



Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

Support staff is also trained and on weekly basis the measures are reinforced.

4. **Standard Operative Procedure**

It is a process document that describes in detail the way an operator should perform a given operation. Periodontics is the specialty of dentistry that encompasses prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of teeth and dental implants. The specialty includes maintenance of the health, function, and esthetics of all supporting structures and tissues (gingiva, periodontal ligament, cementum, alveolar bone, and sites for tooth replacements). Tissue regeneration, management of periodontal-endodontic lesions, and providing dental implants as tooth replacements are, when indicated, integral components of comprehensive periodontal therapy. Tooth extraction and implant site development may accompany either periodontal or implant therapy.

The goals of periodontal therapy are to preserve the natural dentition, periodontium, and peri- implant tissues; to maintain and improve periodontal and peri-implant health, comfort, esthetics, and function. Currently accepted clinical signs of a healthy periodontium include the absence of inflammatory signs of disease such as redness, swelling, suppuration, and bleeding on probing; maintenance of a functional periodontal attachment level; minimal or no recession in the absence of interproximal bone loss; and functional dental implants.

Periodontal Examination

All patients should receive a comprehensive periodontal examination. Such an examination includes discussion with the patient regarding the chief complaint, medical and dental history review, clinical examination, and radiographic analysis. Microbiologic, genetic, biochemical, or other diagnostic tests may also be useful, on an individual basis, for assessing the periodontal status of selected patients or sites.

Some or all of the following procedures may be included in a comprehensive periodontal examination:

1. Extra- and intraoral examination to detect non- periodontal oral diseases or conditions.
2. General periodontal examination to evaluate the topography of the gingiva and related structures; to assess probing depth, recession, and attachment level; to evaluate the health of the subgingival area with measures such as bleeding on probing and suppuration; to assess clinical furcation status; and to detect endodontic-periodontal lesions.
3. Assessment of the presence, degree and/or distribution of plaque, calculus and gingival inflammation.
4. Dental examination, including caries assessment, proximal contact relationships, the status of dental restorations and prosthetic appliances, and other tooth- or implant-related problems.
5. Determination of the degree of mobility of teeth and dental implants.
6. Occlusal examination.

7. Interpretation of a satisfactory number of updated, diagnostic quality periapical and bite- wing radio- graphs or other diagnostic imaging needed for implant therapy.
8. Evaluation of potential periodontal systemic inter- relationships.
9. Assessment of suitability to receive dental implants.

Establishing a Diagnosis and Prognosis

The purpose of the comprehensive periodontal examination is to determine the periodontal diagnosis and prognosis and/ or suitability for dental implants. This process includes an evaluation of periodontal and peri-implant tissues to determine the suitability of the patient for treatments including nonsurgical, surgical, regenerative and reconstructive therapy, or dental implant placement. This information should be recorded in the patient's chart and communicated to the patient and the referring dentist when appropriate.

Periodontal Diseases and Conditions

Diseases of the periodontium may be categorized as gingival diseases, periodontitis, necrotizing periodontal diseases, abscesses of the periodontium, and developmental or acquired deformities and conditions.

1. **Gingivitis** is gingival inflammation without attachment loss or with non-progressing attachment loss. Other gingival diseases may be modified by systemic factors, medications, or malnutrition.
2. **Periodontitis** is gingival inflammation with progressing attachment loss. Different forms include, but are not limited to, **chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease, necrotizing ulcerative periodontitis, and periodontitis associated with endodontic lesions.**

   Periodontitis may be further characterized by degree of attachment loss as slight, moderate, or severe; by extent as localized or generalized; and by post-treatment status as recurrent or refractory. Facial recession involving loss of periodontal attachment and gingival tissue affects children and adults. The prevalence increases with age and adults over 50 have the greatest degree of involvement. This mucogingival condition is often treatable. Edentulous ridge defects result from loss of osseous tissue and can compromise esthetics or complicate future implant placement.

Development of a Treatment Plan

The clinical findings together with a diagnosis and prognosis should be used to develop a logical plan of treatment in order to eliminate or alleviate the signs and symptoms of periodontal diseases and thereby arrest or slow further disease progression. The treatment plan should be used to establish the methods and sequence of delivering appropriate periodontal treatment. When indicated, the plan should include:

1. Medical consultation or referral for treatment when appropriate.

2. Periodontal procedures to be performed.
3. Consideration of adjunctive restorative, prosthetic, orthodontic and/or endodontic consultation or treatment.
4. Provision for re-evaluation during and after periodontal or dental implant therapy.
5. Consideration of chemotherapeutic agents for ad- junctive treatment.
6. Consideration of diagnostic testing that may include microbiological, genetic or biochemical assessment or monitoring during the course of periodontal therapy.
7. Periodontal maintenance program.

Informed Consent and Patient Records

Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, informed consent should be obtained prior to the commencement of therapy. The information given to the patient in these circumstances should include the following:

1. The diagnosis, etiology, proposed therapy, possible alternative treatment(s), and the prognosis with and without the proposed therapy or possible alternatives.
2. Recommendations for referral to other health care providers as necessary.
3. The reasonably foreseeable inherent risks and potential complications associated with the proposed therapy, including failure with the ultimate loss of teeth or dental implants.
4. The need for periodontal maintenance treatment after active therapy due to the potential for disease recurrence.

A record of the patient's consent to the proposed therapy should be maintained. Moreover, complete records of diagnosis, treatment, results, and recommended follow-up are essential, starting with the initial examination and continuing for as long as the patient is under care. Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, it is advisable to obtain the informed con-sent in writing prior to commencement of therapy.

Treatment Procedures

A broad range of therapies exist in periodontics. No single treatment approach can provide the only means of treating any one or all periodontal diseases. One treatment modality may be appropriate for one section of the mouth while another approach may be suitable at other sites. When indicated, treatment should include:

1. Patient education, training in personal oral hygiene, and counseling on control of risk factors (eg, smoking, medical status, stress) with referral when appropriate.
2. Removal of supragingival and accessible subgingival bacterial plaque and calculus is accomplished by periodontal scaling. Comprehensive periodontal root planing is used to treat

root surface irregularities or alterations caused by periodontal pathoses. In some instances, these procedures may be incorporated into the surgical treatment.

1. Finishing procedures, which include post-treatment evaluation with review and reinforcement of personal daily oral hygiene when appropriate.

The following courses of treatment maybe indicated in addition to the above outlined procedures:

1. Chemotherapeutic agents. These agents may be used to reduce, eliminate, or change the quality of microbial pathogens; or alter the host response through local or systemic delivery of appropriate agent(s).
2. Resective procedures. These procedures are designed to reduce or eliminate periodontal pockets and create an acceptable gingival form that will facilitate effective oral hygiene and periodontal maintenance treatment. Soft tissue procedures include gingivectomy, gingivoplasty, and various mucogingival flap procedures. Osseous procedures include ostectomy and osteoplasty. Dental tissue procedures include root resection, tooth hemi section, and odontoplasty. Combined osseous and dental tissue procedures may be required for management of endodontic-periodontal lesions.
3. Periodontal regenerative procedures include: soft tissue grafts, bone replacement grafts, root biomodification, guided tissue regeneration, and combinations of these procedures for osseous, furcation, and recession defects. Periodontal reconstructive procedures include: guided bone regeneration, ridge augmentation, ridge preservation, implant site development, and sinus grafting.
4. Periodontal plastic surgery for gingival augmentation, for correction of recession or soft tissue defects, or for other enhancement of oral esthetics.
5. Occlusal therapy, which may include: minor tooth movement, occlusal adjustment, splinting, or provision of devices to reduce occlusal trauma.
6. Periprosthetic periodontal procedures include: exploratory flap surgery, resective procedures, regenerative or reconstructive procedures, or crown lengthening surgery, performed to facilitate restorative or prosthetic treatment plans.
7. Selective extraction of teeth, roots, or implants when indicated, in order to facilitate periodontal therapy, implant therapy, implant site development, or im- plant, restorative and/or prosthetic treatment plans.
8. Replacement of teeth by dental implants.
9. Procedures to facilitate orthodontic treatment including, but not limited to, tooth exposure, frenulectomy, fiberotomy, gingival augmentation, and implant placement.
10. Management of periodontal systemic interrelationships when appropriate.

Periodontal Maintenance Therapy

Upon completion of active periodontal treatment, follow-up periodontal maintenance visits should include:

1. Update of medical and dental histories.
2. Evaluation of current extra- and intraoral, periodontal and peri-implant soft tissues as well as dental hard tissues and referral when indicated (eg, for treatment of carious lesions, pulpal pathosis, or other conditions)
3. Assessment of the oral hygiene status with reinstruction when indicated.
4. Mechanical tooth cleaning to disrupt/remove dental plaque and biofilms, stain, and calculus. Local delivery or systemic chemotherapeutic agents may be used as adjunctive treatment for recurrent or refractory disease.
5. Elimination or mitigation of new or persistent risk and etiologic factors with appropriate treatment.
6. Identification and treatment of new, recurrent, or refractory areas of periodontal pathoses.
7. Establishment of an appropriate, individualized interval for periodontal maintenance treatment.

The patient should be kept informed of:

1. Areas of persistent, recurrent, refractory, or new periodontal disease.
2. Changes in the periodontal prognosis.

Advisability of further periodontal treatment or re- treatment of indicated sites.

1. Status of dental implants.
2. Other oral health problems noted that may include caries, defective restorations, and non-periodontal mucosal diseases or conditions.

Evaluation of Therapy

Upon completion of planned periodontal therapy, the record should document that:

1. The patient has been counseled on why and how to perform an effective daily personal oral hygiene program.
2. Accepted therapeutic procedures have been per- formed to arrest the progression of the periodontal disease(s).
3. Periodontal root planning has left subgingival root surfaces without clinically detectable calculus deposits or rough areas.
4. Gingival crevices are generally without bleeding on probing or suppuration.
5. A recommendation has been made for the correction of any tooth form, tooth position, restoration, or prosthesis considered to be contributing to the periodontal disease process.

6. An appropriate periodontal maintenance program, specific to individual circumstances, has been recommended to the patient for long-term control of the disease, as well as for the maintenance of dental implants, if present.

Department of Prosthodontics
[Standard Operating Procedures]
Standard operating procedure follows

Work sheets (Orders) are collected with instructions

↓

Concerned staff analyses and evaluates the work sent

↓

work assigned to the technician with instructions regarding specification of design and date of work completion

✓ **Lab safety procedures:**

- Disinfection of all the materials used and sterilization of allinstruments accompanied by a clean laboratory
- Laboratory decorum followed
- No eatables allowed in the lab.
- Covered overalls separate from that used outside the lab.
- Safety protocol (Complete hygiene of technician that includes Mouth mask, Safety glass, Gloves and Lab coat)
- Re-use of metals
- Metal can't be re-used more than twice.

- **Protocol for Complete Dentures**

Fabrication of primary cast from collected primary impression and construction of special/custom tray (given in 2 working days)

↓

Fabrication of Master cast from procured Secondary impression and construction of denture base with occlusal rims (given in 2 working

↓

Articulating the casts in the procured jaw relation (done in 1 working day)

↓

Teeth setting (given for try-in in 2 working days)

↓

Flasking, dewaxing, packing and curing procedures carried on, followed by trimming and finishing of denture (denture delivered in 3 working days)

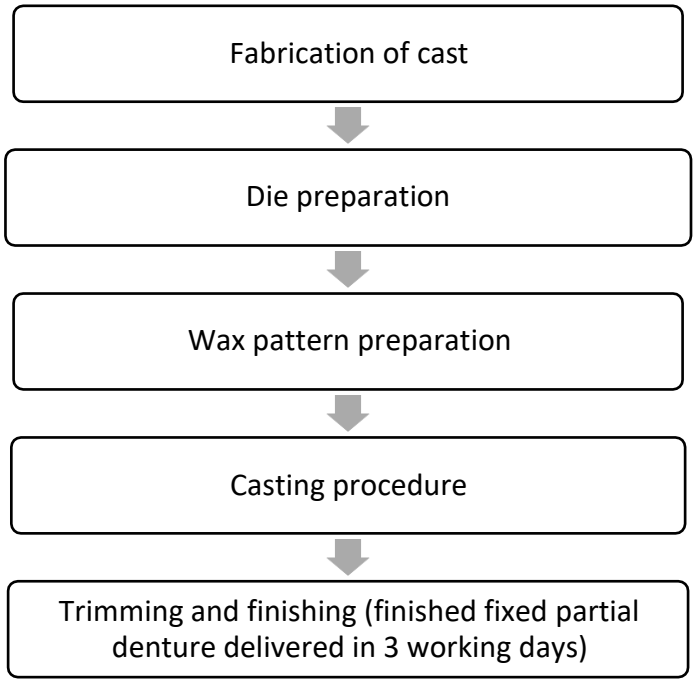
Protocol for Cast partial denture

Fabrication of primary cast from the procured primary impression followed by construction of denture base with occlusal rims (given in 2 working days)

Articulation and teeth setting (given for try-in in 2 working days)

Investing, dewaxing, packing and curing procedure followed by denture trimming and polishing (denture delivered in 2 working days)

Protocol for fixed partial denture



Schedule for supplying materials

✓ Consumables
- Materials supplied on every Monday (9-10am) for the usage of that week
- On exhaustion of material, re-issued on every Thursday (9-10am)

✓ Non-Consumables
- Available to technician on all days (Monday-Saturday (9-12.30am)]
- Stocked on the first working day of every month.

Areas of Responsibility:
- Dental Providers (Dentists/Hygienists)
- Dental Support Staff (DSS)

Procedure:
- Dental Providers (Dentists/Hygienists)
- Have a basic understanding of the Dental Sterilization Process.
- The Infection Prevention/Control (IPC)/Safety Officer (Hygienist) for each dental clinic is responsible for training and monitoring the dental sterilization process. If there is a breach in the sterilization process it is their responsibility to report this to the Dental Clinic Director and the Infection Prevention/Control Advisor for the Dental Department.

- In the event of a breach in the sterilization process, the Clinic IPC/Safety Officer, the Dental Clinic Director, and the Infection Prevention/Control Advisor for the Dental Department will ensure the appropriate steps are taken to correct the situation.

Dental Support Staff

- Instruments/cassettes which need to be heat sterilized are to be transported from the dental operatory to the sterilization (instrument processing) area in the approved transport container.
- Instruments are defined as any instruments or dental devices (ex: bite block, lab spatula, xcp's) not contained in a cassette that require heat sterilization.
- Cassettes are defined as any instruments which are contained in a cassette that require heat sterilization. They may be sterilized in either a multi parameter pouch or blue surgical wrap.
- The sterilization (instrument processing) area should be divided into the following four sections:
- Receiving, Debridement, and Decontamination.
- Preparation and Packaging.
- Sterilization.
- Holding Aerotor sterilized pouches/wrapped cassettes waiting to be returned to the operatory and storage areas.
- The sterilization area should be divided by walls, partitions, or adequate spatial separations to control traffic flow and contain contaminants generated during processing.

Receiving/Debridement/Decontamination of The Instruments/Cassettes:

- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
- The debridement/decontamination process is to be completed immediately after the instruments/cassettes are brought to the sterilization area in order to reduce the risk of microorganisms becoming encapsulated on the instrument/cassette surfaces.

➢ **Instruments/cassettes need to be debrided/decontaminated by one of the following methods:**

➢ **When Using the Ultrasonic:**

- The preferred procedure is to place instruments/cassettes directly into the ultrasonic using the appropriate inserts immediately after being received in the sterilization area.
- If there is a load already running in the ultrasonic, the instruments/cassettes should be kept in a presoak of the approved ultrasonic cleaner and run through the ultrasonic as soon as possible.

- Manual debridement of the instruments/cassettes is strongly discouraged. If it is absolutely necessary, the instruments/cassettes are to be debrided with a long-handled brush and placed into the ultrasonic as soon as possible.
- The ultrasonic is filled at the beginning of each day with the approved ultrasonic cleaner.
- If the ultrasonic cleaner becomes diluted due to excessive use, it may be necessary to change the ultrasonic cleaner during the day.
- The ultrasonic is to run for the appropriate time according to the manual.
- The instruments/cassettes are then thoroughly rinsed with tap water and set on a rack to dry.
- If this is the last cycle of the day, the instruments/cassettes maybe left after the rinse has been completed.
- The instruments/cassettes will need to be packaged and sterilized the next day.
- The ultrasonic is to be drained at the end of each day and sprayed with the approved surface disinfectant.
- DSS are responsible for keeping the sterilization area neat and organized.
- Place the loose instruments neatly in the drying area in order to prevent damage to the instruments/cassettes.

➢ **When Using the Miele** (Dental Washer Disinfector), follow the "Instrument Handling Recommendations" which are found in the manual:

- Instruments/cassettes should not be pre-soaked, rinsed, or hand scrubbed.
- Instruments/cassettes are placed directly into the Miele Dental Washer Disinfector.
- The Miele Dental Washer Disinfector serves as the "dirty storage area" and will clean and disinfect instruments/cassettes that have been sitting for up to 6 hours; however, instruments/cassettes cannot be left to sit overnight.
- Instruments should be placed into plastic cassettes within the metal mesh basket in the Miele to prevent damage to the tips of the instruments. Tips of the instruments can become caught in the metal mesh.
- The recommended cycle is the Disinfection VARIO with the optional 10-minute drying cycle.
- The Miele cannot be left running when the DSS leave for the day. The cycle must be complete and the door of the Miele must be left slightly opened.
- Do not leave the door to the Miele completely opened because it is a safety hazard.
- The door of the Miele needs to be opened immediately after the cycle ends to release hot air and steam and to let instruments cool. This prevents rust and corrosion from forming on the instruments/cassettes.
- If this is the last cycle of the day and there is not enough time to run the Disinfection VARIO cycle, the Miele may run through one of the following cycles:

- The 30-minute cycle with a cold-water pre-rinse and a detergent phase. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day.
- Instruments/cassettes may be packaged and sterilized the following day.
- The 10-minute cycle with a cold-water pre-rinse only. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day. The instruments/cassettes are not ready for packaging and sterilization.
- Instruments/cassettes will need to be run through the Disinfection VARIO cycle at the beginning of the following day.
- Instruments/cassettes may then be packaged and sterilized.

➢ **Hand Pieces:**

- Hand pieces are to be cleaned and oiled by the hand-held air driven method.

➢ **Preparation/Packaging of the instruments/Cassettes:**

- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.

➢ **After the debridement/decontamination process is completed, the instruments/cassettes are prepared for heat sterilization through the following steps:**

- Place instruments/cassettes in the appropriate sized multiparameter pouches (Multi parameter meaning the appropriate levels for heat, temperature, and time have been achieved).
- Affix the self-sealing adhesive strip to the designated place on the multi parameter pouch to ensure a complete seal.
- If using blue surgical wrap, a small piece of autoclave indicator tape needs to be inserted into the middle of the cassette (internal indicator). The outside of the package needs to be secured with autoclave indicator tape (external indicator).
- The pouches/wrapped cassettes now need to have the current date marked on them with a regular point black Sharpie permanent marker. The date will read as: 09-13-13. (Not 09/13/13).
- Any clinic with more than one heat sterilizer (ex: Statim/Autoclave) needs to designate which sterilizer the pouches/wrapped cassettes have run through. (ex: red Sharpie permanent marker=Statim; blue Sharpie permanent marker=Autoclave 1; green Sharpie permanent marker=Autoclave 2; orange Sharpie permanent marker=Autoclave 3)

➢ **Sterilization of The Pouches/Wrapped Cassettes:**

- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated pouches and wrapped cassettes.
- Pouches/wrapped cassettes are to be placed correctly on the trays for each heat sterilizer (refer to the "Guidelines for Loading Trays" which may be found in the

sterilizer manual).

- Before sterilizers are started, the water levels need to be checked. (Ex: Autoclave=tubing indicator inside the door/Statim=the lid covering the mesh trap on the top of the unit). Make sure the collection container which drains under the Statimis not full. If sterilizers need to have water added to the units, use only distilled water. No tap or filtered water is to be used in these sterilizers.
  - The recommended cycle for the Statim is the "Wrapped" cycle which will run at275^{0}F (135 C) for 10 minutes.
  - The recommended cycle for the Autoclave is the "Packs" cycle which will run at 250^{0}F (121 C) for 30 minutes.
  - After the cycle for the autoclave has been selected, push the 'Start' button and listen for the sound of water filling the reservoir. The sterilizer willow show it has started and you may then fill out the log for that sterilizer. (Print your name, current date, note the time started and place your initials).
  - It is imperative that the sterilizer run through the complete cycle from the "filling" phase through the "drying" phase. Do not interrupt the cycle at any point before the drying phase is complete.
  - When the sterilizer shows the cycle is complete, the (DSS) may remove the sterilized pouches/wrapped cassettes.

➢ **Holding Area for The Sterilized Pouches/Wrapped Cassettes:**

➢ **When removing the sterilized pouches/wrapped cassettes from the sterilizer, the DSS will initial each sterilized pouch/wrapped cassette clearly with their written initials once they have verified the following three items:**

- ✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.
- ✓ There is a clearly marked date of sterilization.
- ✓ There is a clearly marked sterilizer identifier.

- If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be placed in the holding area.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.

➢ **When removing the sterilized pouches/wrapped cassettes from the Holding Area, the DSS will initial each sterilized pouch /wrapped cassette clearly with their written initials for a second time after they verify the following three items:**

- ✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.
- ✓ There is a clearly marked date of sterilization.
- ✓ There is a clearly marked sterilizer identifier.

- If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be taken to the operatory/storage area.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC advisor for the Dental Department.

➢ **When removing the sterilized pouches/wrapped cassettes from the storage areas and preparing for the next patient, the DSS will need to triple check the following three items:**

  - ✓ The internal/external indicators changed to the appropriate color (from pink to cocoa brown) according to the color chart.
  - ✓ There is a clearly marked date of sterilization.
  - ✓ There is a clearly marked sterilizer identifier.

- If the three previously stated items can be verified, the sterilized instruments and cassettes can be removed from the pouches and blue surgical wrap.
- The DSS can set up for the next procedure.
- Leave the sterilized pouches/blue surgical wrap on the counter for the dental provider/ DSS to verify.
- The pouches and blue surgical wrap can then be thrown away.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilizations process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC advisor for the Dental Department.

➢ **Breach in The Sterilization Process:**

- If a breach in the sterilization process is identified and the pouch/wrapped cassette has Not been used in a dental procedure involving a patient:
- The IPC/Safety Officer for the dental clinic will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
- The pouch/wrapped cassette will need to be re-packaged and re-run through the sterilization cycle.
- The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- If a breach in the sterilization process is identified and the pouch/wrapped cassette Has been used in a dental procedure involving a patient:
- The IPC/Safety Officer will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
- The pouch/wrapped cassette will need to be pulled from the operatory/storage area.

- Any other pouches/wrapped cassettes which have the same date of sterilization and the same sterilizer identifier will also need to be pulled from the dental operatory/storage areas.
- The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- The Dental Clinic Director will need to notify the appropriate people in the Medical Department and the Administration Department. The plan for a Failed Dental Sterilization Process will be initiated.

➢ **Important Reminders:**

- The efficacy of the heat sterilizers is measured weekly through biological spore testing. Refer to the Spore Testing SOP.
- Periodic maintenance (daily, weekly, monthly, quarterly, bi-annual and annual) needs to be completed and documented for each sterilizer (Autoclave/Statim).
- Each sterilizer has its own manual with the maintenance schedule outlined.
- Document the maintenance completed in a log specific to each sterilizer.
- At the beginning of the month send a copy of each of the maintenance logs via interoffice mail to the Quality Coordinator/Trainer in Administration.
- Periodic maintenance (daily, every 2 weeks, and annually) needs to be completed on the Miele as outlined in the manual.
- Periodic maintenance needs to be completed on the Ultrasonic as outlined in the manual.
- Periodic maintenance needs to be completed on the Assist in a as outlined in the manual.
- The countertops, door handles, and doors in the sterilization area are to be disinfected at least once per week. The proper PPE will need to be worn when using the dry 4X4s and the approved surface disinfectant.
- The biohazard (red) bag in the sterilization area needs to be taken to the large clinic biohazard container at least once per week

CHILDREN'S EDUCATION SOCIETY (Regd.)
THE OXFORD DENTAL COLLEGE
(Recognized by the Govt. of Karnataka, Affiliated to Rajiv Gandhi University of Health Sciences, Karnataka & Recognised by Dental Council of India, New Delhi)
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Department of Orthodontics and Dentofacial Orthopedics
For the Year 2019
Note on Infection Control in The Department

- **Hand Hygiene**

Hand contact is one of the main routes of transmission of multi drug resistant bacteria, etc. Hand hygiene reduces the risk of bacterial transmission to patient and health care personnel.

We maintain hand hygiene:

- before and after treating each patient (before glove placement and after glove removal)
- after barehanded touching of objects that most likely to be contaminated with blood or saliva
- before leaving dental operatory.

Gloves

We in the department wear gloves to prevent contamination of our hands when in contact with p a t i e n t s mouth to reduce the risk of transmission of microorganisms from our hands to the patient during performing dental procedures.

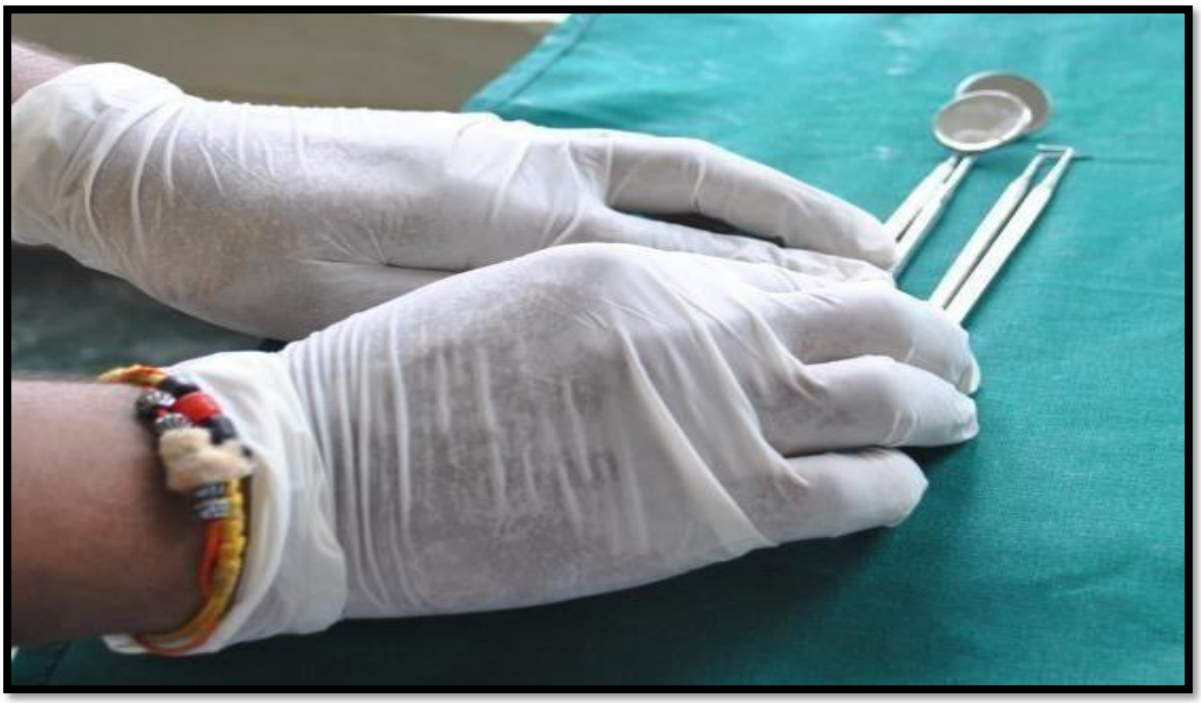
- ***Mouth Mask, Head Cap and Protective Eye Wear***
  - **Mouth Mask** is worn to cover both nose and mouth during procedures to prevent splashes or spray of blood or body fluids. A mouth mask protects the patient against microorganisms from the wearer and also protects us from droplets that may contain bloodborne pathogens. A mouth mask is changed between each patient in our department.

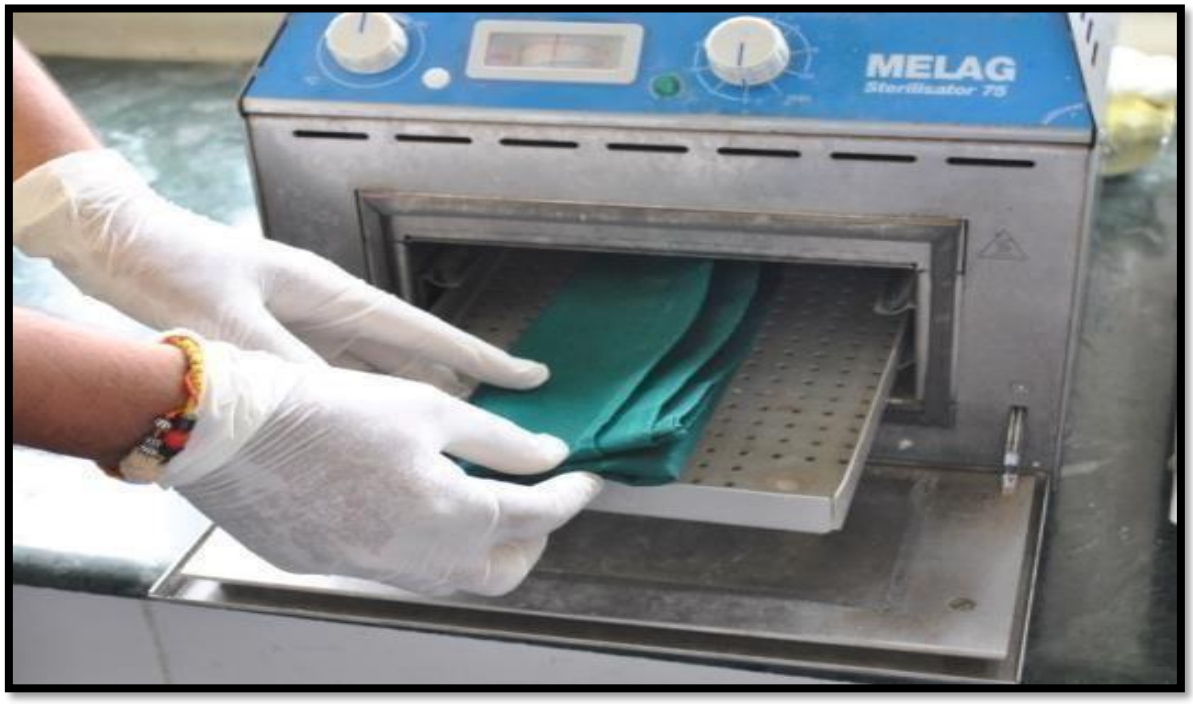
- **Head Cap** is used during every dental procedure to prevent splashes of blood and body fluids.

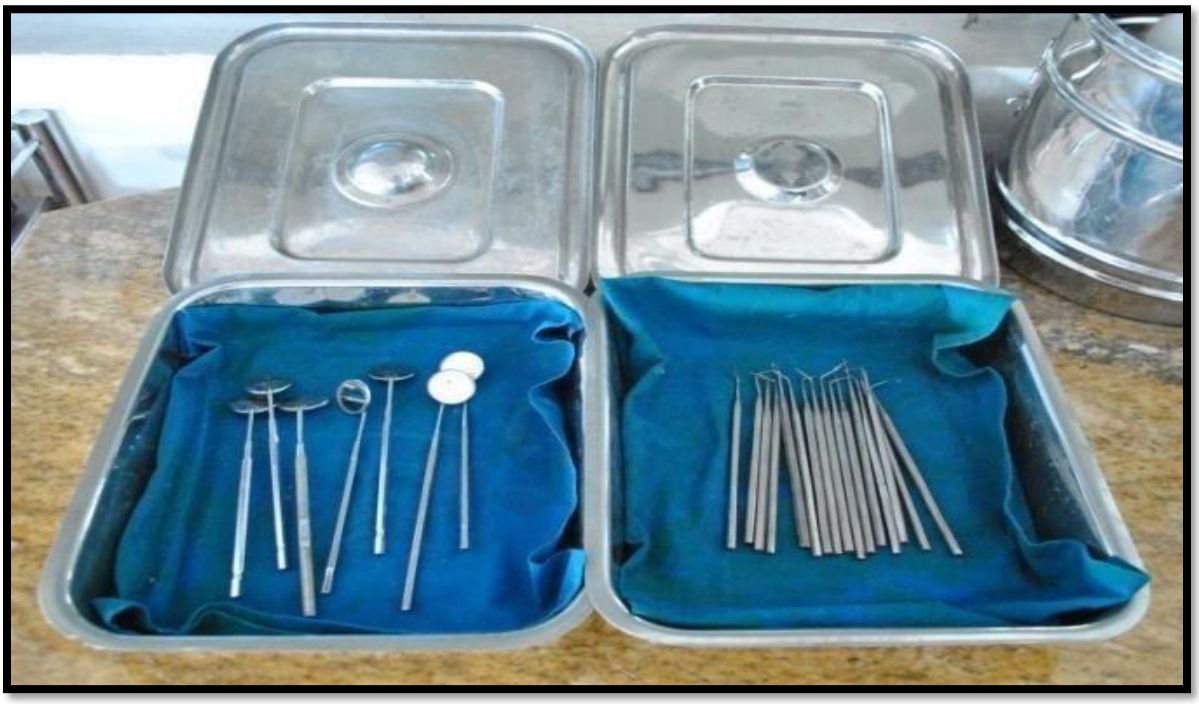
- **Protective Eye Wear** is used in our department during examination or any dental procedures which is likely to generate splashes or sprays of blood or saliva. It protects the eyes from contact with microorganisms. It is always kept clean after use of each patient.

- **Cleaning and Sterilization of Dental Instruments**

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave.







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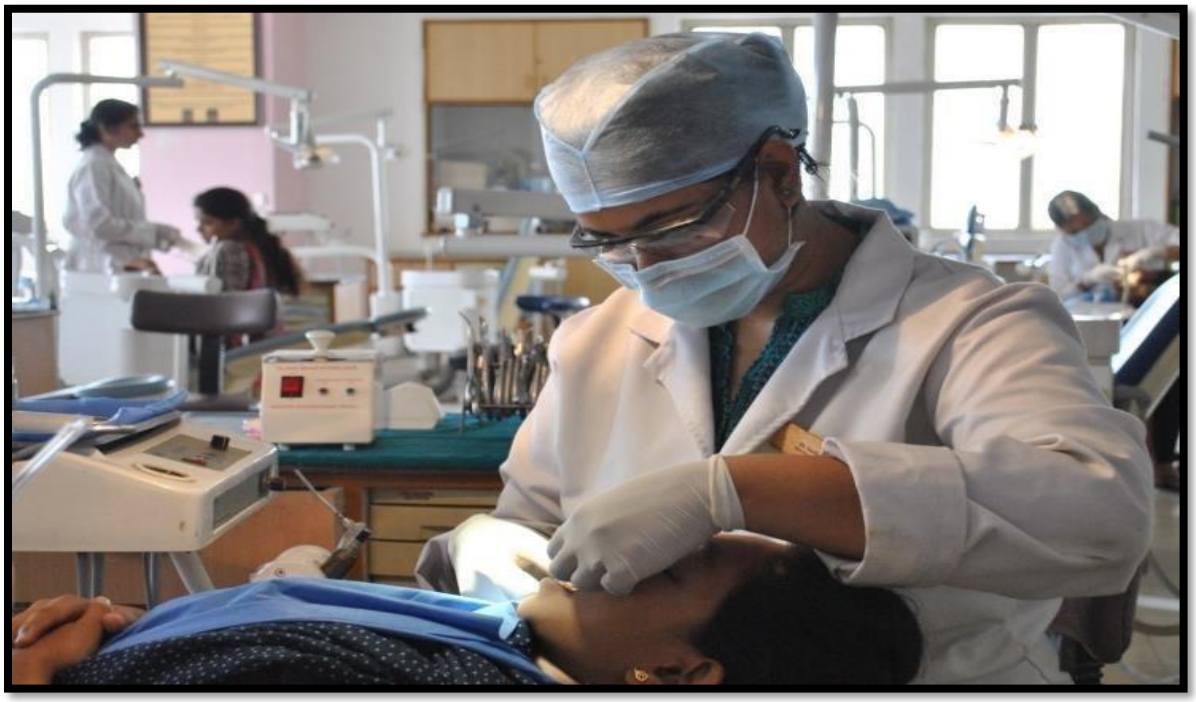
Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven



Each post graduate student has an individual chairside glass bead sterilizer.

- **Single Use Materials (Disposed After Single Use)**
  - suction tips
  - disposable glasses
  - gloves
  - mouth masks
  - drapes
  - head cap


100
GLOVES
DENTAL SAFE
RAMSON'S

- **Waste Control (Ug &Pg. Section)**
  - **Blue Bag**
    Plastic Waste
    (Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)
  - **Yellow Bag**
    Infected waste, anatomical parts and lab waste (Impression materials, cotton)
  - **Can (White)**
    Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)


HAND WASH

The waste material is segregated within the department after 3 pm and transported by the attender to the disposal area, located at the back of the college.

Biomedical Waste Segregation, Transportation and Disposal

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Infection Control Protocol

1. **Hand washing and Hand Hygiene**
   Perform hand hygiene with anti-microbial soap and water when hands are visibly dirty or contaminated with blood or other potentially infectious material. If hands are not visibly soil, an alcohol-based hand rub can be used **(Sterillum).**
2. **Personal protective equipment**
   Wear gloves, mask and eye protection. Disposable single use item should never be used on more than one patient.
3. **Complete asepsis of operating area**
   All the items that will be touched during the treatment .eg: suction tips, bracket table handle etc. should have barrier protection and the dental chairs should be cleaned and disinfected.

1. Instrument sterilization.
   All instruments should be washed in running water and cleaning with brush to remove visible debris. Instruments that cannot be autoclaved should be subjected to cold sterilization in gluteraldehyde. Orthodontic instruments are cleaned and placed in autoclave. Chairside use of glassbead sterilizer for individual use is encouraged.
2. Before treatment dental chair water lines should be flushed for 2 minutes at the start of the day and subsequently for 30 sec, between the patients.
3. Proper handling and disposal of biomedical waste should be followed. Immunization of all operating staff for Hepatitis B and Tetanus is essential

Schedule of training of under graduate and post graduate students about infection control and biomedical waste

Training:

a. Under graduate students are trained regarding biomedical waste management on the first day of posting in the department of Orthodontics.
b. Postgraduate students are educated before entering clinics about biomedical waste management to be practiced throughout their course.
c. Training programme conducted for the paramedical staff and attenders regarding infection control and biomedical waste management in the department of orthodontics both postgraduate and undergraduate sections.
d. Staff in-charge: Dr Sameena B.M Attender in-charge: Sarvotham & Rani

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The Oxford Dental College and Research Centre Department of Orthodontics and Dentofacial Orthopaedics Infection Control and Biomedical Waste Management Report

I. **Sterilization- (Ug & Pg. Section)**

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave Cotton and orthodontic instruments is being cleaned and placed in the autoclave and hot air oven. Chairside use of glassbead sterilizer for individual use is encouraged.

II. **WASTE CONTROL- (UG &PG SECTION)**

Blue Bag- Plastic Waste

(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

Yellow Bag

Infected waste, anatomical parts and lab waste (Impression materials, cotton)

Can (White)

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

III. **Segregation, Transportation and Disposal**

The waste material is segregated within the department after 3 pm and transported by the attender to the disposal area, located at the back of the college.

Department of Pedodontics And Preventive Dentistry Standard Operating Procedure

Infection Control

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus. Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done
  - ✓ Before and after eating
  - ✓ After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10-15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Scrub Technique

Sterillum

Hand Washing in Clinics Must Be Done:

- Before any Non- surgical procedure
- Before any surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1 minute.
2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to palm
2. Palm over dorsum
3. Palm to palm (fingers interlocked)
4. Back to fingers to opposing palms
5. Rotate hands in palms
6. Rotate fingers in palms

Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

1. Wash nails, hands, forearms thoroughly.
2. Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
3. Commence washing with the forearms and finish with the hands.
4. Rinse thoroughly, keep hands above the elbows.
5. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.
- Examination gloves must be used only once.
- Provision should be made to utilize non-latex products for individuals with latex allergy.

Finger Nail Care

- Keep finger nails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

Wear when likelihood of blood/fluids or aerosols or droplets may occur.

- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone, or enter into or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals. Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.
2. **Semi-critical instruments:** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant. All critical and semi-critical dental instruments that are heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g. Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments under water.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being recontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Handpiece & Glass Bead Sterilizer

Sterilization of Hand Piece and Bur

Handpieces as well as various burs used in everyday clinical practice are sterilized before use. Also, handpieces are cleaned using brush followed by enclosing in a special pouch airtightly sealed either with a self-adhesive tape or a thermosealer for autoclaving. Burs are sterilized in glass bead sterilizer or using spirit solution.

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed colour
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection a

Syringe Needle Destroyer

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in a biohazard waste container in a biohazard waste container.

Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts water. If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

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Department of Pedodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Disposable of Syringe and Suction Tips

PG Clinic

Use of Disposable Tin Foils to Cover the Exposed Areas of

Autoclave

Handpiece & Glass Bead Sterilizer

UG Clinic

Hot Water Bath

Formalin Tray

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Biomedical Waste Segregation Protocol in The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental waste are segregated separately & disposed.

PG Clinic

UG Clinic

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Department of Oral Pathology
Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections

Infection control procedures are required for the following in the department:

A. Hematology laboratory – Deals with handling of blood and fluid samples

B. Histopathology and exfoliative cytology – Deal with handling of tissue and aspirate specimens

C. Patient examination

I. Hematology:

- This section of the department deals with the screening of the patients by blood tests advised to the patients by the doctors of the operating departments.
- The laboratory tests are done as a part of routine investigations for any dental procedure to check for any variation in the normal constituents of blood, serum and to check for any suspected infectious disease.
- The laboratory investigations begin with the collection of a clinical specimen for examination.
- Proper collection of an appropriate clinical specimen is the first step in obtaining an accurate laboratory diagnosis.

2 steps:

3. Collection of the specimen under aspesis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.
- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red colour coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical

sterilant.

4. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

I. Histopathology:

- The biopsy and aspirate specimen are received by the department in labelled formalin bottles and syringes respectively.
- The specimen received are inspected by the personal wearing mouth masks and gloves.
- Formalin and the tissue processing fluids are changed periodically.

II. Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  - Special rollers and plasticized paper sheets,
  - Cellulose film,
  - Aluminum foil,
  - Self-adhesive films,
  - Nylon cases,
  - Latex and vinyl case
- These protective coverings are replaced after every contact and every patient

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Department of Public Health Dentistry
Sop of Infection Control

Terminologies: -

1. Alcohol based hand subject: - alcohol containing preparation designed for reducing number of viable microorganisms on hands.
2. Anti- microbial soaps- detergent containing antimicrobial agent, germicide used on skin or living tissue for inhibiting or destroying microorganisms.
3. Asepsis: - free of pathogenic microorganisms, method to protect against infection.
4. De-contamination: - process renders equipment or surfaces safe to handle.
5. Disinfection: - destruction of pathogens by thermal or chemical means. Less lethal then sterilization, as it does not kill spores. Degree of safety is less.
6. Germicide: - it destroys pathogenic organisms. It can be used to inactivate micro-organisms on tissue surfaces.
7. Hand hygiene: - technique of scrubbing hands with anti-microbial hand washes for surgical hand anti-sepsis.

Standard precaution taken to reduce risk of cross transmission of pathogens in healthcare settings.

- Sterile means free from all micro-organisms.
- OSHA prescribes employer duty to provide safe and healthy workplace for everyone on premises.
- Policy accountability and responsibility.
- Policy framework for infection control.
- Comprehensive program for information and training.
- Eliminating risk factors, modifying or changing procedures.

Standard Precautions: -

- Blood and blood products
- Body substances
- Non- intact skin and mucous membrane.

Safe work practices include hand hygiene.

- Appropriate use of gloves
- Protective glasses and mouth mask.
- Impenetrable (water proof) aprons.
- Proper scrubbing using appropriate hands wash technique before and after patient care.
- Hand scrubbing for 30-60 seconds for non-surgical and3-5 minutes for surgical.

Gloving Technique: -

- Gloves should be worn touching the internal surface by the ungloved hand and external surface by gloved.
- If gloves are compromised at any step during treatment it should be removed, scrubbing is done again and fresh pair is worn.
- It is better to use double gloves technique.
- All the hand accessories like rings, watches and wrist accessories should be removed during patient contact.
- Finger nails should be kept maximum to 0.5 cm and no nail accessories.
- Patient and visitors should also follow some amount of hand hygiene.
- Disposable gloves should not be re-used.

Mask and Eye-Wear: -

- Mask should be water- resistant and should be worn according to manufacturer instructions.
- Should not be touched by hands while worn.
- Both mouth and nose should be covered.
- If the mask is moist, barriers is breached, mask is no longer to beused.
- Mask must be touched only by the loops.
- Protective glass or face mask should also be water resistant to prevent aerosol, water, blood and body secretions splattering.
- Eye-wear must be clear, anti-fog, scratch-free, closed fitting and shielded.
- Should be properly cleaned and stored dry.

Additional Precautions: -

AIRBORNE, droplet and contact precautions should be taken to prevent cross- contamination.

Extra care should be taken for immune-compromised, children, geriatrics patient.

Fitting test should be done for eye-wear, mask and apron.

Needle Stick Injury: -

Needle stick injury or exposure to blood and blood products, body fluids should be reported in accordance with health organization policy.

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2019-20

Department of Oral Medicine and Radiology

Standard Operating Procedures for Biomedical Waste Management 2019- 2020

Biomedical waste includes any solid or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Objective: To segregate the biomedical waste from the general waste to avoid cross infection.

Procedure:

I) Categories the BMW into the following:

1. Contaminated waste – Used cotton swabs
2. Waste sharps– Needles, lancets, scalpel and other blades.

II) Segregation:

a. Refers to the separation of different type of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.
b. Prevents mixture of medical waste with general waste
c. Prevents illegal reuse of certain components of medical waste such as syringes, needles and other plastic
d. Recycled plastics can be used for non-food grade applications.
e. All the bio waste is segregated according to their nature
f. The BMW are segregated into the appropriate color-coded bags.

Radiology Waste Segregation:

a. Never mix x ray developer and used x ray fixer because the silver containing x ray fixer is hazardous waste.
b. Most of the silver content of x ray film is removed during processing of X-ray film, so only traces of silver are present in developed X- ray film and it can be discarded into the trash.
c. Return unused expired x ray film to the manufacturers.
d. Developer solution is discharged by diluting with water into the sewer.
e. Use silver recovery unit to reclaim silver from fixer solution and mix de silvered fixer with developer, dilute it and discharge to the sewage
f. Lead foils:
g. Recycling of lead foils.
h. Biomedical waste disposal company accept lead foils.
i. Do not throw lead foil into general or non-hazardous waste.
j. Do not reuse lead foil packet for any other purpose.
k. Do not hand over lead foil packets to patients as they can throw them into regular

garbage or can use for other purpose.

i. Proper labelling of the bins

- The bins are properly covered with the colored bags.
- BMW is disposed accordingly.

j. Collection of the BMW:

- All the personnel involved in the collection are trained accordingly
- to use personal protective equipment's while handling the BMW.
- Collection of the waste is done once daily or once in thrice in a week depending upon the waste collected.

k. **Storage:** Waste is stored in a proper place and marked with a cautions ign.

l. The used fixer solution is stored in white container

m. Transportation:

- Transportation is done in trolleys and manual loading is avoided.
- Container containing BMW is lidded before transportation.
- Before transportation the BMW is accompanied with a signed document from the doctor.
- The collected BMW is sent to the central collection point and then transported to the main disposal area.
- The collected used fixer solution in the white cans is sent to reclaim the silver content.

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Department of Oral Medicine and Radiology
Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections

Infection control procedures are required for the following in the department:

A. Patient examination
B. Biopsy
C. Radiology

A. Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  a. Aluminum foil
  b. Transparent cling wrap
- These protective coverings are replaced after every contact and every patient.

B. Biopsy:

Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.
- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.

- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red color-coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical sterilant.

1. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

- Radiology
  - Patient examination is done using gloves and mouth mask.
  - Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
    a. Aluminum foil
    b. transparent cling wrap
- These protective coverings are replaced after every contact and every patient.
  - Processing solutions, developer, water and fixer are kept in different containers to prevent the contamination of solutions
  - During processing of x ray films, the lead foils and black paper are put into separate bins.

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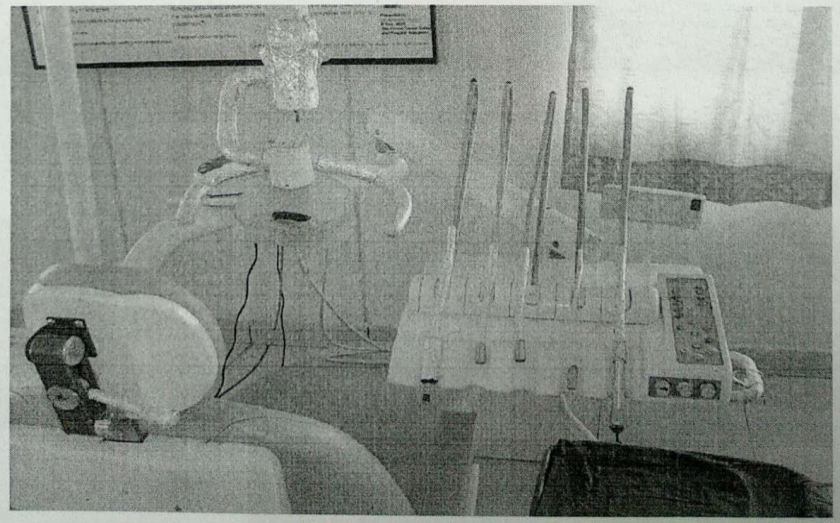
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

2019-2020

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair



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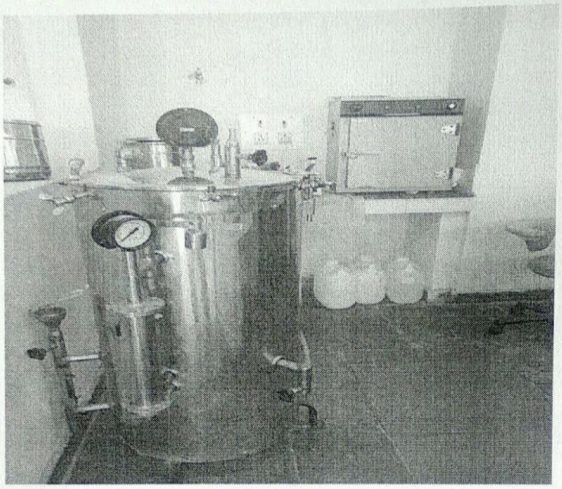
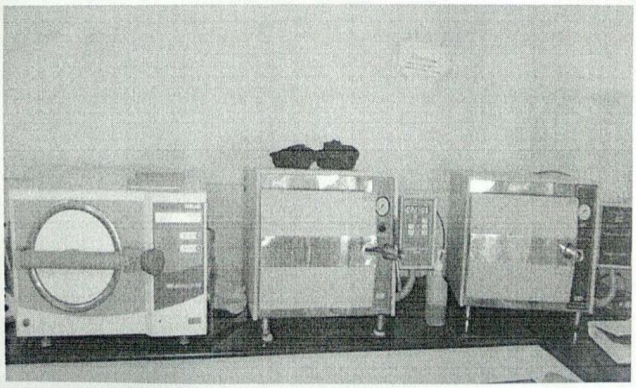
UG CLINIC



PG CLINIC



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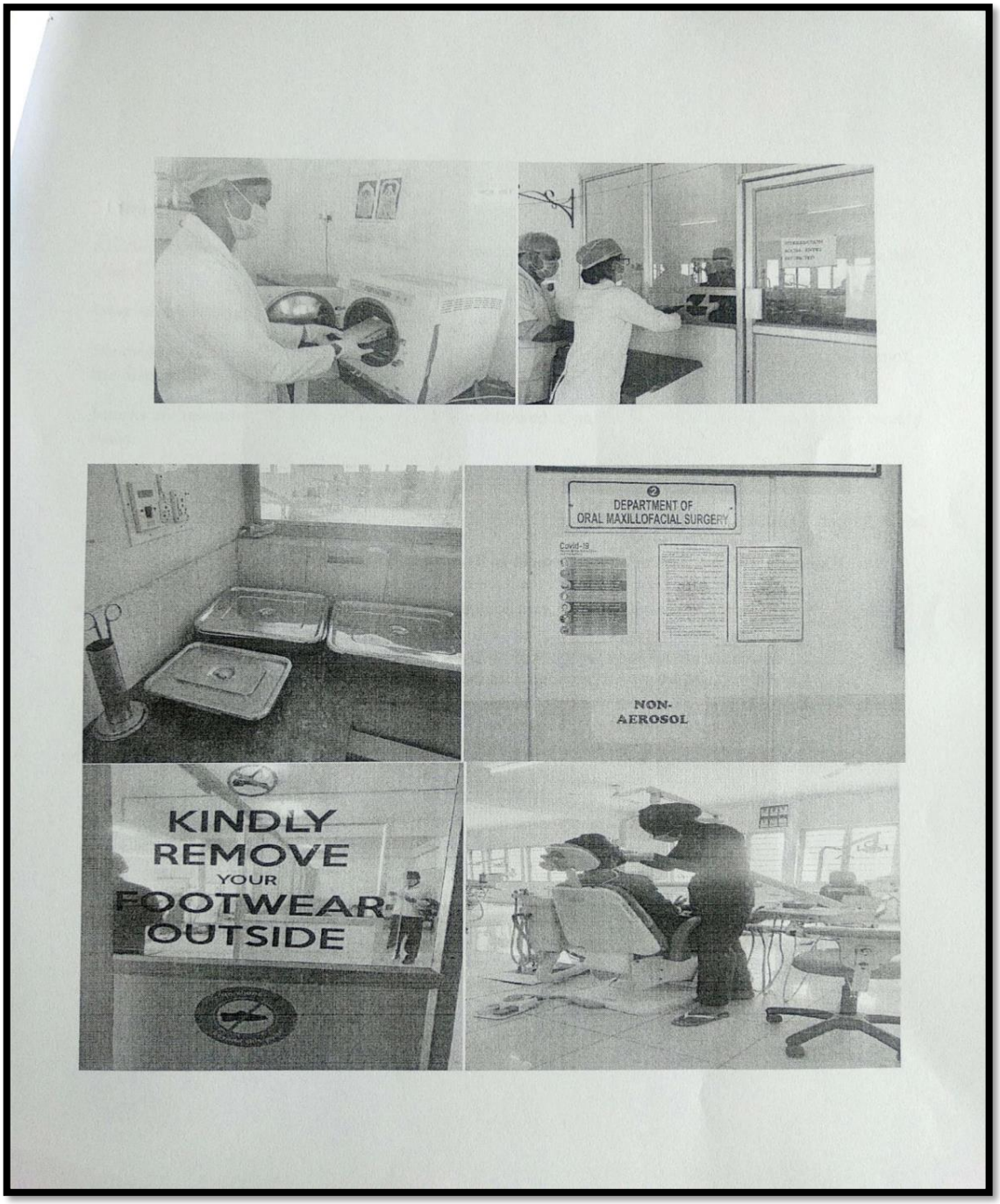

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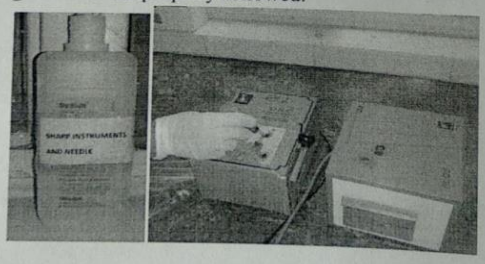
Biomedical Waste Segregation Protocol In The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.



SYRINGE NEEDLE DESTROYER

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Training of UGs & PGs

All the UGs and PGsare well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings.

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

Support staff is also trained and on weekly basis the measures are reinforced.

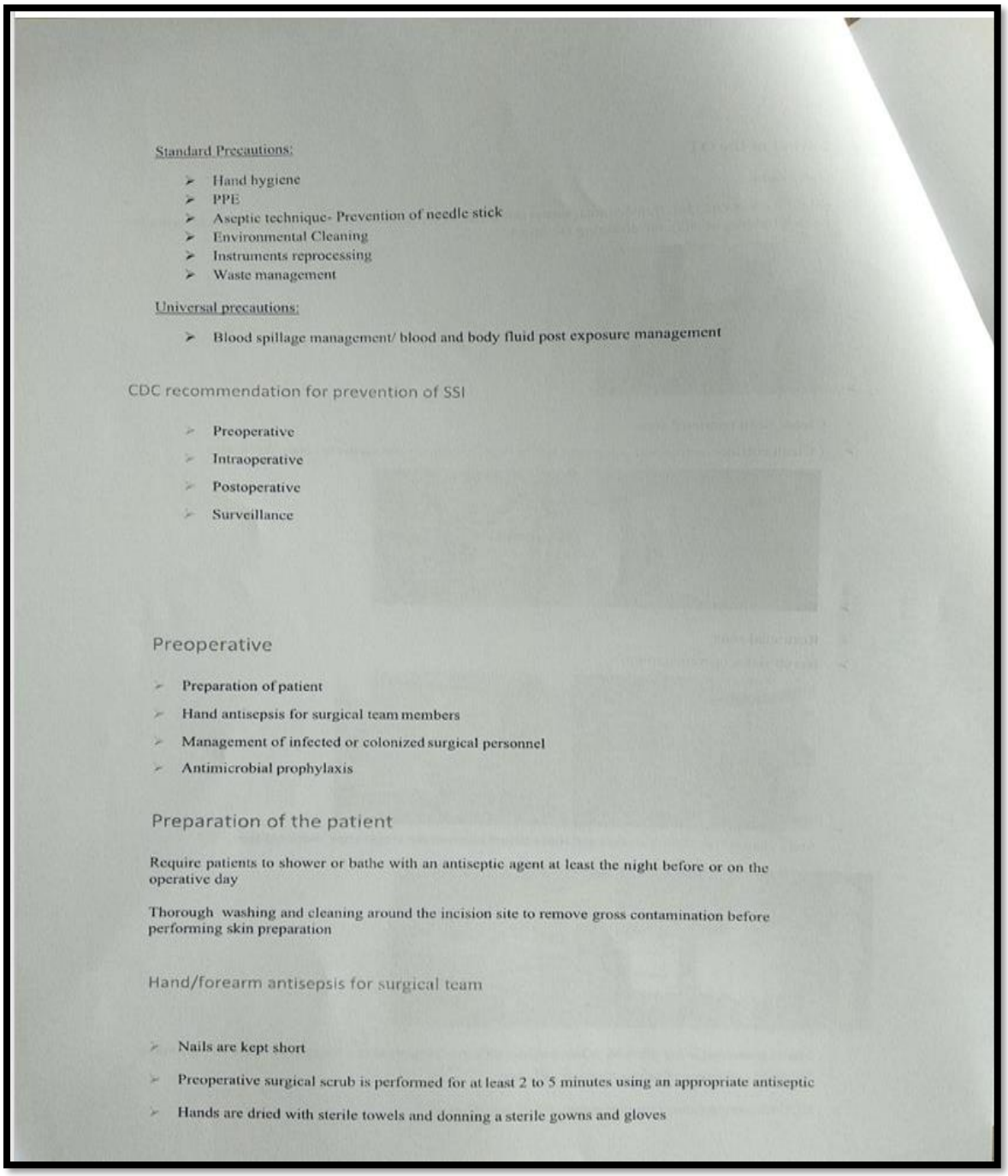
- **Layout of the OT**
- Outer Zone
- (Main Access corridor, transfer area, supervisor office or control station, documentation area, preoperative patient holding area(s), the changing facilities).

- Clean/ Semi restricted zone
- (Clean corridor, sterile and equipment sterile store, anesthesia and recovery room, rest areas)


- Restricted zone
- (scrub sinks, operation rooms)


- Staff change into theatre clothes and shoes before entering the clean/ semi restricted area


- Sterile personnel is not allowed to reach across unsterile areas or to touch unsterile items, or vice versa
- Standard and universal precautions are followed
- CDC recommendations for prevention of SSI are followed



Standard Precautions:

- Hand hygiene
- PPE
- Aseptic technique- Prevention of needle stick
- Environmental Cleaning
- Instruments reprocessing
- Waste management

Universal precautions:

- Blood spillage management/ blood and body fluid post exposure management

CDC recommendation for prevention of SSI

- Preoperative
- Intraoperative
- Postoperative
- Surveillance

Preoperative

- Preparation of patient
- Hand antisepsis for surgical team members
- Management of infected or colonized surgical personnel
- Antimicrobial prophylaxis

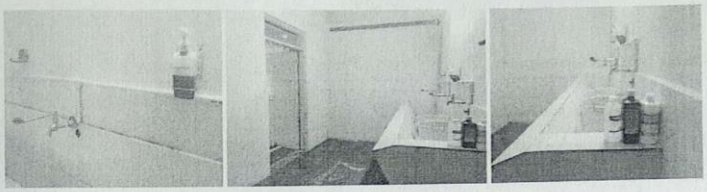
Preparation of the patient

Require patients to shower or bathe with an antiseptic agent at least the night before or on the operative day

Thorough washing and cleaning around the incision site to remove gross contamination before performing skin preparation

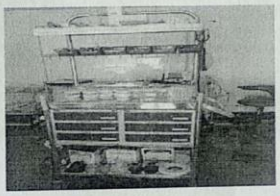
Hand/forearm antisepsis for surgical team

- Nails are kept short
- Preoperative surgical scrub is performed for at least 2 to 5 minutes using an appropriate antiseptic
- Hands are dried with sterile towels and donning a sterile gowns and gloves



Antimicrobial prophylaxis

- Administration of a prophylactic antimicrobial agent done only when indicated
- Administeration by the IV route the initial dose not more 1 hour before incision



Intraoperative

- Ventilation system
- Cleaning and disinfection of environmental surfaces
- Microbiological sampling
- Sterilization of surgical instruments
- Surgical attire and drapes
- Asepsis and surgical technique

Ventilation

- Positive pressure ventilation in maintained in the operating room
- Operating room doors are kept closed except as needed for passage of equipment personnel and the patient

Cleaning and disinfection of environmental surfaces

- When visible soiling or contamination with blood or other body fluids of surfaces or equipment occurs, disinfectant are used to the clean the affected area before the next operation

Surgical attire and drapes

Surgical mask that fully covers the mouth and nose

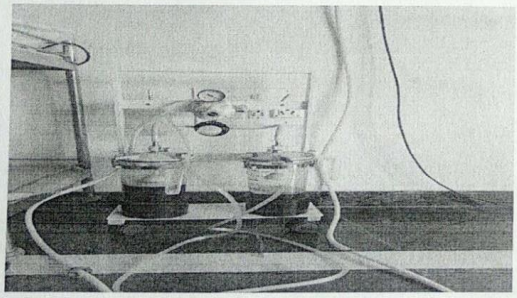
Cap or hood to fully cover hair on head and face

Sterile gloves

Impermeable sterile gowns

Change of scrub suits when visibly soiled or contaminated with blood or body fluids

When drainage is used , closed suction drain is used.



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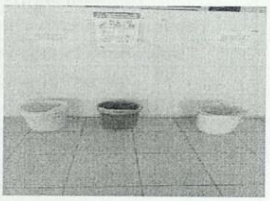
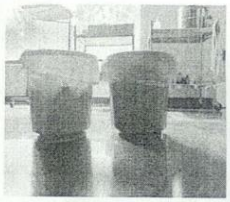
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

WASTE DISPOSAL

PG CLINIC	UG CLINIC	OT
		

YELLOW BAGS	RED BAGS	BLUE BAGS	BLACK CARBOY
Infectious waste, bandages, gauze, cotton or any other objects in contact with body fluids, . etc.	Plastic waste such as catheters,injection syringes, tubings, iv bottles	All types of glass bottles and broken glass articles, outdated & discarded medicines	Needles without syringes, blades, sharps and all metal articles.

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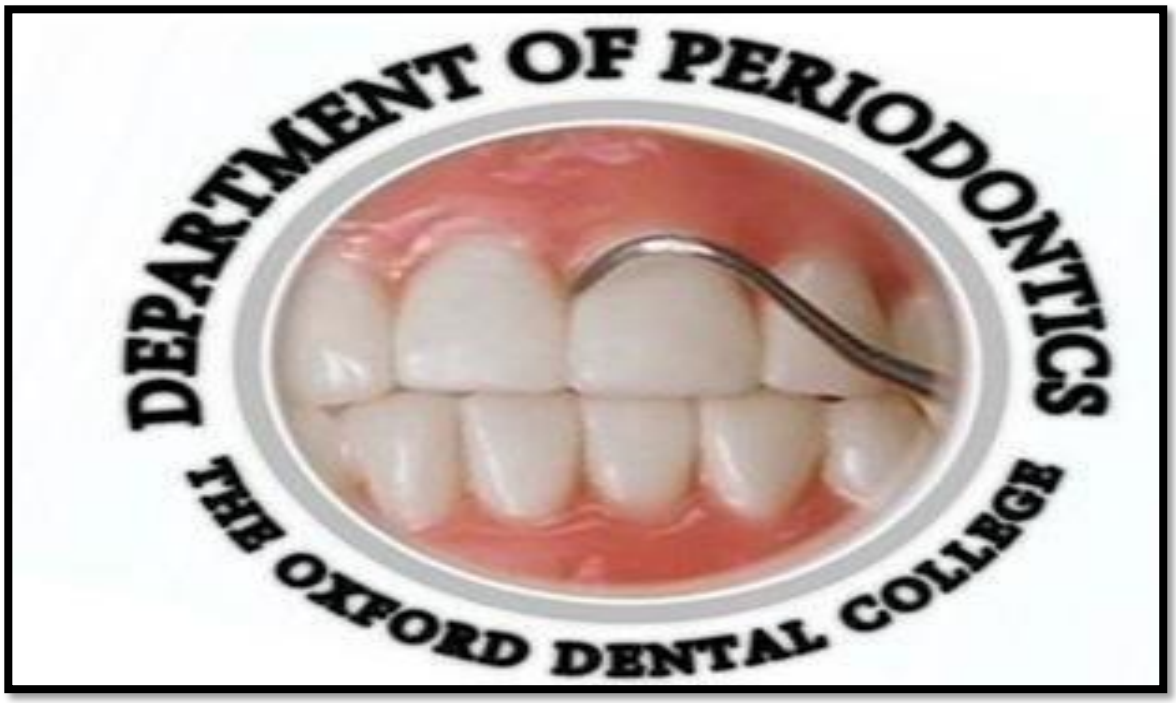
Infection Control Practice



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Department of Periodontics

Contents: -

1. Infection Control Policy
2. Cleaning and Sterilizing of Instruments
3. Hazardous Waste Management
4. Standard Operative Procedure

1. Infection Control: -

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus. Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene: -

Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done
- Before and after eating/smoking
- After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10- 15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Hand Washing in Clinics Must Be Done:

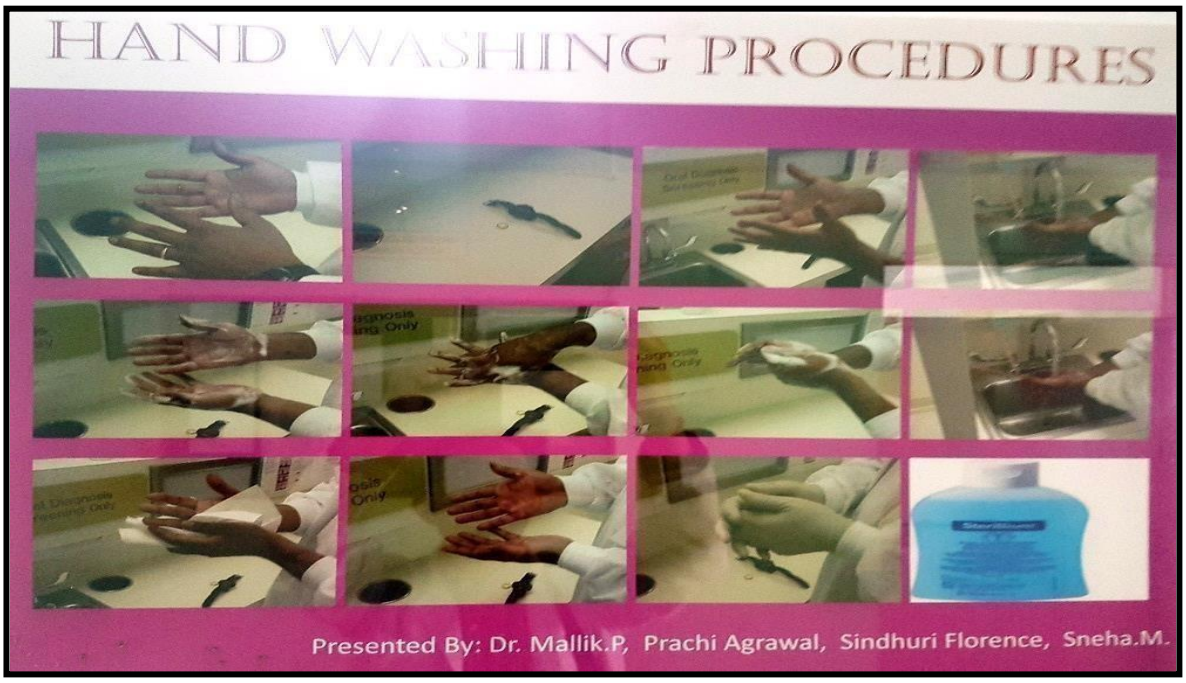
- Before any Non- surgical procedure
- Before any non-surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1minute.
2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to palm
2. Palm over dorsum
3. Palm to palm (fingers interlocked)
4. Back to fingers to opposing palms
5. Rotate hands in palms
6. Rotate fingers in palms



Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

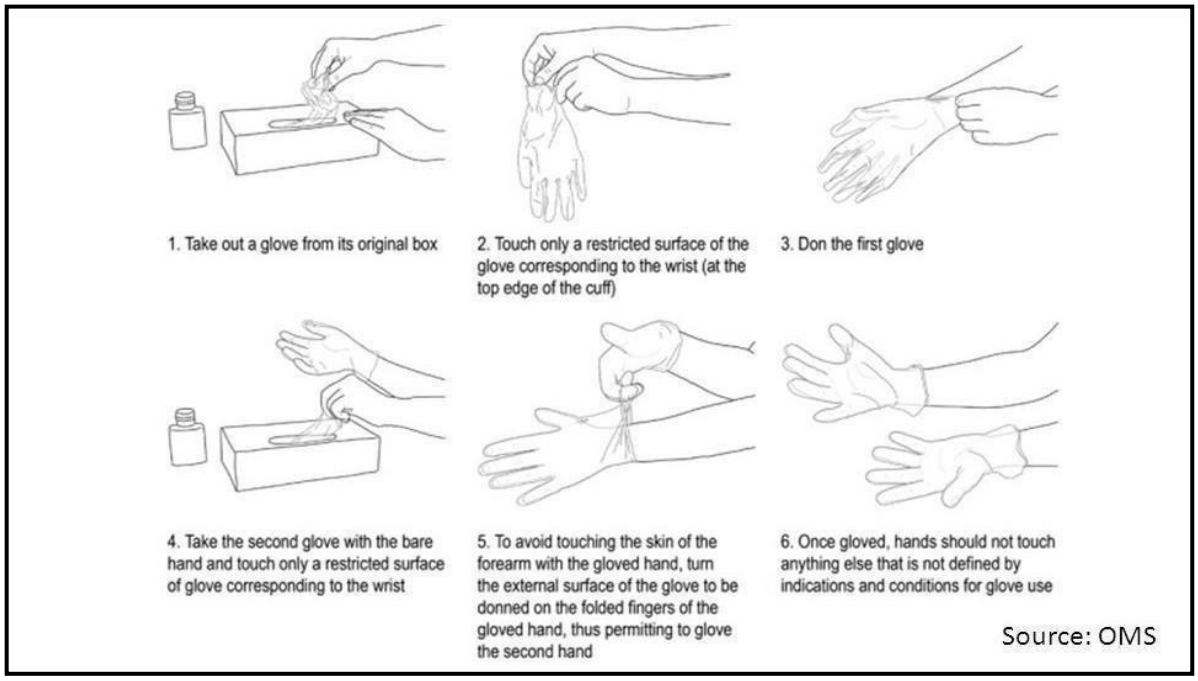
- Wash nails, hands, forearms thoroughly.
- Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
    1. Commence washing with the forearms and finish with the hands.
    2. Rinse thoroughly, keep hands above the elbows.
    3. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.
- Examination gloves must be used only once and should be worn as per the below mentioned illustration.
- Provision should be made to utilize non-latex products for individuals with latex allergy.



Finger Nail Care

- Keep finger nails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, antifog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing of Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

CATEGORY	DESCRIPTION	EXAMPLES OF ITEMS
Critical	Penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue	Surgical instruments, scalers, curettes, scalpel blades, surgical burs
Semicritical	Contact mucous membranes, but will not penetrate soft tissue, contact bone or enter into or contact the bloodstream or normally sterile tissue	Dental mouth mirrors, amalgam dispensers, reusable impression trays, dental handpieces
Noncritical	Contact with intact skin	Blood pressure cuff, stethoscope, pulse oximeter

Source: Organization for Safety, Asepsis and Prevention, "From Policy to Practice: OSAP's Guide to the Guidelines. www.osap.org.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone, or enter into or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals.

   Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.
2. **Semi-critical instruments:** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

All critical and semi-critical dental instruments that heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g., Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments underwater.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed color
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored, they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Management Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection area.

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination Ina biohazard waste container Ina biohazard waste container.
Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.
Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (Maridi) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.
If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

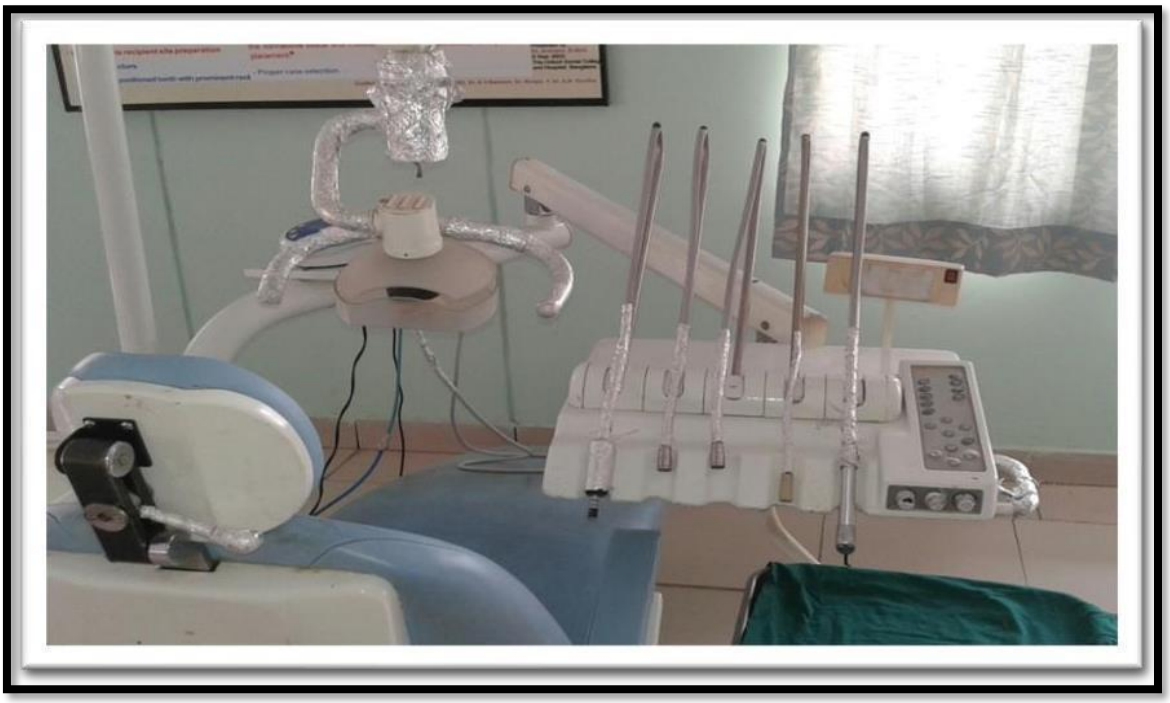
If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

Department of Periodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.



Use of Disposable Tin Foils to Cover the Exposed Areas of The Chair

PG Clinic

UG Clinic

Biomedical Waste Management: -

1. Biomedical Waste Segregation is done based on the guidelines given into their respective color-coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental waste are segregated separately & disposed.

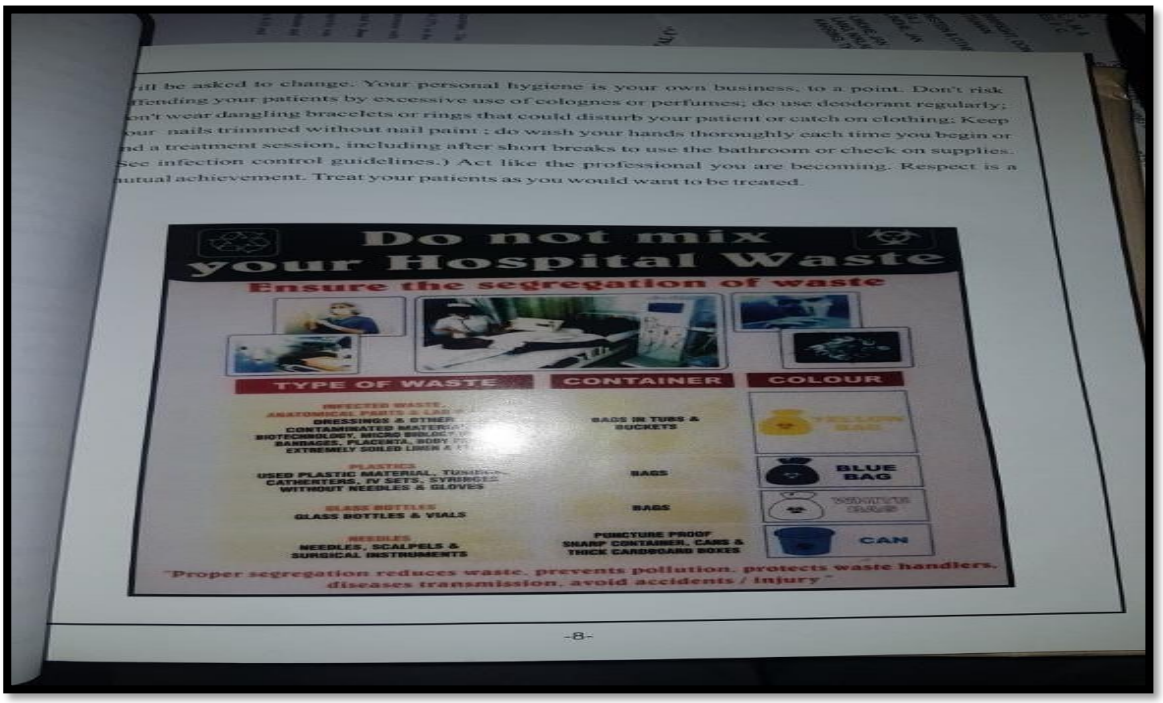
Syringe Needle Destroyer


Sterillium
SHARP INSTRUMENTS
AND NEEDLE
PRECAUTION :

Training of UGs & PGs

All the UGs and PGs are well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings



and is added to their curriculum in their clinical logbook

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

Support staff is also trained and on weekly basis the measures are reinforced.

Standard Operative Procedure

It is a process document that describes in detail the way an operator should perform a given operation.

Periodontics is the specialty of dentistry that encompasses prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of teeth and dental implants. The specialty includes maintenance of the health, function, and esthetics of all supporting structures and tissues (gingiva, periodontal ligament, cementum, alveolar bone, and sites for tooth replacements). Tissue regeneration, management of periodontal-endodontic lesions, and providing dental implants as tooth replacements are, when indicated, integral components of comprehensive periodontal therapy. Tooth extraction and implant site development may accompany either periodontal or implant therapy.

The goals of periodontal therapy are to preserve the natural dentition, periodontium and peri- implant tissues; to maintain and improve periodontal and peri-implant health, comfort, esthetics, and function. Currently accepted clinical signs of a healthy periodontium include the absence of inflammatory signs of disease such as redness, swelling, suppuration, and bleeding on probing; maintenance of a functional periodontal attachment level; minimal or no recession in the absence of interproximal bone loss; and functional dental implants.

Periodontal Examination

All patients should receive a comprehensive periodontal examination. Such an examination includes discussion with the patient regarding the chief complaint, medical and dental history review, clinical examination, and radiographic analysis. Microbiologic, genetic, biochemical, or other diagnostic tests may also be useful, on an individual basis, for assessing the periodontal status of selected patients or sites.

Some or all of the following procedures may be included in a comprehensive periodontal examination:

1. Extra- and intraoral examination to detect non- periodontal oral diseases or conditions.
2. General periodontal examination to evaluate the topography of the gingiva and related structures; to assess probing depth, recession, and attachment level; to evaluate the health of the subgingival area with measures such as bleeding on probing and suppuration; to assess clinical furcation status; and to detect endodontic-periodontal lesions.
3. Assessment of the presence, degree and/or distribution of plaque, calculus and gingival inflammation.
4. Dental examination, including caries assessment, proximal contact relationships, the status of dental restorations and prosthetic appliances, and other tooth- or implant-related problems.
5. Determination of the degree of mobility of teeth and dental implants.
6. Occlusal examination

Interpretation of a satisfactory number of updated, diagnostic quality periapical and bite- wing radio- graphs or other diagnostic imaging needed for implant therapy.

7. Evaluation of potential periodontal systemic inter- relationships.
8. Assessment of suitability to receive dental implants.

Establishing A Diagnosis and Prognosis

The purpose of the comprehensive periodontal examination is to determine the periodontal diagnosis and prognosis and/ or suitability for dental implants. This process includes an evaluation of periodontal and peri-implant tissues to determine the suitability of the patient for treatments including nonsurgical, surgical, regenerative and reconstructive therapy, or dental implant placement. This information should be recorded in the patient's chart and communicated to the patient and the referring dentist when appropriate.

Periodontal Diseases and Conditions

Diseases of the periodontium may be categorized as gingival diseases, periodontitis, necrotizing periodontal diseases, abscesses of the periodontium, and developmental or acquired deformities and conditions.

1. **Gingivitis** is gingival inflammation without attachment loss or with non-progressing attachment loss. Other gingival diseases may be modified by systemic factors, medications or malnutrition.
2. **Periodontitis** is gingival inflammation with progressing attachment loss. Different forms include, but are not limited to, **chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease, necrotizing ulcerative periodontitis, and periodontitis associated with endodontic lesions.**

Periodontitis may be further characterized by degree of attachment loss as slight, moderate, or severe; by extent as localized or generalized; and by post-treatment status as recurrent or refractory. Facial recession involving loss of periodontal attachment and gingival tissue affects children and adults. The prevalence increases with age and adults over 50 have the greatest degree of involvement. This mucogingival condition is often treatable. Edentulous ridge defects result from loss of osseous tissue and can compromise esthetics or complicate future implant placement.

Development of A Treatment Plan

The clinical findings together with a diagnosis and prognosis should be used to develop a logical plan of treatment in order to eliminate or alleviate the signs and symptoms of periodontal diseases and thereby arrest or slow further disease progression. The treatment plan should be used to establish the methods and sequence of delivering appropriate periodontal treatment. When indicated, the plan should include:

1. Medical consultation or referral for treatment when appropriate.
2. Periodontal procedures to be performed.
3. Consideration of adjunctive restorative, prosthetic, orthodontic and/or endodontic consultation or treatment.
4. Provision for re-evaluation during and after periodontal or dental implant therapy.
5. Consideration of chemotherapeutic agents for ad- junctive treatment.

6. Consideration of diagnostic testing that may include microbiological, genetic or biochemical assessment or monitoring during the course of periodontal therapy.
7. Periodontal maintenance program.

Informed Consent and Patient Records

Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, informed consent should be obtained prior to the commencement of therapy. The information given to the patient in these circumstances should include the following:

1. The diagnosis, etiology, proposed therapy, possible alternative treatment(s), and the prognosis with and without the proposed therapy or possible alternatives.
2. Recommendations for referral to other health care providers as necessary.
3. The reasonably foreseeable inherent risks and potential complications associated with the proposed therapy, including failure with the ultimate loss of teeth or dental implants.
4. The need for periodontal maintenance treatment after active therapy due to the potential for disease recurrence.
5. A record of the patient's consent to the proposed therapy should be maintained. Moreover, complete records of diagnosis, treatment, results, and recommended follow-up are essential, starting with the initial examination and continuing for as long as the patient is under care. Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, it is advisable to obtain the informed con-sent in writing prior to commencement of therapy.

Treatment Procedures

A broad range of therapies exist in periodontics. No single treatment approach can provide the only means of treating any one or all periodontal diseases. One treatment modality may be appropriate for one section of the mouth while another approach may be suitable at other sites. When indicated, treatment should include:

1. Patient education, training in personal oral hygiene, and counseling on control of risk factors (eg, smoking, medical status, stress) with referral when appropriate.
2. Removal of supragingival and accessible subgingival bacterial plaque and calculus is accomplished by periodontal scaling. Comprehensive periodontal root planning is used to treat root surface irregularities or alterations caused by periodontal pathoses. In some instances, these procedures may be incorporated into the surgical treatment.
3. Finishing procedures, which include post-treatment evaluation with review and reinforcement of personal daily oral hygiene when appropriate.

The following courses of treatment maybe indicated in addition to the above outlined procedures:

1. Chemotherapeutic agents. These agents may be used to reduce, eliminate, or change the quality of microbial pathogens; or alter the host response through local or systemic delivery of appropriate agent(s).
2. Resective procedures. These procedures are designed to reduce or eliminate periodontal pockets and create an acceptable gingival form that will facilitate effective oral hygiene and periodontal maintenance treatment. Soft tissue procedures include gingivectomy, gingivoplasty, and various mucogingival flap procedures. Osseous procedures include ostectomy and osteoplasty. Dental tissue procedures include root resection, tooth hemi section, and odontoplasty. Combined osseous and dental tissue procedures may be required for management of endodontic-periodontal lesions.
3. Periodontal regenerative procedures include: soft tissue grafts, bone replacement grafts, root biomodification, guided tissue regeneration, and combinations of these procedures for osseous, furcation, and recession defects. Periodontal reconstructive procedures include: guided bone regeneration, ridge augmentation, ridge preservation, implant site development, and sinus grafting.
4. Periodontal plastic surgery for gingival augmentation, for correction of recession or soft tissue defects, or for other enhancement of oralesthetics.
5. Occlusal therapy, which may include: minor tooth movement, occlusal adjustment, splinting, or provision of devices to reduce occlusal trauma.
6. Periprosthetic periodontal procedures include: exploratory flap surgery, resective procedures, regenerative or reconstructive procedures, or crown lengthening surgery, performed to facilitate restorative or prosthetic treatment plans.
7. Selective extraction of teeth, roots, or implants when indicated, in order to facilitate periodontal therapy, implant therapy, implant site development, or im- plant, restorative and/or prosthetic treatment plans.
8. Replacement of teeth by dental implants.
9. Procedures to facilitate orthodontic treatment including, but not limited to, tooth exposure, frenulectomy, fiberotomy, gingival augmentation, and implant placement.
10. Management of periodontal systemic interrelationships when appropriate.

Periodontal Maintenance Therapy

Upon completion of active periodontal treatment, follow-up periodontal maintenance visits should include:

1. Update of medical and dental histories.
2. Evaluation of current extra- and intraoral, periodontal and peri-implant soft tissues as well as dental hard tissues and referral when indicated (eg, for treatment of carious lesions, pulpal pathosis, or other conditions)
3. Assessment of the oral hygiene status with reinstruction when indicated.

4. Mechanical tooth cleaning to disrupt/remove dental plaque and biofilms, stain, and calculus. Local delivery or systemic chemotherapeutic agents may be used as adjunctive treatment for recurrent or refractory disease.
5. Elimination or mitigation of new or persistent risk and etiologic factors with appropriate treatment.
6. Identification and treatment of new, recurrent, or refractory areas of periodontal pathoses.
7. Establishment of an appropriate, individualized interval for periodontal maintenance treatment.

The patient should be kept informed of:

1. Areas of persistent, recurrent, refractory, or new periodontal disease.
2. Changes in the periodontal prognosis.
3. Advisability of further periodontal treatment or re- treatment of indicated sites.
4. Status of dental implants.
5. Other oral health problems noted that may include caries, defective restorations, and non-periodontal mucosal diseases or conditions.

Evaluation of Therapy

Upon completion of planned periodontal therapy, the record should document that:

1. The patient has been counseled on why and how to perform an effective daily personal oral hygiene program.
2. Accepted therapeutic procedures have been per- formed to arrest the progression of the periodontal disease(s).
3. Periodontal root planning has left subgingival root surfaces without clinically detectable calculus deposits or rough areas.
4. Gingival crevices are generally without bleeding on probing or suppuration.
5. A recommendation has been made for the correction of any tooth form, tooth position, restoration, or prosthesis considered to be contributing to the periodontal disease process.
6. An appropriate periodontal maintenance program, specific to individual circumstances, has been recommended to the patient for long-term control of the disease, as well as for the maintenance of dental implants, if present.

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Website: www.theoxford.edu

Department of prosthodontics

[**Standard operating procedures**]

Standard operating procedure follows

Work sheets (Orders) are collected with instructions

↓

Concerned staff analyses and evaluates the work sent

↓

work assigned to the technician with instructions regarding specification of design and date of work

➢ **Lab safety procedures:**

- Disinfection of all the materials used and sterilization of all instruments accompanied by a clean laboratory
- Laboratory decorum followed
    a. No eatables allowed in the lab.
    b. Covered overalls separate from that used outside the lab.
- Safety protocol (Complete hygiene of technician that includes Mouth mask, Safety glass, Gloves and Lab coat)

- Re-use of metals
    a. Metal can't be re-used more than twice.

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Protocol for Complete Dentures

Fabrication of primary cast from collected primary impression and construction of special/custom tray (given in 2 working days)

↓

Fabrication of Master cast from procured Secondary impression and construction of denture base with occlusal rims (given in 2 working days)

↓

Articulating the casts in the procured jaw relation (done in 1 working day)

↓

Teeth setting (given for try-in in 2 working days)

↓

Flasking, dewaxing, packing and curing procedures carried on, followed by trimming and finishing of denture (denture delivered in 3 working days)

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Protocol for Cast partial denture

Fabrication of primary cast from the procured primary impression followed by construction of denture base with occlusal rims (given in 2 working days)

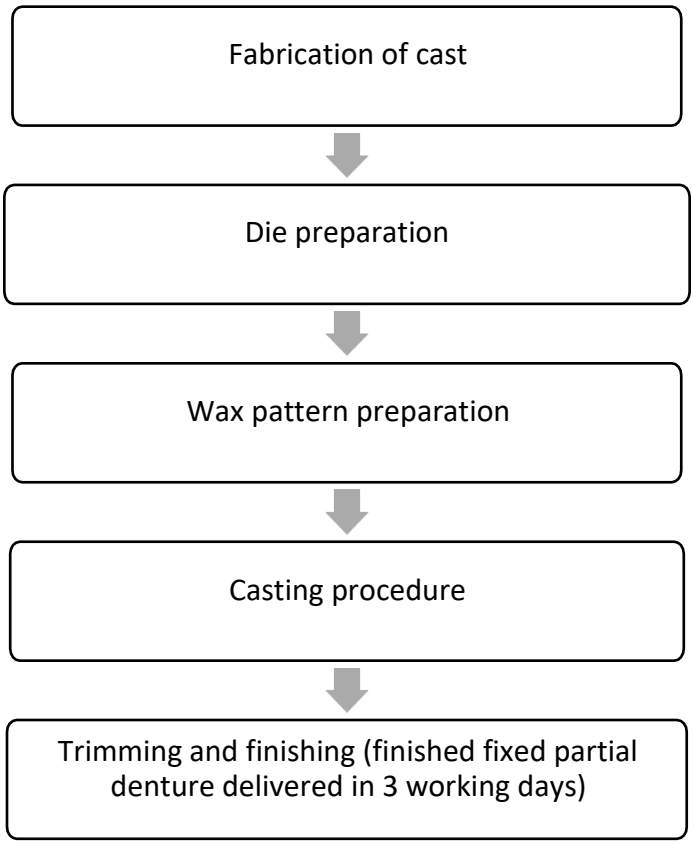
↓

Articulation and teeth setting (given for try-in in 2 working days)

↓

Investing, dewaxing, packing and curing procedure followed by denture trimming and polishing (denture delivered in 2 working days)

Protocol for fixed partial denture



Schedule for supplying materials

- ✓ **Consumables**
  - Material supplied on every Monday (9-10 am) for the usage of that week
  - Causation of Material, re-issued on every Thursday (9-10am

- ✓ **NON-Consumables**
  - Available to technician on all days (Monday-Saturday (9-12.30am)]
  - Stocked on the first working day of every month.

Areas of Responsibility:

- Dental Providers (Dentists/Hygienists)
- Dental Support Staff (DSS)

Procedure:

- Dental Providers (Dentists/Hygienists)
- Have a basic understanding of the Dental Sterilization Process.
- The Infection Prevention/Control (IPC)/Safety Officer (Hygienist) for each dental clinic is responsible for training and monitoring the dental sterilization process. If there is a breach in the sterilization process it is their responsibility to report this to the Dental Clinic Director and the Infection Prevention/Control Advisor for the Dental Department.
- In the event of a breach in the sterilization process, the Clinic IPC/Safety Officer, the Dental Clinic Director, and the Infection Prevention/Control Advisor for the Dental Department will ensure the appropriate steps are taken to correct the situation.
- Dental Support Staff
- Instruments/cassettes which need to be heat sterilized are to be transported from the dental operatory to the sterilization (instrument processing) area in the approved transport container.
    a. Instruments are defined as any instruments or dental devices (ex: bite block, lab
- spatula, xcp's) not contained in a cassette that require heat sterilization.
    a. Cassettes are defined as any instruments which are contained in a cassette that require heat sterilization. They may be sterilized in either a multi parameter pouch or blue surgical wrap.
- The sterilization (instrument processing) area should be divided into the following four sections:
    a. Receiving, Debridement, and Decontamination.
    b. Preparation and Packaging.
    c. Sterilization.
    d. Holding Aerotor sterilized pouches/wrapped cassettes waiting to be returned to the operatory and storage areas.
- The sterilization area should be divided by walls, partitions, or adequate spatial separations to control traffic flow and contain contaminants generated during processing.
- Receiving/Debridement/Decontamination of The Instruments/Cassettes:
- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
- The debridement/decontamination process is to be completed immediately after the instruments/cassettes are brought to the sterilization area in order to reduce the risk of microorganisms becoming encapsulated on the instrument/cassette surfaces.
- Instruments/cassettes need to be debrided/decontaminated by one of the following

methods:

- **When Using the Ultrasonic:**
  - The preferred procedure is to place instruments/cassettes directly into the ultrasonic using the appropriate inserts immediately after being received in the sterilization area.
  - If there is a load already running in the ultrasonic, the instruments/cassettes should be kept in a presoak of the approved ultrasonic cleaner and run through the ultrasonic as soon as possible.
  - Manual debridement of the instruments/cassettes is strongly discouraged. If it is absolutely necessary, the instruments/cassettes are to be debrided with a long-handled brush and placed into the ultrasonic as soon as possible.
  - The ultrasonic is filled at the beginning of each day with the approved ultrasonic cleaner.
  - If the ultrasonic cleaner becomes diluted due to excessive use, it may be necessary to change the ultrasonic cleaner during the day.
  - The ultrasonic is to run for the appropriate time according to the manual.
  - The instruments/cassettes are then thoroughly rinsed with tap water and set on a rack to dry.
  - If this is the last cycle of the day, the instruments/cassettes maybe left after the rinse has been completed.
  - The instruments/cassettes will need to be packaged and sterilized the next day.
  - The ultrasonic is to be drained at the end of each day and sprayed with the approved surface disinfectant.
  - DSS are responsible for keeping the sterilization area neat and organized.
  - Place the loose instruments neatly in the drying area in order to prevent damage to the instruments/cassettes.
- **When Using the Miele (Dental Washer Disinfector), follow the "Instrument Handling Recommendations" which are found in the manual:**
  - Instruments/cassettes should not be pre-soaked, rinsed, or hand scrubbed.
  - Instruments/cassettes are placed directly into the Miele Dental Washer Disinfector.
  - The Miele Dental Washer Disinfector serves as the "dirty storage area" and will clean and disinfect instruments/cassettes that have been sitting for up to 6 hours; however, instruments/cassettes cannot be left to sit overnight.
  - Instruments should be placed into plastic cassettes within the metal mesh basket in the Miele to prevent damage to the tips of the instruments. Tips of the instruments can become caught in the metal mesh.
  - The recommended cycle is the Disinfection VARIO with the optional 10-minute drying cycle.
  - The Miele cannot be left running when the DSS leave for the day. The cycle must complete and the door of the Miele must be left slightly opened.
  - Do not leave the door to the Miele completely opened because it is a safety hazard.

- The door of the Miele needs to be opened immediately after the cycle ends to release hot air and steam and to let instruments cool. This prevents rust and corrosion from forming on the instruments/cassettes.
- If this is the last cycle of the day and there is not enough time to run the Disinfection VARIO cycle, the Miele may run through one of the following cycles:
- The 30-minute cycle with a cold-water pre-rinse and a detergent phase. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day.
- Instruments/cassettes may be packaged and sterilized the following day.
- The 10-minute cycle with a cold-water pre-rinse only. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day. The instruments/cassettes are not ready for packaging and sterilization.
- Instruments/cassettes will need to be run through the Disinfection VARIO cycle at the beginning of the following day.
- Instruments/cassettes may then be packaged and sterilized.

➢ **Hand Pieces:**

- Hand pieces are to be cleaned and oiled by the hand-held air driven method.
- **Preparation/Packaging of the instruments/Cassettes:**
  - Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
  - After the debridement/decontamination process is completed, the instruments/cassettes are prepared for heat sterilization through the following steps:
    - Place instruments/cassettes in the appropriately sized multiparameter pouches (Multi parameter meaning the appropriate levels for heat, temperature, and time have been achieved).
    - Affix the self-sealing adhesive strip to the designated place on the multi parameter pouch to ensure a complete seal.
    - If using blue surgical wrap, a small piece of autoclave indicator tape needs to be inserted into the middle of the cassette (internal indicator). The outside of the package needs to be secured with autoclave indicator tape (external indicator).
- The pouches/wrapped cassettes now need to have the current date marked on them with a regular point black Sharpie permanent marker. The date will read as: 09-13-13. (Not 09/13/13).
- Any clinic with more than one heat sterilizer (ex: Statim/Autoclave) needs to designate which sterilizer the pouches/wrapped cassettes have run through. (Ex: red Sharpie permanent marker=Statim; blue Sharpie permanent marker=Autoclave 1; green Sharpie permanent marker=Autoclave 2; orange Sharpie permanent marker=Autoclave

- **Sterilization of The Pouches/Wrapped Cassettes:**
  - Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated pouches and wrapped cassettes.
  - Pouches/wrapped cassettes are to be placed correctly on the trays for each heat sterilizer (refer to the "Guidelines for Loading Trays" which may be found in the sterilizer manual).
  - Before sterilizers are started, the water levels need to be checked. (Ex: Autoclave=tubing indicator inside the door/Statim=the lid covering the mesh trap on the top of the unit). Make sure the collection container which drains under the Statimis not full. If sterilizers need to have water added to the units, use only distilled water. No tap or filtered water is to be used in these sterilizers.
  - The recommended cycle for the Statim is the "Wrapped" cycle which will runat
  - 275^0 F (135^0 C) for 10 minutes.
  - The recommended cycle for the Autoclave is the "Packs" cycle which will run at
  - 250 F (121 C) for 30 minutes.
  - After the cycle for the autoclave has been selected, push the 'Start' button and listen for the sound of water filling the reservoir. The sterilizer will now show it has started and you may then fill out the log for that sterilizer. (Print your name, current date, note the time started and place your initials).
  - It is imperative that the sterilizer run through the complete cycle from the "filling" phase through the "drying" phase. Do not interrupt the cycle at any point before the drying phase is complete.
  - When the sterilizer shows the cycle is complete, the (DSS) may remove the sterilized pouches/wrapped cassettes.
- **Holding Area for The Sterilized Pouches/Wrapped Cassettes:**
  - When removing the sterilized pouches/wrapped cassettes from the sterilizer, the DSS will initial each sterilized pouch/wrapped cassette clearly with their written initials once they have verified the following three items:

✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.
✓ There is a clearly marked date of sterilization.
✓ There is a clearly marked sterilizer identifier.

  - If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be placed in the holding area.
  - If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
  - The IPC/Safety Officer for the dental clinic will need to be notified.
  - The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.

- When removing the sterilized pouches/wrapped cassettes from the Holding Area, the DSS will initial each sterilized pouch /wrapped cassette clearly with their written initials for a second time after they verify the following three items:
  - ✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart
  - ✓ There is a clearly marked date of sterilization.
  - ✓ There is a clearly marked sterilizer identifier.
- If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be taken to the operatory/storage area.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IP Advisor for the Dental Department.
- When removing the sterilized pouches/wrapped cassettes from the storage areas and preparing for the next patient, the DSS will need to triple check the following three items:
- The internal/external indicators changed to the appropriate color (from pink to cocoa brown) according to the color chart.
- There is a clearly marked date of sterilization.
- There is a clearly marked sterilizer identifier.
- If the three previously stated items can be verified, the sterilized instruments and cassettes can be removed from the pouches and blue surgical wrap.
- The DSS can set up for the next procedure.
- Leave the sterilized pouches/blue surgical wrap on the counter for the dental provider/ DSS to verify.
- The pouches and blue surgical wrap can then be thrown away.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilizations process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.

➢ **Breach in The Sterilization Process:**

- If a breach in the sterilization process is identified and the pouch/wrapped cassette has Not been used in a dental procedure involving a patient:
- The IPC/Safety Officer for the dental clinic will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DDS
- The pouch/wrapped cassette will need to be re-packaged and re-run through the sterilization cycle.

- The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- If a breach in the sterilization process is identified and the pouch/wrapped cassette Has been used in a dental procedure involving a patient:
- The IPC/Safety Officer will need to be notified.
- If IPC/ Safety Officer is absent, notify supervising DD
- The pouch/wrapped cassette will need to be pulled from the operatory/storage area.
- Any other pouches/wrapped cassettes which have the same date of sterilization and the same sterilizer identifier will also need to be pulled from the dental operatory/storage areas.
- The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
- The Dental Clinic Director will need to notify the appropriate people in the Medical Department and the Administration Department. The plan for a Failed Dental Sterilization Process will be initiated.

➢ **Important Reminders:**

- The efficacy of the heat sterilizers is measured weekly through biological spore testing. Refer to the Spore Testing SOP
- Periodic maintenance (daily, weekly, monthly, quarterly, bi-annual and annual) needs to be completed and documented for each sterilizer (Autoclave/Statim).
- Each sterilizer has its own manual with the maintenance schedule outlined.
- Document the maintenance completed in a log specific to each sterilizer.
- At the beginning of the month send a copy of each of the maintenance via logs interoffice mail to the Quality Coordinator/Trainer in Administration.
- Periodic maintenance (daily, every 2 weeks, and annually) needs to be completed on the Miele as outlined in the manual.
- Periodic maintenance needs to be completed on the Ultrasonic as outlined in the manual.
- Periodic maintenance needs to be completed on the Assisting as outlined in the manual.
- The countertops, door handles, and doors in the sterilization area are to be disinfected at least once per week. The proper PPE will need to be worn when using the dry 4X4s and the approved surface disinfectant.
- The biohazard (red) bag in the sterilization area needs to be taken to the large clinic biohazard container at least once per week.

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Department of Orthodontics and Dentofacial Orthopedics
For the Year 2019-20
Note on Infection Control in The Department

- **Hand Hygiene**

Hand contact is one of the main routes of transmission of multi drug resistant bacteria, etc. Hand hygiene reduces the risk of bacterial transmission to patient and health care personnel.
We maintain hand hygiene:

- before and after treating each patient (before glove placement and after glove removal)
- after barehanded touching of objects that most likely to be contaminated with blood or saliva
- before leaving dental operatory.

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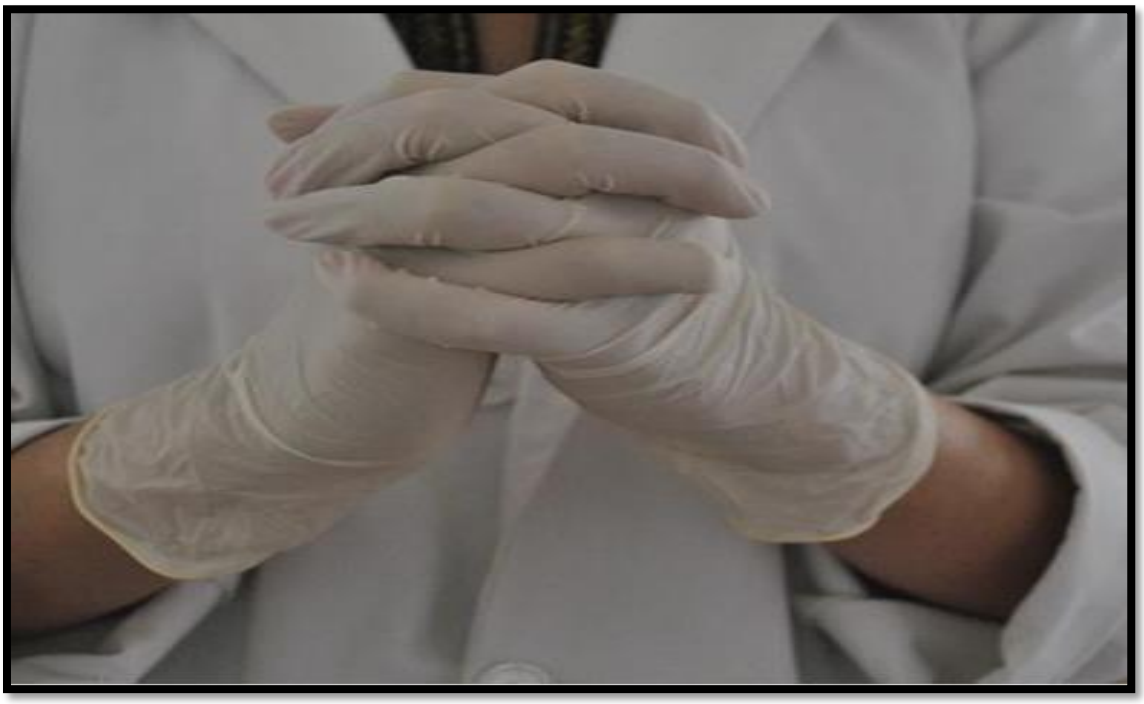
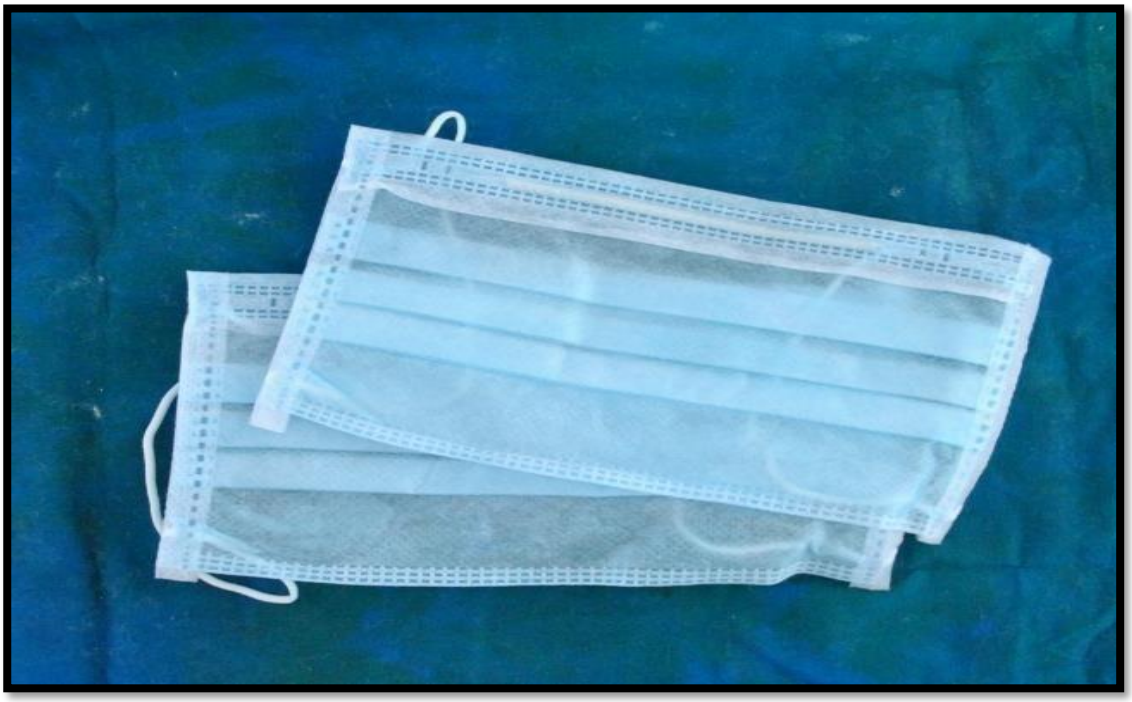
- **Gloves**

We in the department wear gloves to prevent contamination of our hands when in contact with p a t I e n t s mouth to reduce the risk of transmission of microorganisms from our hands to the patient during performing dental procedures.



➢ **Mouth Mask, Head Cap and Protective Eyewear**

- **Mouth Mask** is worn to cover both nose and mouth during procedures to prevent splashes or spray of blood or body fluids. A mouth mask protects the patient against microorganisms from the wearer and also protects us from droplets that may contain bloodborne pathogens. A mouth mask is changed between each patient in our department.

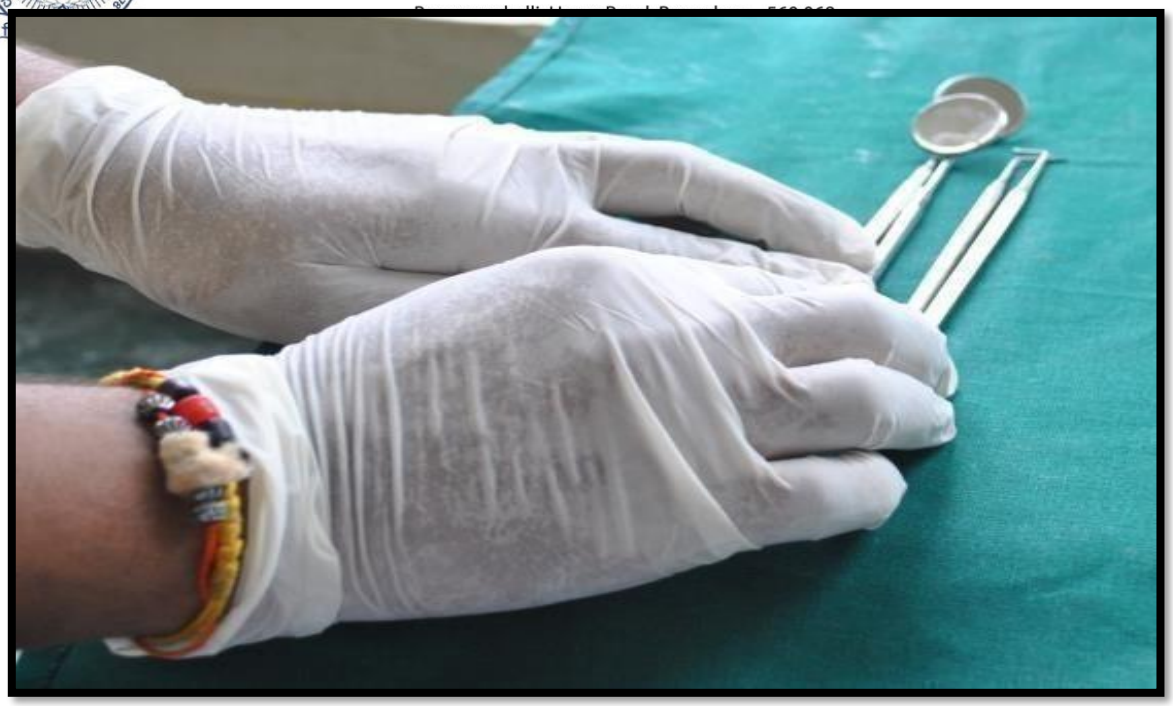


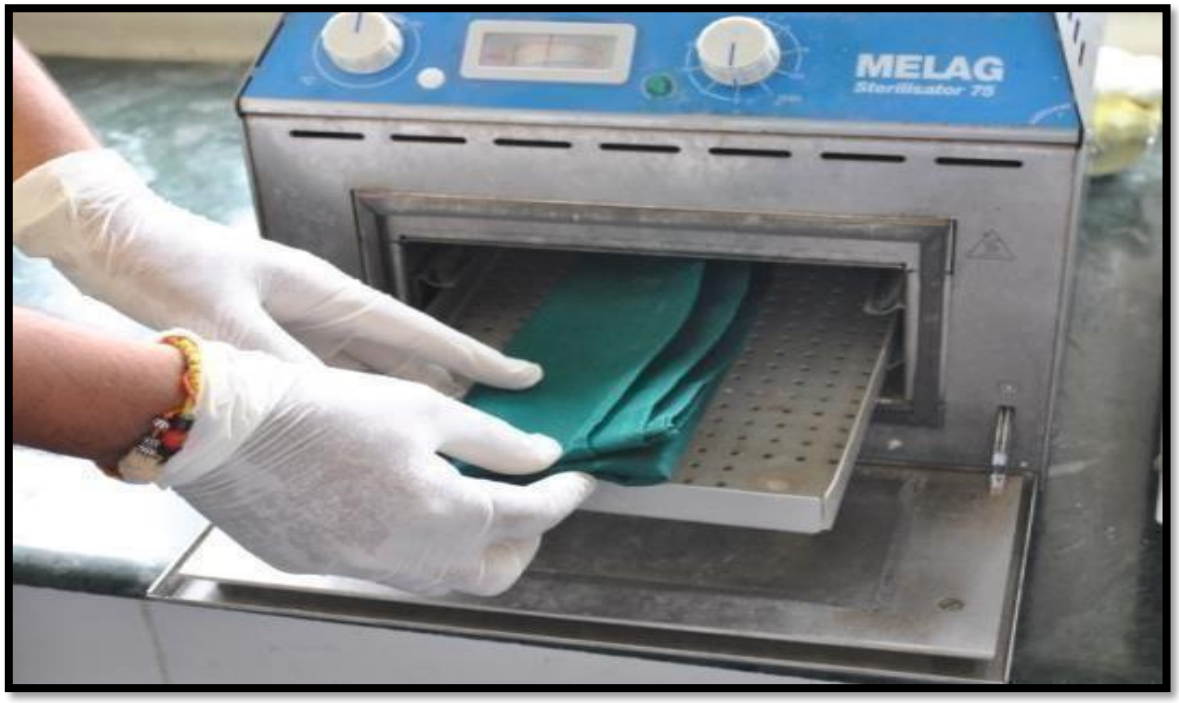
- **Head Cap** is used during every dental procedure to prevent splashes of blood and body fluids.

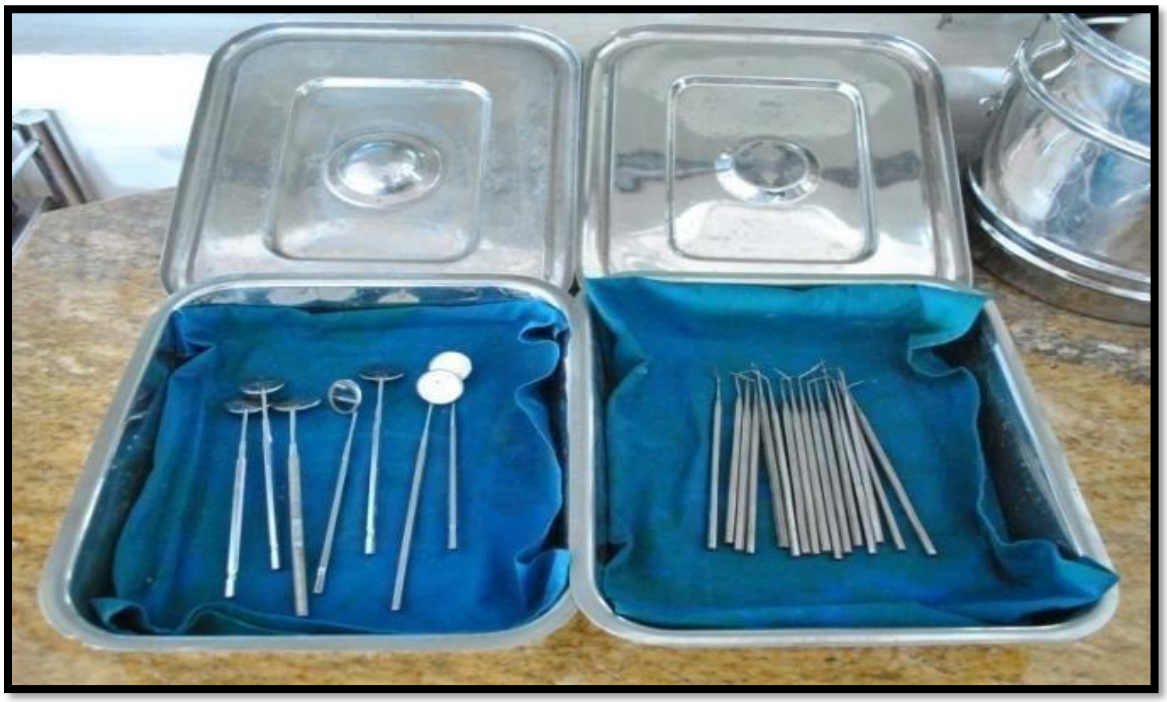
- **Protective Eye Wear:** is used in our department during examination or any dental procedures which is likely to generate splashes or sprays of blood or saliva. It protects the eyes from contact with microorganisms. It is always kept clean after use of each patient.

- **Cleaning and Sterilization of Dental Instruments**

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave.




MELAG
Sterilisator 75



Cotton and orthodontic instruments are being cleaned and placed in the autoclave. and hot air oven

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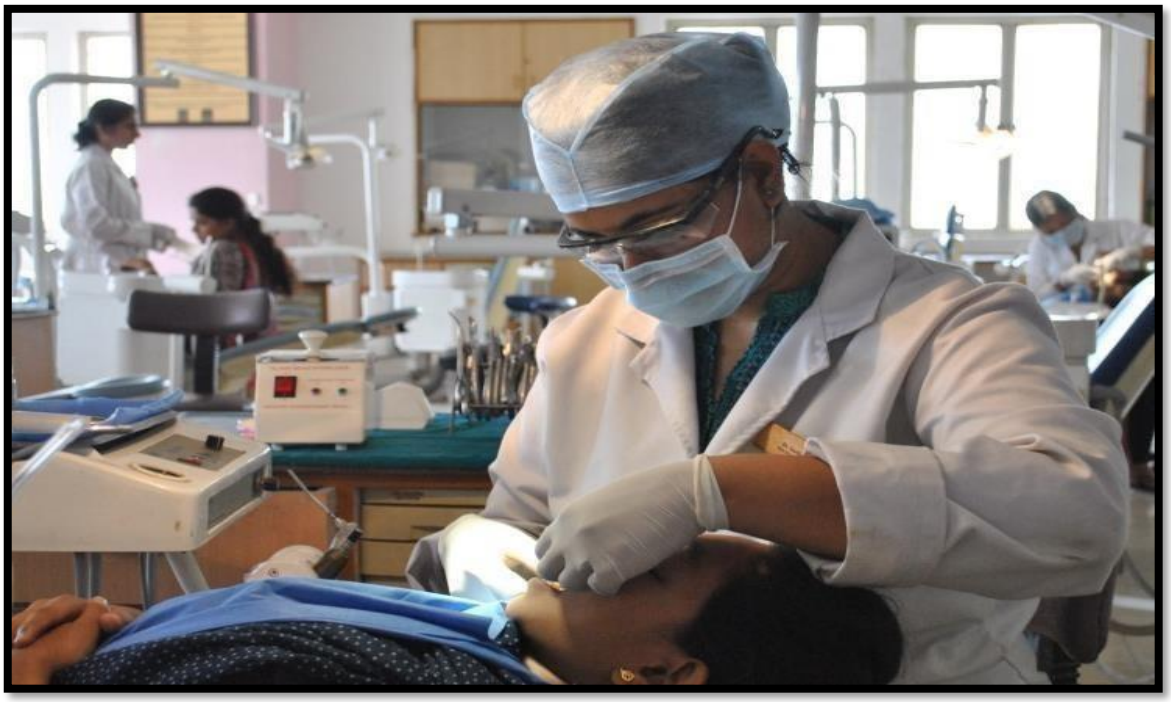

Each post graduate student has an individual chairside glass bead sterilizer.

- Single Use Materials (Disposed After Single Use)
  - suction tips
  - disposable glasses
  - gloves
  - mouth masks
  - drapes
  - head cap


100
GLOVES
DENTAL SAFE
RAMSON'S

- **Waste Control (UG &PG Section)**
  - **Blue Bag**

Plastic Waste
(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

- **Yellow Bag**

Infected waste, anatomical parts and lab waste (Impression materials, cotton)

- **Can (White)**

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)


Do not mix your Hospital Waste
Do not mix your Hospital Waste


Do not mix your Hospital Waste
HAND WASH

The waste material is segregated within the department after 3pm and transported by the attender to the disposal area, located at the back of the college.


TOUGH 'N'
DURABLE

Biomedical Waste Segregation, Transportation and Disposal

Infection Control Protocol

1. Hand Washing and Hand Hygiene

Perform hand hygiene with anti-microbial soap and water when hands are visibly dirty or contaminated with blood or other potentially infectious material. If hands are not visibly soil, an alcohol-based hand rub can be used **(Sterillum).**

2. Personal protective equipment

Wear gloves, mask and eye protection. Disposable single use item should never be used on more than one patient.

3. Complete asepsis of operating area

All the items that will be touched during the treatment.eg: suction tips, bracket table handle etc. should have barrier protection and the dental chairs should be cleaned and disinfected.

1. Instrument sterilization.

All instruments should be washed in running water and cleaning with brush to remove visible debris. Instruments that cannot be autoclaved should be subjected to cold sterilization in glutaraldehyde. Orthodontic instruments are cleaned and placed in autoclave. Chairside use of glass bead sterilizer for individual use is encouraged.

1. Before treatment dental chair water lines should be flushed for 2 minutes at the start of the day and subsequently for 30 sec, between the patients.
2. Proper handling and disposal of biomedical waste should be followed. Immunization of all operating staff for Hepatitis B and Tetanus is essential.

Schedule of Training of Under Graduate and Post Graduate Students About Infection Control and Biomedical Waste

Training:

a. Under graduate students are trained regarding biomedical waste management on the first day of posting in the department of Orthodontics.
b. Postgraduate students are educated before entering clinics about biomedical waste management to be practiced throughout their course.
c. Training programme conducted for the paramedical staff and attenders regarding infection control and biomedical waste management in the

department of orthodontics both postgraduate and undergraduate sections.

Staff in-charge: Dr Sameena B.M Attender in-charge: Sarvotham & Rani

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Research Centre Department of Orthodontics and Dentofacial Orthopaedics Infection Control and Biomedical Waste Management Report

1. Sterilization- (UG &PG Section

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave

Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven. Chairside use of glass bead sterilizer for individual use is encouraged.

2. **Waste Control- (UG &PG Section)**

Blue Bag- Plastic Waste

(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

Yellow Bag

Infected waste, anatomical parts and lab waste (Impression materials, cotton)

Can (White)

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

Segregation, Transportation and Disposal

The waste material is segregated within the department after 3 P.M, and transported by the attender to the disposal area, located at the back of the college.

Department of Pedodontics And Preventive Dentistry Standard Operating Procedure

Infection Control

Infection is caused by the transmission of disease-causing microorganisms between people.

Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus.
  Preventing the spread of infection in a healthcare environment involves the following practices.

Practicing Good Hygiene Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done

✓ Before and after eating

✓ After going to toilet/blowing nose/grooming.

Technique:

1. Wet hands thoroughly with lather vigorously using a neutral pH soap for 10-15seconds.
2. Rinse under running water.
3. Pat dry using paper towel.

Hand Washing in Clinics Must Be Done:

- Before any Non- surgical procedure
- Before any surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

- Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1 minute.
- Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
- Pat dry using paper towel.

Method of washing:

- Palm to palm
- Palm over dorsum
- Palm to palm (fingers interlocked)
- Back to fingers to opposing palms
- Rotate hands in palms
- Rotate fingers in palms

Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

- Wash nails, hands, forearms thoroughly.
- Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
- Commence washing with the forearms and finish with the hands.
- Rinse thoroughly, keep hands above the elbows.
- Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.

- Examination gloves must be used only once.
- Provision should be made to utilize non-latex products for individuals with latex allergy.

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Finger Nail Care

- Keep finger nails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone, or enter in to or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals.

Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.

2. **Semi-critical instruments:** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant. All critical and semi-critical dental instruments that are heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g. Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments under water.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Autoclave and Packaged Instruments

Thermosealer & Steripacks

Sterilization of Hand Piece and Bur

Handpieces as well as various burs used in everyday clinical practice are sterilized before use. Also, handpieces are cleaned using brush followed by enclosing in a special pouch airtightly sealed either with a self-adhesive tape or a thermosealer for autoclaving. Burs are sterilized in glass bead sterilizer or using spirit solution.

Handpiece & Glass Bead Sterilizer

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed color
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored, they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection area.

Syringe Needle Destroyer

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:
Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in a biohazard waste container in a biohazard waste container.
Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items**: ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items**: ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.

If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

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Department of Pedodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up
15. for reinforcement.

Disposable syringe and suction tips

Use of Disposable Tin Foils to Cover the Exposed Areas of The Chair

UG Clinic

Autoclave

Handpiece & Glass Bead Sterilizer

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Hot Water Bath

Formalin Tray

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UG Clinic

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Biomedical Waste Segregation Protocol in The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective color-coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental waste are segregated separately & disposed.

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PG Clinic

UG Clinic

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Department of Oral Pathology
Standard Operating Procedures for Biomedical Waste Management

Biomedical waste includes any solid or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Objective: To segregate the biomedical waste from the general waste to avoid cross infection.

Procedure:

I. Categories the BMW into the following:

- Anatomical waste – Tissue specimen
- Contaminated waste – Used cotton swabs, blood
- Microbiology, biotechnology and other clinical laboratory waste – Used reagents such as those used in tissue processing, stains, body fluids
- Waste sharps – Needles, lancets, scalpel and other blades, broken glass and pipettes
- Glassware – tubes, pipettes

II. *Segregation:*

- Refers to the separation of different type of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.
- Prevents mixture of medical waste with general waste
- Prevents illegal reuse of certain components of medical waste such as syringes, needles and other plastic
- Recycled plastics can be used for non-food grade applications.
- All the biowaste are segregated according to their nature
- The BMW are segregated into the appropriate color-coded bags.
- The body fluids and blood samples are autoclaved/ decontaminated if required and discarded into the sewage.

III. Proper labelling of the bins

- The bins are properly covered with the colored bags.
- BMW is disposed accordingly.

IV. Collection of the BMW:

- All the personnel involved in the collection are trained accordingly to use personal protective equipment's while handling the BMW.
- Collection of the waste is done once daily or once in thrice in a week depending upon the waste collected.

Storage: Waste is stored in a proper place and marked with a caution sign

Transportation:

- Transportation is done in trolleys and manual loading is avoided.
- Container containing BMW is lidded before transportation.
- Before transportation the BMW is accompanied with a signed document from the

doctor.

- The collected BMW is sent to the central collection point and then transported to the main disposal area.

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Department of Oral Pathology
Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections

Infection control procedures are required for the following in the department:

A. Hematology laboratory – Deals with handling of blood and fluid samples
B. Histopathology and exfoliative cytology – Deal with handling of tissue and aspirate specimens
C. Patient examination

I. Hematology:

- This section of the department deals with the screening of the patients by blood tests advised to the patients by the doctors of the operating departments.
- The laboratory tests are done as a part of routine investigations for any dental procedure to check for any variation in the normal constituents of blood, serum and to check for any suspected infectious disease.
- The laboratory investigations begin with the collection of a clinical specimen for examination.
- Proper collection of an appropriate clinical specimen is the first step in obtaining an accurate laboratory diagnosis.

➢ **steps:**

I. Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.
- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red color-coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical sterilant.

II. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

III. ***Histopathology:***

- The biopsy and aspirate specimen are received by the department in labelled formalin bottles and syringes respectively.
- The specimen received are inspected by the personal wearing mouth masks and gloves.
- Formalin and the tissue processing fluids are changed periodically.

Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  - Special rollers and plasticized paper sheets,
  - Cellulose film,
  - Aluminum foil,
  - Self-adhesive films,
  - Nylon cases,
  - Latex and vinyl cases.
- These protective coverings are replaced after every contact and every patient.

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Department of Public Health Dentistry
Sop of Infection Control

Terminologies: -

1. Alcohol based hand subject: - alcohol containing preparation designed for reducing number of viable microorganisms on hands.
2. Anti- microbial soaps- detergent containing antimicrobial agent, germicide used on skin or living tissue for inhibiting or destroying microorganisms.
3. Asepsis: - free of pathogenic microorganisms, method to protect against infection.
4. De-contamination: - process renders equipment or surfaces safe to handle.
5. Disinfection: - destruction of pathogens by thermal or chemical means. Less lethal than sterilization, as it does not kill spores. Degree of safety is less.
6. Germicide: - it destroys pathogenic organisms. It can be used to inactivate micro-organisms on tissue surfaces.
7. Hand hygiene: - technique of scrubbing hands with anti-microbial hand washes for surgical hand anti-sepsis.

Standard precaution taken to reduce risk of cross transmission of pathogens in healthcare settings.

- Sterile means free from all micro-organisms.
- OSHA prescribes employer duty to provide safe and healthy workplace for everyone on premises.
- Policy accountability and responsibility.
- Policy framework for infection control.
- Comprehensive program for information and training.
- Eliminating risk factors, modifying or changing procedures.

Standard Precautions: -

- Blood and blood products
- Body substances
- Non- intact skin and mucous membrane.

Safe work practices include hand hygiene.

- Appropriate use of gloves
- Protective glasses and mouth mask.
- Impenetrable (water proof)aprons.
- Proper scrubbing using appropriate hands wash technique before and after patient care.
- Hand scrubbing for 30-60 seconds for non-surgical and3-5 minutes for surgical.

Gloving Technique: -

- Gloves should be worn touching the internal surface by the ungloved hand and external surface by gloved. if gloves are compromised at any step during treatment, it should be removed, scrubbing is done again and fresh pair is worn.
- It is better to use double gloves technique.
- All the hand accessories like rings, watches and wrist accessories should be removed during patient contact.
- Finger nails should be kept maximum to 0.5 cm and no nail accessories.
- Patient and visitors should also follow some amount of hand hygiene.
- Disposable gloves should not be re-used.

Mask and Eye-Wear: -

- Mask should be water- resistant and should be worn according to manufacturer instructions.
- Should not be touched by hands while worn.
- Both mouth and nose should be covered.
- If the mask is moist, barriers is breached, mask is no longer to beused.
- Mask must be touched only by the loops.
- Protective glass or face mask should also be water resistant to prevent aerosol, water, blood and body secretions splattering.
- Eye-wear must be clear, anti-fog, scratch-free, closed fitting and shielded.
- Should be properly cleaned and stored dry.

Additional Precautions: -

AIRBORNE, droplet and contact precautions should be taken to prevent cross- contamination.

Extra care should be taken for immune-compromised, children, geriatrics patient.

Fitting test should be done for eye-wear, mask and apron.

Needle Stick Injury: -

Needle stick injury or exposure to blood and blood products, body fluids should be reported in accordance with health organization policy.

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2020-21

Department of Oral Medicine and Radiology

Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections

Infection control procedures are required for the following in the department:

A. Patient examination
B. Biopsy
C. Radiology

A. Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  a. Aluminum foil
  b. Transparent cling wrap
- These protective coverings are replaced after every contact and every patient.

B. Biopsy;

1. Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.

- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red color-coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical sterilant.

2. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

C. Radiology

- Patient examination is done using gloves and mouth mask.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
  a. Aluminum foil
  b. transparent cling wrap
- These protective coverings are replaced after every contact and every patient.
- Processing solutions, developer, water and fixer are kept in different containers to prevent the contamination of solutions
- During processing of x ray films, the lead foils and black paper are put into separate bins.

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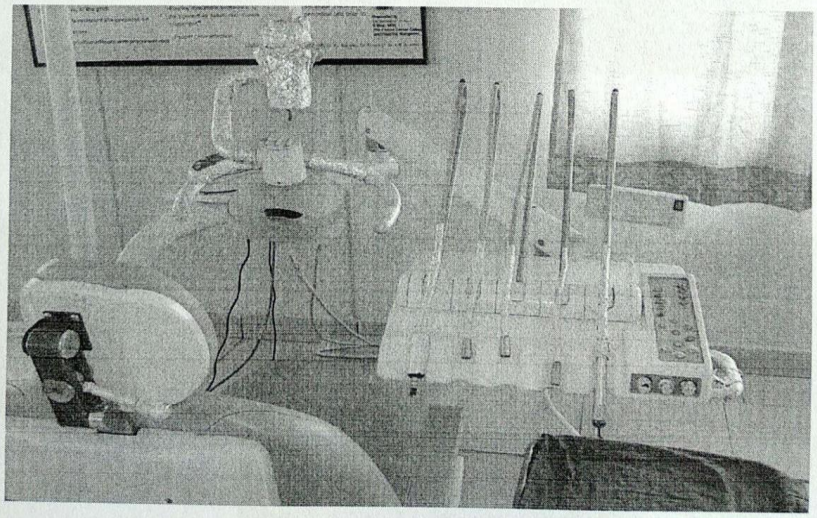
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

2020-2021

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair



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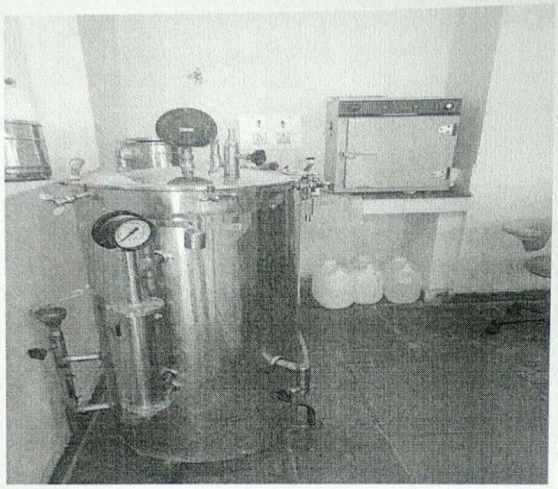
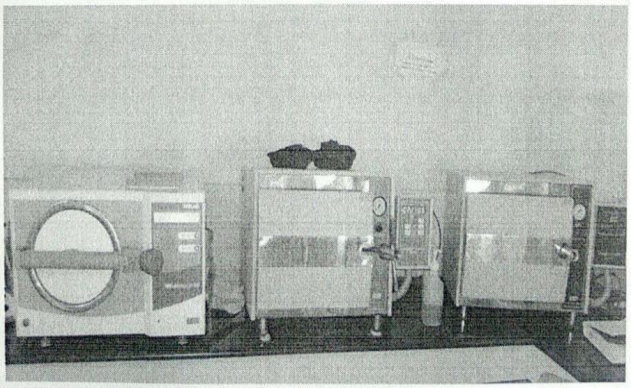
UG CLINIC



PG CLINIC



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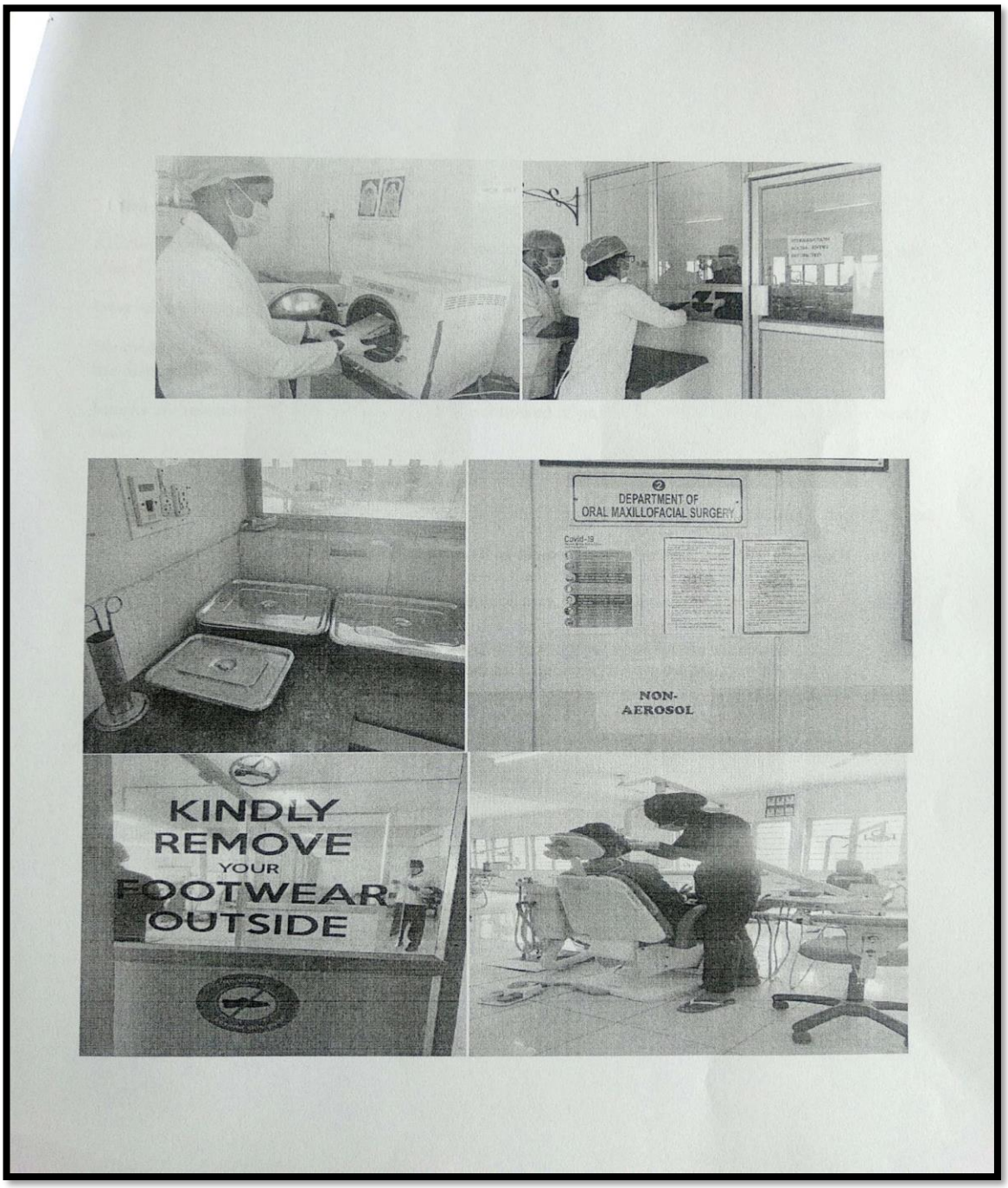

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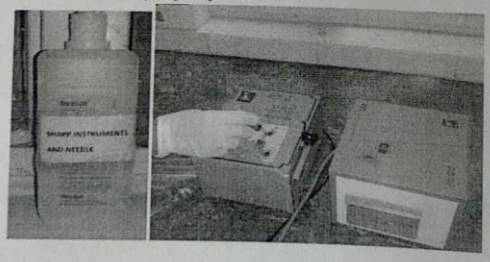
Biomedical Waste Segregation Protocol In The Department

1. Biomedical Waste Segregation is done based on the guidelines given into their respective colour coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.



SYRINGE NEEDLE DESTROYER

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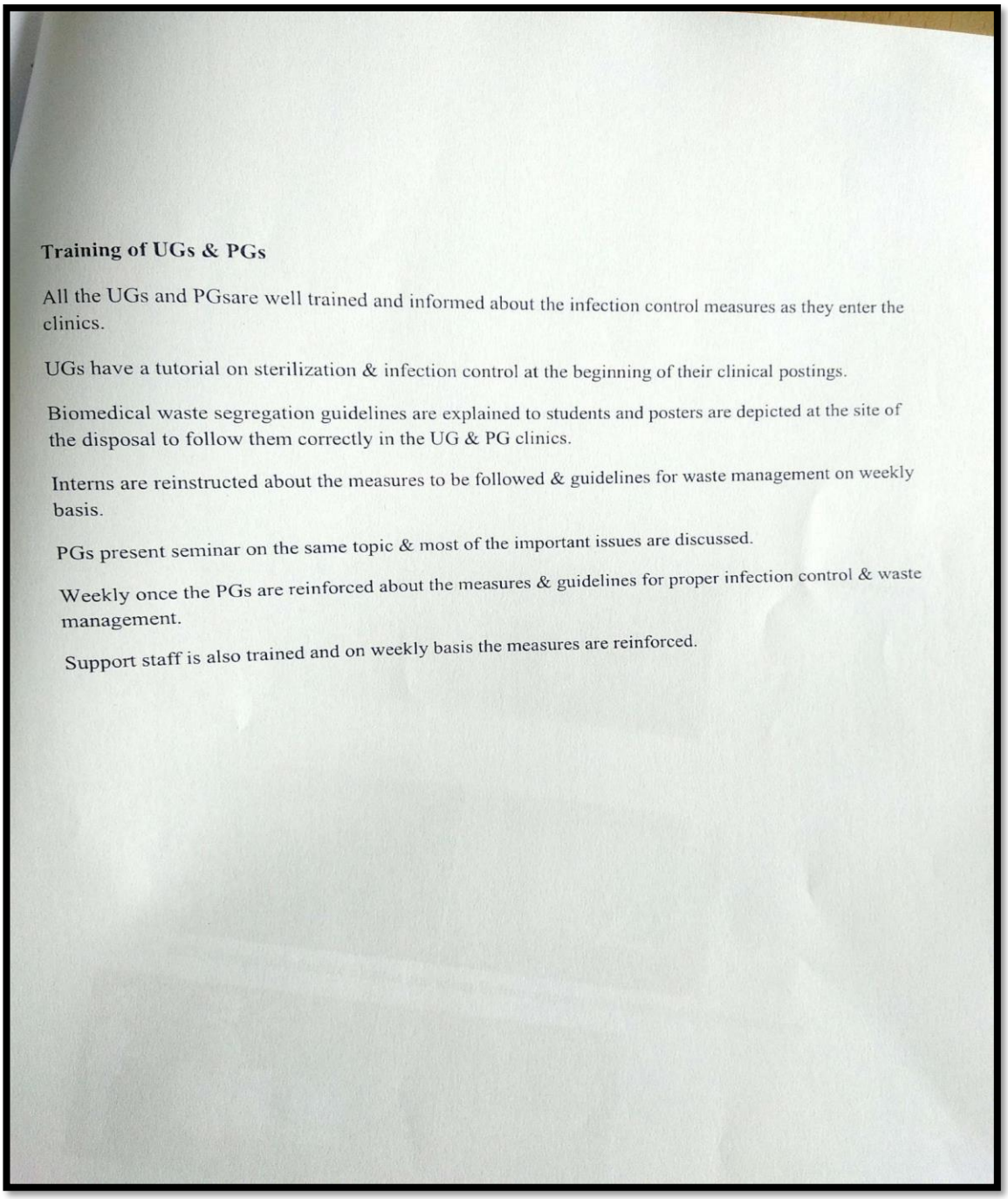


Training of UGs & PGs

All the UGs and PGsare well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings.

Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

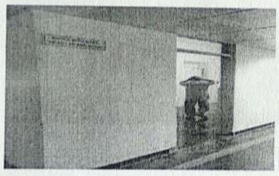
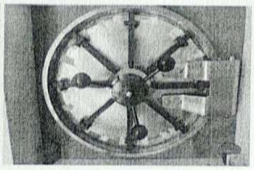
PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

Support staff is also trained and on weekly basis the measures are reinforced.

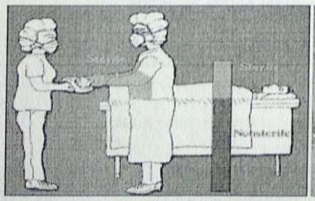
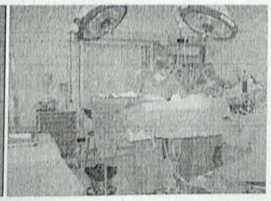
- **Layout of the OT**
- Outer Zone
- (Main Access corridor, transfer area, supervisor office or control station, documentation area, preoperative patient holding area(s), the changing facilities).

- Clean/ Semi restricted zone
- (Clean corridor, sterile and equipment sterile store, anesthesia and recovery room, rest areas)

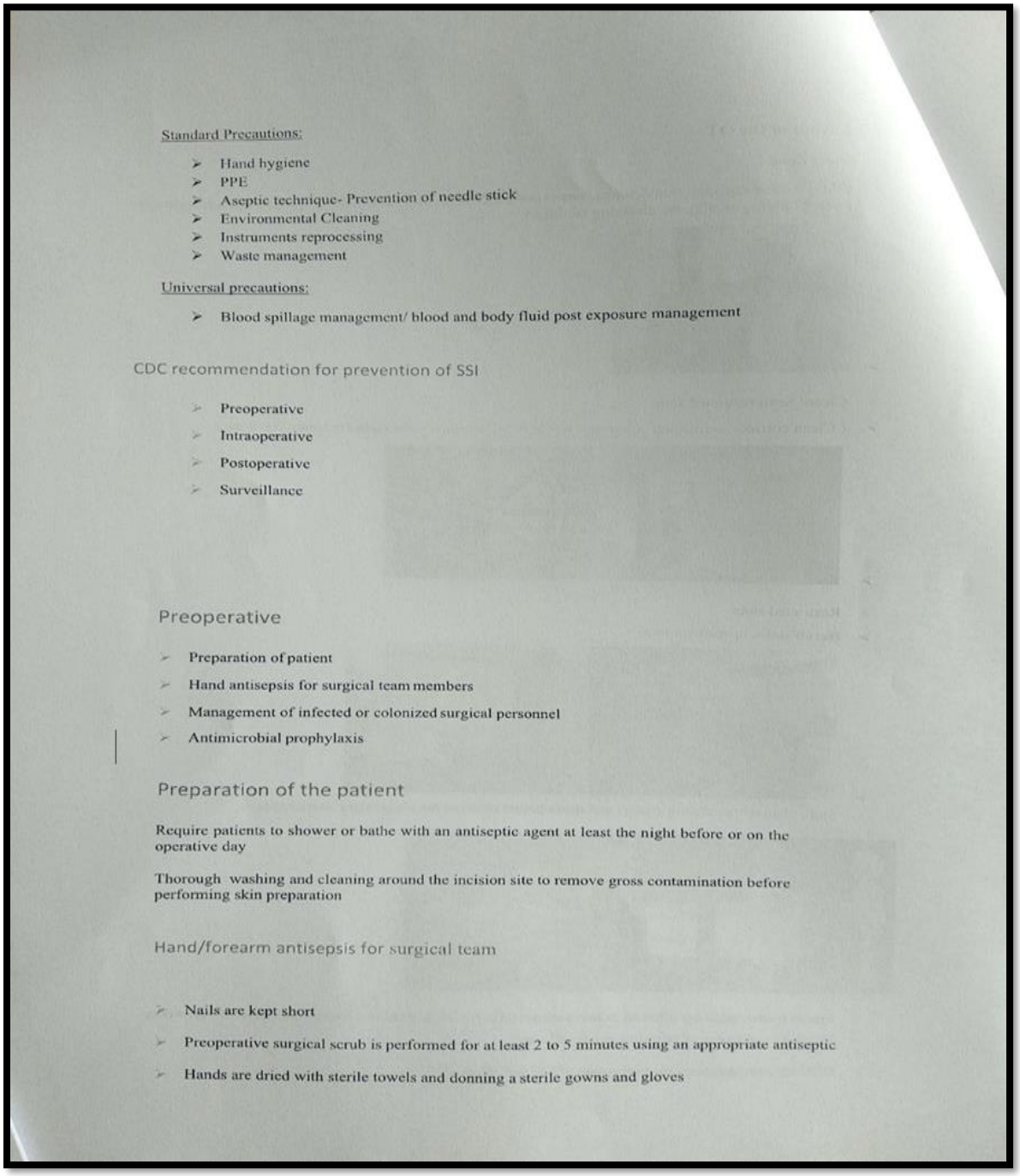



- Restricted zone
- (scrub sinks, operation room)


- Staff change into theatre clothes and shoes before entering the clean/ semi restricted area

- Sterile personnel is not allowed to reach across unsterile areas or to touch unsterile items, or vice versa
- Standard and universal precautions are followed
- CDC recommendations for prevention of SSI are followed



Standard Precautions:

- Hand hygiene
- PPE
- Aseptic technique- Prevention of needle stick
- Environmental Cleaning
- Instruments reprocessing
- Waste management

Universal precautions:

- Blood spillage management/ blood and body fluid post exposure management

CDC recommendation for prevention of SSI

- Preoperative
- Intraoperative
- Postoperative
- Surveillance

Preoperative

- Preparation of patient
- Hand antisepsis for surgical team members
- Management of infected or colonized surgical personnel
- Antimicrobial prophylaxis

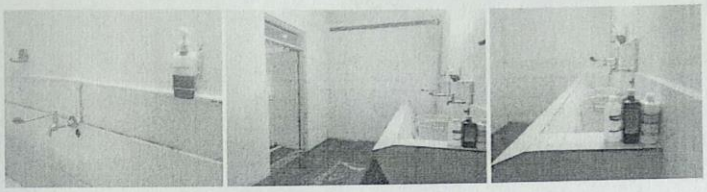
Preparation of the patient

Require patients to shower or bathe with an antiseptic agent at least the night before or on the operative day

Thorough washing and cleaning around the incision site to remove gross contamination before performing skin preparation

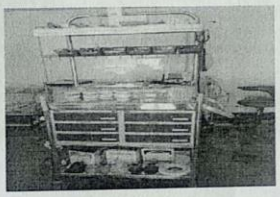
Hand/forearm antisepsis for surgical team

- Nails are kept short
- Preoperative surgical scrub is performed for at least 2 to 5 minutes using an appropriate antiseptic
- Hands are dried with sterile towels and donning a sterile gowns and gloves



Antimicrobial prophylaxis

- Administration of a prophylactic antimicrobial agent done only when indicated
- Administeration by the IV route the initial dose not more 1 hour before incision



Intraoperative

- Ventilation system
- Cleaning and disinfection of environmental surfaces
- Microbiological sampling
- Sterilization of surgical instruments
- Surgical attire and drapes
- Asepsis and surgical technique

Ventilation

- Positive pressure ventilation in maintained in the operating room
- Operating room doors are kept closed except as needed for passage of equipment personnel and the patient

Cleaning and disinfection of environmental surfaces

- When visible soiling or contamination with blood or other body fluids of surfaces or equipment occurs, disinfectant are used to the clean the affected area before the next operation

Surgical attire and drapes

Surgical mask that fully covers the mouth and nose

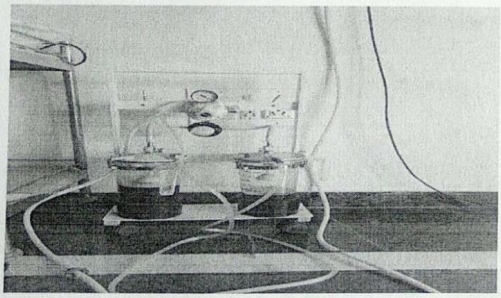
Cap or hood to fully cover hair on head and face

Sterile gloves

Impermeable sterile gowns

Change of scrub suits when visibly soiled or contaminated with blood or body fluids

When drainage is used , closed suction drain is used.



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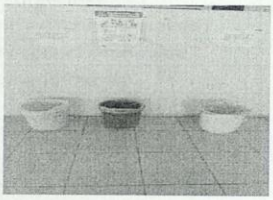
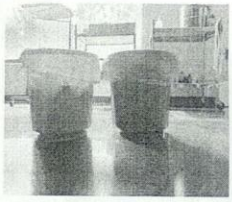
DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

WASTE DISPOSAL

PG CLINIC	UG CLINIC	OT
		

YELLOW BAGS	RED BAGS	BLUE BAGS	BLACK CARBOY
Infectious waste, bandages, gauze, cotton or any other objects in contact with body fluids, etc.	Plastic waste such as catheters,injection syringes, tubings, iv bottles	All types of glass bottles and broken glass articles, outdated & discarded medicines	Needles without syringes, blades, sharps and all metal articles.

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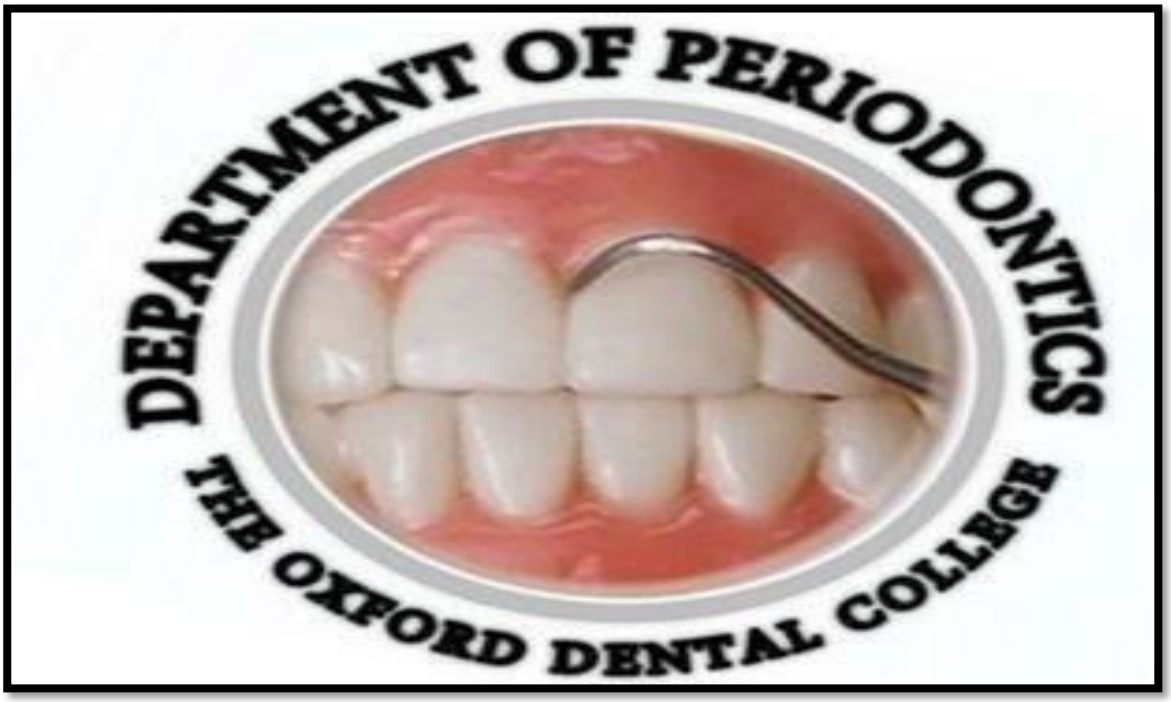
(Recognized by the Govt. of Karnataka, Affiliated to Rajiv Gandhi University of Health Sciences, Karnataka & Recognised by Dental Council of India, New Delhi)
Bommanahalli, Hosur Road, Bangalore – 560 068.
Ph: 080-61754680 Fax : 080 – 61754693E-mail:deandirectortodc@gmail.com
Website: www.theoxford.edu

Infection Control Practice



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Department of Periodontics

Contents: -

1. *Infection Control Policy*

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus.
- Preventing the spread of infection in a healthcare environment involves the following practices.

Tising Good Hygiene: -

Handwashing

- It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.
- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done

✓ Before and after eating/smoking
✓ After going to toilet/blowing nose/grooming.

Ique: Wet hands thoroughly with lather vigorously using a neutral pH soap for 10- 15seconds.

1. Rinse under running water.
2. Pat dry using paper towel.

Washing in Clinics Must Be Done:

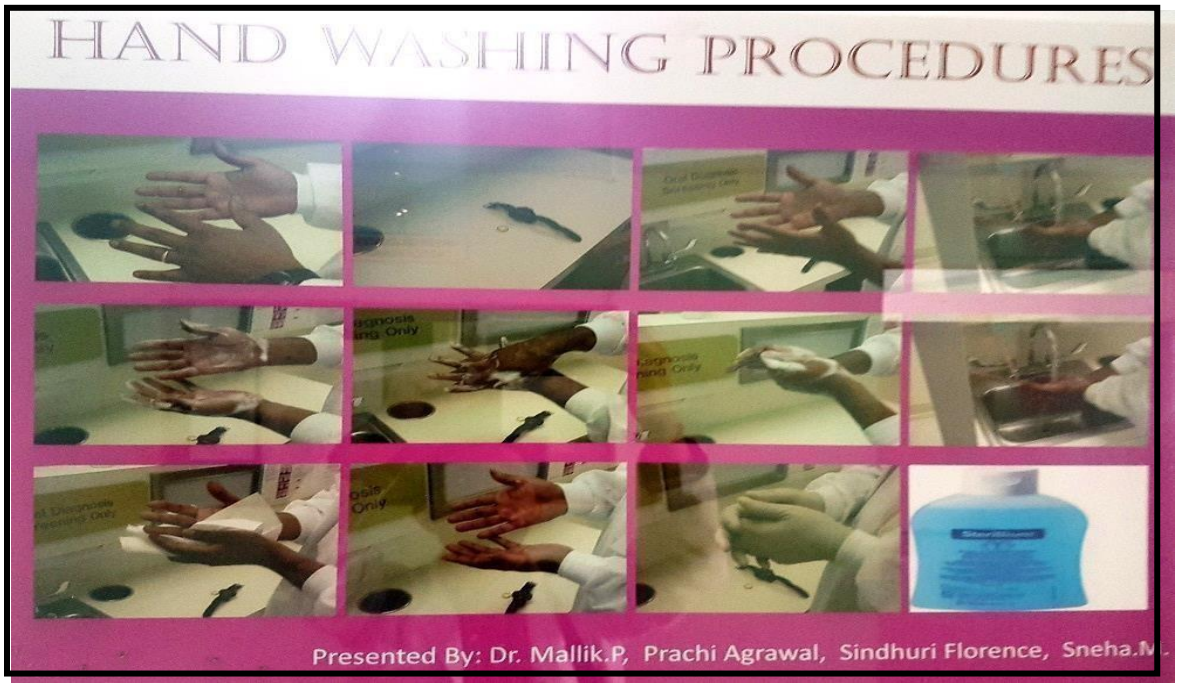
- Before any Non- surgical procedure
- Before any non-surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1minute.
2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to palm
2. Palm over dorsum
3. Palm to palm (fingers inter locked)
4. Back to fingers to opposing palms
5. Rotate hands in palms
6. Rotate fingers in palms



Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior To Any Invasive Surgical Procedure

Technique:

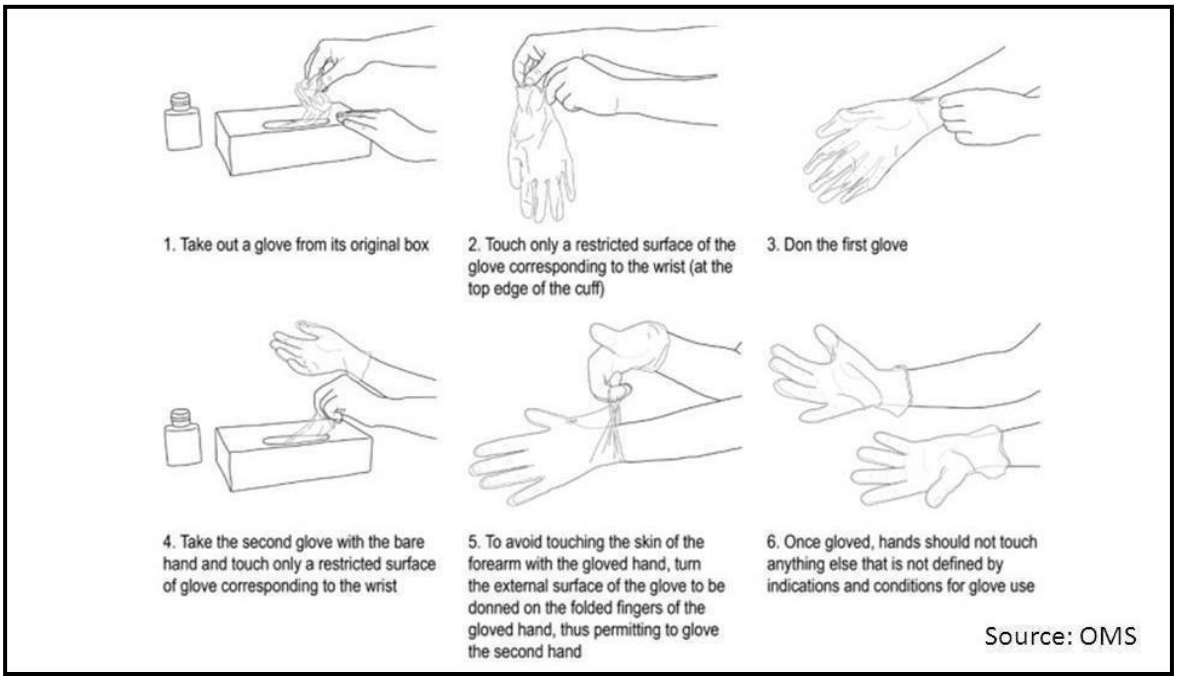
1. Wash nails, hands, forearms thoroughly.
2. Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
3. Commence washing with the forearms and finish with the hands.
4. Rinse thoroughly, keep hands above the elbows.
5. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves*:*

- Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
- Wear general purpose utility gloves for housekeeping.
- Examination gloves must be used only once and should be worn as per the below mentioned illustration.
- Provision should be made to utilize non-latex products for individuals with latex allergy.



Finger Nail Care

- Keep finger nails clean and trimmed to avoid puncturing the gloves.
- Do not wear artificial nails/nail polish which may harbor microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing of Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

CATEGORY	DESCRIPTION	EXAMPLES OF ITEMS
Critical	Penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue	Surgical instruments, scalers, curettes, scalpel blades, surgical burs
Semicritical	Contact mucous membranes, but will not penetrate soft tissue, contact bone or enter into or contact the bloodstream or normally sterile tissue	Dental mouth mirrors, amalgam dispensers, reusable impression trays, dental handpieces
Noncritical	Contact with intact skin	Blood pressure cuff, stethoscope, pulse oximeter

Source: Organization for Safety, Asepsis and Prevention, "From Policy to Practice: OSAP's Guide to the Guidelines. www.osap.org.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone, or enter into or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals. Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.
2. **Semi-critical instruments:** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

All critical and semi-critical dental instruments that heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g., Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments underwater.
- Rinse instruments in hot water.

- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed color
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored, they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Management Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and

the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection area.

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.

Place the contamination in a biohazard waste container in a biohazard waste container.

Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (CIDEX) to the area.

Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.

- Less waste, particularly sharps and infectious waste, means lower practice costs.

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

- Waste containment is achieved through streamlined work practices

The waste from the Department will be collected in separate containers and will be given to the services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.

If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

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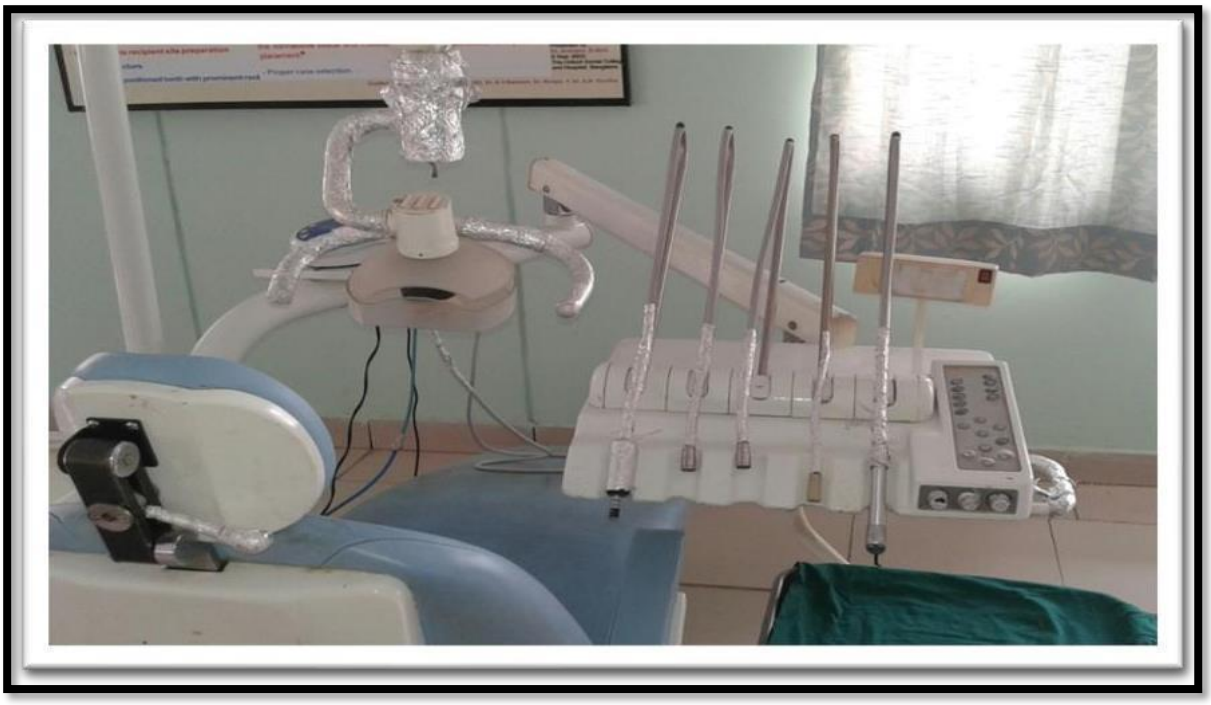
Department of Periodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.



Use of Disposable Tin Foils to Cover the Exposed Areas of the Chair

PG Clinic

UG Clinic

Biomedical Waste Management: -

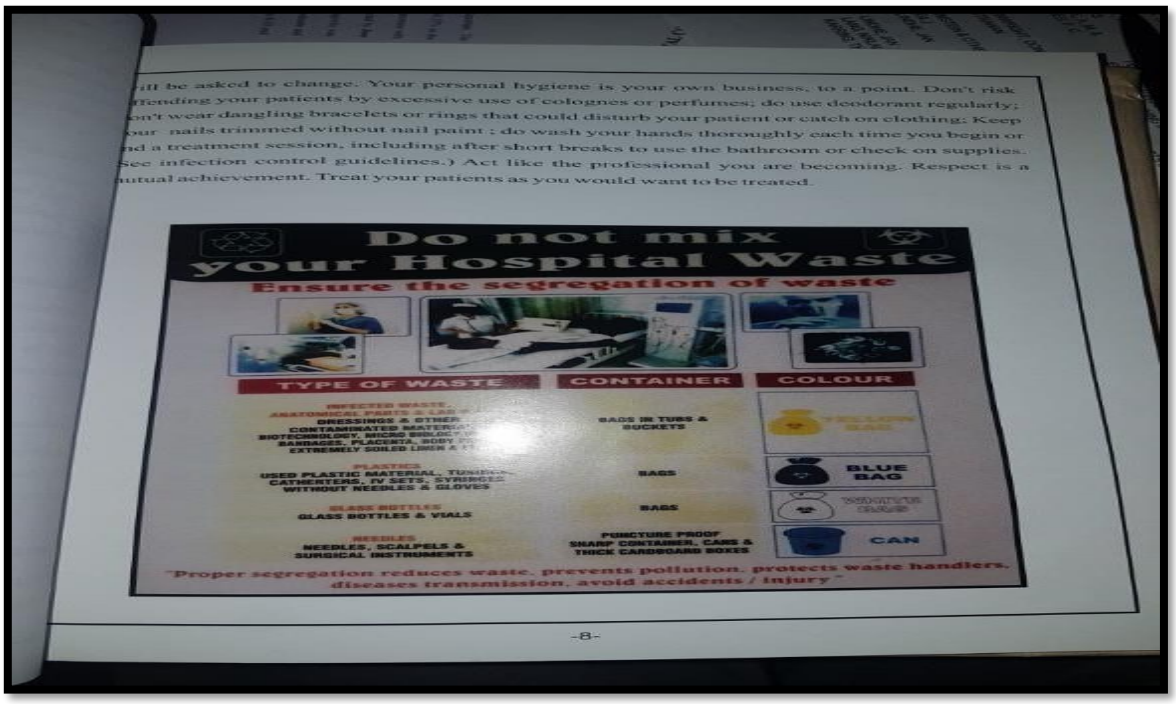
1. Biomedical Waste Segregation is done based on the guidelines given into their respective color-coded bags.
2. Measures are taken to segregate & recheck the waste before disposing.
3. All the support staff is provided with the utility gloves for the same.
4. Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
5. Alginate & dental wasteare segregated separately & disposed.

Syringe Needle Destroyer

Training of UGs & PGs

All the UGs and PGs are well trained and informed about the infection control measures as they enter the clinics.

UGs have a tutorial on sterilization & infection control at the beginning of their clinical postings and is added to their curriculum in their clinical logbook



Biomedical waste segregation guidelines are explained to students and posters are depicted at the site of the disposal to follow them correctly in the UG & PG clinics.

Interns are reinstructed about the measures to be followed & guidelines for waste management on weekly basis.

PGs present seminar on the same topic & most of the important issues are discussed.

Weekly once the PGs are reinforced about the measures & guidelines for proper infection control & waste management.

Support staff is also trained and on weekly basis the measures are reinforced.

Standard Operative Procedure

It is a process document that describes in detail the way an operator should perform a given operation.

Periodontics is the specialty of dentistry that encompasses prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of teeth and dental implants. The specialty includes maintenance of the health, function, and esthetics of all supporting structures and tissues (gingiva, periodontal ligament, cementum, alveolar bone, and sites for tooth replacements). Tissue regeneration, management of periodontal-endodontic lesions, and providing dental implants as tooth replacements are, when indicated, integral components of comprehensive periodontal therapy. Tooth extraction and implant site development may accompany either periodontal or implant therapy.

The goals of periodontal therapy are to preserve the natural dentition, periodontium and peri-implant tissues; to maintain and improve periodontal and peri-implant health, comfort, esthetics, and function. Currently accepted clinical signs of a healthy periodontium include the absence of inflammatory signs of disease such as redness, swelling, suppuration, and bleeding on probing; maintenance of a functional periodontal attachment level; minimal or no recession in the absence of interproximal bone loss; and functional dental implants.

Periodontal Examination

All patients should receive a comprehensive periodontal examination. Such an examination includes discussion with the patient regarding the chief complaint, medical and dental history review, clinical examination, and radiographic analysis. Microbiologic, genetic, biochemical, or other diagnostic tests may also be useful, on an individual basis, for assessing the periodontal status of selected patients or sites.

Some or all of the following procedures may be included in a comprehensive periodontal examination:

1. Extra- and intraoral examination to detect non- periodontal oral diseases or conditions.
2. General periodontal examination to evaluate the topography of the gingiva and related structures; to assess probing depth, recession, and attachment level; to evaluate the health of the subgingival area with measures such as bleeding on probing and suppuration; to assess clinical furcation status; and to detect endodontic-periodontal lesions.
3. Assessment of the presence, degree and/or distribution of plaque, calculus and gingival inflammation.
4. Dental examination, including caries assessment, proximal contact relationships, the status of dental restorations and prosthetic appliances, and other tooth- or implant-related problems.
5. Determination of the degree of mobility of teeth and dental implants.
6. Occlusal examination.
7. Interpretation of a satisfactory number of updated, diagnostic quality periapical and bite-wing radio- graphs or other diagnostic imaging needed for implant therapy.

8. Evaluation of potential periodontal systemic inter- relationships.
9. Assessment of suitability to receive dentalimplants.

Establishing A Diagnosis and Prognosis

The purpose of the comprehensive periodontal examination is to determine the periodontal diagnosis and prognosis and/ or suitability for dental implants. This process includes an evaluation of periodontal and peri-implant tissues to determine the suitability of the patient for treatments including nonsurgical, surgical, regenerative and reconstructive therapy, or dental implant placement. This information should be recorded in the patient's chart and communicated to the patient and the referring dentist when appropriate.

Periodontal Diseases and Conditions

Diseases of the periodontium may be categorized as gingival diseases, periodontitis, necrotizing periodontal diseases, abscesses of the periodontium, and developmental or acquired deformities and conditions.

1. **Gingivitis** is gingival inflammation without attachment loss or with non-progressing attachment loss. Other gingival diseases may be modified by systemic factors, medications or malnutrition.
2. **Periodontitis** is gingival inflammation with progressing attachment loss. Different forms include, but are not limited to, **chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease, necrotizing ulcerative periodontitis, and periodontitis associated with endodontic lesions.**

Periodontitis may be further characterized by degree of attachment loss as slight, moderate, or severe; by extent as localized or generalized; and by post-treatment status as recurrent or refractory. Facial recession involving loss of periodontal attachment and gingival tissue affects children and adults. The prevalence increases with age and adults over 50 have the greatest degree of involvement. This mucogingival condition is often treatable. Edentulous ridge defects result from loss of osseous tissue and can compromise esthetics or complicate future implant placement.

Development of A Treatment Plan

The clinical findings together with a diagnosis and prognosis should be used to develop a logical plan of treatment in order to eliminate or alleviate the signs and symptoms of periodontal diseases and thereby arrest or slow further disease progression. The treatment plan should be used to establish the methods and sequence of delivering appropriate periodontal treatment. When indicated, the plan should include:

1. Medical consultation or referral for treatment when appropriate.
2. Periodontal procedures to be performed.
3. Consideration of adjunctive restorative, prosthetic, orthodontic and/or endodontic consultation or treatment.

4. Provision for re-evaluation during and after periodontal or dental implant therapy.
5. Consideration of chemotherapeutic agents for ad- junctive treatment.
6. Consideration of diagnostic testing that may include microbiological, genetic or biochemical assessment or monitoring during the course of periodontal therapy.
7. Periodontal maintenance program.

Informed Consent and Patient Records

Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, informed consent should be obtained prior to the commencement of therapy. The information given to the patient in these circumstances should include the following:

1. The diagnosis, etiology, proposed therapy, possible alternative treatment(s), and the prognosis with and without the proposed therapy or possible alternatives.
2. Recommendations for referral to other health care providers as necessary.
3. The reasonably foreseeable inherent risks and potential complications associated with the proposed therapy, including failure with the ultimate loss of teeth or dental implants.
4. The need for periodontal maintenance treatment after active therapy due to the potential for disease recurrence.

A record of the patient's consent to the proposed therapy should be maintained. Moreover, complete records of diagnosis, treatment, results, and recommended follow-up are essential, starting with the initial examination and continuing for as long as the patient is under care. Where reasonably foreseeable risks, potential complications, or the possibility of failure are associated with treatment, it is advisable to obtain the informed con-sent in writing prior to commencement of therapy.

Treatment Procedures

A broad range of therapies exist in periodontics. No single treatment approach can provide the only means of treating any one or all periodontal diseases. One treatment modality may be appropriate for one section of the mouth while another approach may be suitable at other sites. When indicated, treatment should include:

1. Patient education, training in personal oral hygiene, and counseling on control of risk factors (eg, smoking, medical status, stress) with referral when appropriate.
2. Removal of supragingival and accessible subgingival bacterial plaque and calculus is accomplished by periodontal scaling. Comprehensive periodontal root planning is used to treat
3. root surface irregularities or alterations caused by periodontal pathoses. In some instances, these procedures may be incorporated into the surgical treatment.
4. Finishing procedures, which include post-treatment evaluation with review and reinforcement of personal daily oral hygiene when appropriate.

The following courses of treatment maybe indicated in addition to the above outlined procedures:

1. Chemotherapeutic agents. These agents may be used to reduce, eliminate, or change the quality of microbial pathogens; or alter the host response through local or systemic delivery of appropriate agent(s).
2. Resective procedures. These procedures are designed to reduce or eliminate periodontal pockets and create an acceptable gingival form that will facilitate effective oral hygiene and periodontal maintenance treatment. Soft tissue procedures include gingivectomy, gingivoplasty, and various mucogingival flap procedures. Osseous procedures include ostectomy and osteoplasty. Dental tissue procedures include root resection, tooth hemi section, and odontoplasty. Combined osseous and dental tissue procedures may be required for management of endodontic-periodontal lesions.
3. Periodontal regenerative procedures include: soft tissue grafts, bone replacement grafts, root biomodification, guided tissue regeneration, and combinations of these procedures for osseous, furcation, and recession defects. Periodontal reconstructive procedures include: guided bone regeneration, ridge augmentation, ridge preservation, implant site development, and sinus grafting.
4. Periodontal plastic surgery for gingival augmentation, for correction of recession or soft tissue defects, or for other enhancement of oralesthetics.
    a. Occlusal therapy, which may include: minor tooth movement, occlusal adjustment, splinting, or provision of devices to reduce occlusal trauma.
    b. Periprosthetic periodontal procedures include: exploratory flap surgery, resective procedures, regenerative or reconstructive procedures, or crown lengthening surgery, performed to facilitate restorative or prosthetic treatment plans.
    c. Selective extraction of teeth, roots, or implants when indicated, in order to facilitate periodontal therapy, implant therapy, implant site development, or im- plant, restorative and/or prosthetic treatment plans.
    d. Replacement of teeth by dental implants.
    e. Procedures to facilitate orthodontic treatment including, but not limited to, tooth exposure, frenulectomy, fiberotomy, gingival augmentation, and implant placement.
    f. Management of periodontal systemic interrelationships when appropriate.

Periodontal Maintenance Therapy

Upon completion of active periodontal treatment, follow-up periodontal maintenance visits should include:

1. Update of medical and dental histories.

2. Evaluation of current extra- and intraoral, periodontal and peri-implant soft tissues as well as dental hard tissues and referral when indicated (eg, for treatment of carious lesions, pulpal pathosis, or other conditions)
3. Assessment of the oral hygiene status with reinstruction when indicated.
4. Mechanical tooth cleaning to disrupt/remove dental plaque and biofilms, stain, and calculus. Local delivery or systemic chemotherapeutic agents may be used as adjunctive treatment for recurrent or refractory disease.
5. Elimination or mitigation of new or persistent risk and etiologic factors with appropriate treatment.
6. Identification and treatment of new, recurrent, or refractory areas of periodontal pathoses.
7. Establishment of an appropriate, individualized interval for periodontal maintenance treatment.
8. The patient should be kept informed of:
9. Areas of persistent, recurrent, refractory, or new periodontal disease.
10. Changes in the periodontal prognosis.
11. Advisability of further periodontal treatment or re- treatment of indicated sites.
12. Status of dental implants.
13. Other oral health problems noted that may include caries, defective restorations, and non-periodontal mucosal diseases or conditions.

Evaluation of Therapy

Upon completion of planned periodontal therapy, the record should document that:

1. The patient has been counseled on why and how to perform an effective daily personal oral hygiene program.
2. Accepted therapeutic procedures have been per- formed to arrest the progression of the periodontal disease(s).
3. Periodontal root planning has left subgingival root surfaces without clinically detectable calculus deposits or rough areas.
4. Gingival crevices are generally without bleeding on probing or suppuration.
5. A recommendation has been made for the correction of any tooth form, tooth position, restoration, or prosthesis considered to be contributing to the periodontal disease process.
6. An appropriate periodontal maintenance program, specific to individual circumstances, has been recommended to the patient for long-term control of the disease, as well as for the maintenance of dental implants, if present.

Department of prosthodontics

[Standard operating procedures]

Standard operating procedure follows

Work sheets (Orders) are collected with instructions

↓

Concerned staff analyses and evaluates the work sent

↓

work assigned to the technician with instructions regarding specification of design and date of work

➢ **Lab safety procedures:**

- Disinfection of all the materials used and sterilization of all instruments accompanied by a clean laboratory
- Laboratory decorum followed
  a. No eatables allowed in the lab.
  b. Covered overalls separate from that used outside the lab.
- Safety protocol (Complete hygiene of technician that includes Mouth mask, Safety glass, Gloves and Lab coat)
- Re-use of metals
  a. Metal can't be re-used more than twice.

- **Protocol for Complete Dentures**

Fabrication of primary cast from collected primary impression and construction of special/custom tray (given in 2 working days)

↓

Fabrication of Master cast from procured Secondary impression and construction of denture base with occlusal rims (given in 2 working days)

↓

Articulating the casts in the procured jaw relation (done in 1 working day)

↓

Teeth setting (given for try-in in 2 working days)

↓

Flasking, dewaxing, packing and curing procedures carried on, followed by trimming and finishing of denture (denture delivered in 3 working days)

➢ **Protocol for Cast partial denture**

Fabrication of primary cast from the procured primary impression followed by construction of denture base with occlusal rims (given in 2 working days)

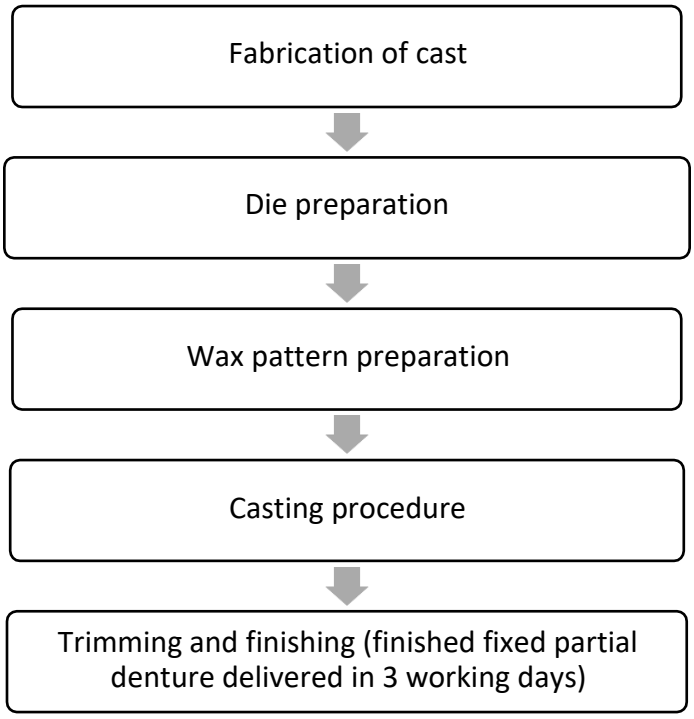
↓

Articulation and teeth setting (given for try-in in 2 working days)

↓

Investing, dewaxing, packing and curing procedure followed by denture trimming and polishing (denture delivered in 2 working days)

➢ **Protocol for fixed partial denture**



Schedule for supplying materials

✓ **Consumables**

- Materials supplied on every Monday (9-10am) for the usage of that week
- exhaustion of material, reissued on every Thursday (9-10am)

✓ **Non-Consumables** On

- Available to technician on all days (Monday-Saturday (9-12.30am)]
- Stocked on the first working day of every month.

Areas of Responsibility:

- Dental Providers (Dentists/Hygienists)
- Dental Support Staff (DSS)

Procedure:

- **Dental Providers (Dentists/Hygienists)**
  - Have a basic understanding of the Dental Sterilization Process.
  - The Infection Prevention/Control (IPC)/Safety Officer (Hygienist) for each dental clinic is responsible for training and monitoring the dental sterilization process. If there is a breach in the sterilization process it is their responsibility to report this to the Dental Clinic Director and the Infection Prevention/Control Advisor for the Dental Department.
  - In the event of a breach in the sterilization process, the Clinic IPC/Safety Officer, the Dental Clinic Director, and the Infection Prevention/Control Advisor for the Dental Department will ensure the appropriate steps are taken to correct the situation.
- **Dental Support Staff**
  - Instruments/cassettes which need to be heat sterilized are to be transported from the dental operatory to the sterilization (instrument processing) area in the approved transport container.
    a. Instruments are defined as any instruments or dental devices (ex: bite block, lab
  - spatula, xcp's) not contained in a cassette that require heat sterilization.
    a. Cassettes are defined as any instruments which are contained in a cassette that require heat sterilization. They may be sterilized in either a multi parameter pouch or blue surgical wrap.
  - The sterilization (instrument processing) area should be divided into the following four sections:
    a. Receiving, Debridement, and Decontamination.
    b. Preparation and Packaging.
    c. Sterilization.
    d. Holding Airotor sterilized pouches/wrapped cassettes waiting to be returned to the operatory and storage areas.
  - The sterilization area should be divided by walls, partitions, or adequate spatial separations to control traffic flow and contain contaminants generated during processing.
- **Receiving/Debridement/Decontamination of The Instruments/Cassettes:**
  - Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
  - The debridement/decontamination process is to be completed immediately after the instruments/cassettes are brought to the sterilization area in order to reduce the risk

of microorganisms becoming encapsulated on the instrument/cassette surfaces.

- **Instruments/cassettes need to be debrided/decontaminated by one of the following methods:**
- **When Using the Ultrasonic:**
  - The preferred procedure is to place instruments/cassettes directly into the ultrasonic using the appropriate inserts immediately after being received in the sterilization area.
    a. If there is a load already running in the ultrasonic, the instruments/cassettes should be kept in a presoak of the approved ultrasonic cleaner and run through the ultrasonic as soon as possible.
    b. Manual debridement of the instruments/cassettes is strongly discouraged. If it is absolutely necessary, the instruments/cassettes are to be debrided with a long-handled brush and placed into the ultrasonic as soon as possible.
  - The ultrasonic is filled at the beginning of each day with the approved ultrasonic cleaner.
    a. If the ultrasonic cleaner becomes diluted due to excessive use, it may be necessary to change the ultrasonic cleaner during the day.
  - The ultrasonic is to run for the appropriate time according to the manual.
  - The instruments/cassettes are then thoroughly rinsed with tap water and set on a rack to dry.
  - If this is the last cycle of the day, the instruments/cassettes maybe left after the rinse has been completed.
  - The instruments/cassettes will need to be packaged and sterilized the next day.
  - The ultrasonic is to be drained at the end of each day and sprayed with the approved surface disinfectant.
  - DSS are responsible for keeping the sterilization area neat and organized.
  - Place the loose instruments neatly in the drying area in order to prevent damage to the instruments/cassettes.
- **When Using the Miele** (Dental Washer Disinfector), follow the "Instrument Handling Recommendations" which are found in the manual:
  - Instruments/cassettes should not be pre-soaked, rinsed, or hand scrubbed.
  - Instruments/cassettes are placed directly into the Miele Dental Washer Disinfector.
  - The Miele Dental Washer Disinfector serves as the "dirty storage area" and will clean and disinfect instruments/cassettes that have been sitting for up to 6 hours; however, instruments/cassettes cannot be left to sit overnight.
  - Instruments should be placed into plastic cassettes within the metal mesh basket in the

Miele to prevent damage to the tips of the instruments. Tips of the instruments can become caught in the metal mesh.

- The recommended cycle is the Disinfection VARIO with the optional 10-minute drying cycle.
- The Miele cannot be left running when the DSS leave for the day. The cycle must be complete and the door of the Miele must be left slightly opened.
- Do not leave the door to the Miele completely opened because it is a safety hazard.
- The door of the Miele needs to be opened immediately after the cycle ends to release hot air and steam and to let instruments cool. This prevents rust and corrosion from forming on the instruments/cassettes.
- If this is the last cycle of the day and there is not enough time to run the Disinfection Vario cycle, the Miele may run through one of the following cycles:
    a. The 30-minute cycle with a cold-water pre-rinse and a detergent phase. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day.
- Instruments/cassettes may be packaged and sterilized the following day.
    a. The 10-minute cycle with a cold-water pre-rinse only. When this cycle is completed, the DSS will need to open the door to the Miele and they may leave for the day. The instruments/cassettes are not ready for packaging and sterilization.
- Instruments/cassettes will need to be run through the Disinfection VARIO cycle at the beginning of the following day.
- Instruments/cassettes may then be packaged and sterilized.

➢ **Hand Pieces:**
- Hand pieces are to be cleaned and oiled by the hand-held air driven method.

➢ **Preparation/Packaging of the instruments/Cassettes:**
- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated instruments and cassettes.
- After the debridement/decontamination process is completed, the instruments/cassettes are prepared for heat sterilization through the following steps:
    a. Place instruments/cassettes in the appropriately sized multiparameter pouches (Multi parameter meaning the appropriate levels for heat, temperature, and time have been achieved).
    b. Affix the self-sealing adhesive strip to the designated place on the multi

parameter pouch to ensure a complete seal.

c. If using blue surgical wrap, a small piece of autoclave indicator tape needs to be inserted into the middle of the cassette (internal indicator). The outside of the package needs to be secured with autoclave indicator tape (external indicator).
d. The pouches/wrapped cassettes now need to have the current date marked on them with a regular point black Sharpie permanent marker. The date will read as: 09-13-13. (Not 09/13/13).
e. Any clinic with more than one heat sterilizer (ex: Statim/Autoclave) needs to designate which sterilizer the pouches/wrapped cassettes have run through. (Ex: red Sharpie permanent marker=Statim; blue Sharpie permanent marker=Autoclave 1; green Sharpie permanent marker=Autoclave 2; orange Sharpie permanent marker=Autoclave 3)

➢ **Sterilization of The Pouches/Wrapped Cassettes:**

- Puncture resistant nitrile utility gloves and proper Personal Protective Equipment (PPE) (including a laboratory coat, mask and safety glasses) must be worn when handling contaminated pouches and wrapped cassettes.
- Pouches/wrapped cassettes are to be placed correctly on the trays for each heat sterilizer (refer to the "Guidelines for Loading Trays" which may be found in the sterilizer manual).
- Before sterilizers are started, the water levels need to be checked. (Ex: Autoclave=tubing indicator inside the door/Statim=the lid covering the mesh trap on the top of the unit). Make sure the collection container which drains under the Statimis not full. If sterilizers need to have water added to the units, use only distilled water. No tap or filtered water is to be used in these sterilizers.
- The recommended cycle for the Statim is the "Wrapped" cycle which will runat
- 275^0 F (135^0 C) for 10 minutes.
- The^0 recommended cycle for the Autoclave is the "Packs" cycle which will run at
- 250 F (121^0 C) for 30 minutes.
- After the cycle for the autoclave has been selected, push the 'Start' button and listen for the sound of water filling the reservoir. The sterilizer will now show it has started and you may then fill out the log for that sterilizer. (Print your name, current date, note the time started and place your initials).
- It is imperative that the sterilizer run through the complete cycle from the "filling" phase through the "drying" phase. Do not interrupt the cycle at any point before the drying phase is complete.
- When the sterilizer shows the cycle is complete, the (DSS) may remove the sterilized pouches/wrapped cassettes.

- **Holding Area for The Sterilized Pouches/Wrapped Cassettes:**
  - When Removing the Sterilized Pouches/Wrapped Cassettes from The Sterilizer, The DSS Will Initial Each Sterilized Pouch/Wrapped Cassette Clearly with Their Written Initials Once They Have Verified the Following Three Items:
    - ✓ The Internal/External Indicators Have Changed to The Appropriate Color (Pink to Cocoa Brown) According to The Color Chart.
    - ✓ There Is A Clearly Marked Date of Sterilization.
    - ✓ There Is A Clearly Marked Sterilizer Identifier.
  - If the Three Previously Stated Items Can Be Verified, The Sterilized Pouches/Wrapped Cassettes Can Be Placed in The Holding Area.
  - If Any of The Three Previously Stated Items Cannot Be Verified, The Pouches/Wrapped Cassettes will need to be repackaged and rerun through the sterilization process.
  - The IPC/Safety Officer for the dental clinic will need to be notified.
  - The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.
  - When removing the sterilized pouches/wrapped cassettes from the Holding Area, the DSS will initial each sterilized pouch /wrapped cassette clearly with their written initials for a second time after they verify the following three items:
    - ✓ The internal/external indicators have changed to the appropriate color (pink to cocoa brown) according to the color chart.
    - ✓ There is a clearly marked date of sterilization.
    - ✓ There is a clearly marked sterilizer identifier.
  - If the three previously stated items can be verified, the sterilized pouches/wrapped cassettes can be taken to the operatory/storage area.
  - If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilization process.
  - The IPC/Safety Officer for the dental clinic will need to be notified.
  - The IPC/Safety Officer will notify the Dental Clinic Director and IPC
  - Advisor for the Dental Department.
  - When removing the sterilized pouches/wrapped cassettes from the storage areas and preparing for the next patient, the DSS will need to triple check the following three items:
    - ✓ The internal/external indicators changed to the appropriate color (from pink to cocoa brown) according to the color chart.
    - ✓ There is a clearly marked date of sterilization.
    - ✓ There is a clearly marked sterilizer identifier.

- If the three previously stated items can be verified, the sterilized instruments and cassettes can be removed from the pouches and blue surgical wrap.
- The DSS can set up for the next procedure.
- Leave the sterilized pouches/blue surgical wrap on the counter for the dental provider/ DSS to verify.
- The pouches and blue surgical wrap can then be thrown away.
- If any of the three previously stated items cannot be verified, the pouches/wrapped cassettes will need to be repackaged and rerun through the sterilizations process.
- The IPC/Safety Officer for the dental clinic will need to be notified.
- The IPC/Safety Officer will notify the Dental Clinic Director and IPC Advisor for the Dental Department.

- **Breach in The Sterilization Process:**
  - If a breach in the sterilization process is identified and the pouch/wrapped cassette Has Not been used in a dental procedure involving a patient:
    a. The IPC/Safety Officer for the dental clinic will need to be notified.
  - If IPC/ Safety Officer is absent, notify supervising DDS
    a. The pouch/wrapped cassette will need to be re-packaged and re-run through the sterilization cycle.
    b. The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
  - If a breach in the sterilization process is identified and the pouch/wrapped cassette HAS been used in a dental procedure involving a patient:
    a. The IPC/Safety Officer will need to be notified.
  - If IPC/ Safety Officer is absent, notify supervising DDS
    a. The pouch/wrapped cassette will need to be pulled from the operatory/storage area.
    b. Any other pouches/wrapped cassettes which have the same date of sterilization and the same sterilizer identifier will also need to be pulled from the dental operatory/storage areas.
  - The IPC/Safety Officer will need to notify the Dental Clinic Director and the IPC Advisor for the Dental Department.
  - The Dental Clinic Director will need to notify the appropriate people in the Medical Department and the Administration Department. The plan for a Failed Dental Sterilization Process will be initiated.

- **Important Reminders:**
  - The efficacy of the heat sterilizers is measured weekly through biological spore testing. Refer to the Spore Testing SOP.
  - Periodic maintenance (daily, weekly, monthly, quarterly, bi-annual and annual) needs to be completed and documented for each sterilizer (Autoclave/Statim).
    a. Each sterilizer has its own manual with the maintenance schedule outlined.
    b. Document the maintenance completed in a log specific to each sterilizer.
    c. At the beginning of the month send a copy of each of the maintenance logs via interoffice mail to the Quality Coordinator/Trainer in Administration.
  - Periodic maintenance (daily, every 2 weeks, and annually) needs to be completed on the Miele as outlined in the manual.
  - Periodic maintenance needs to be completed on the Ultrasonic as outlined in the manual.

- Periodic maintenance needs to be completed on the Assisting as outlined in the manual.
- The countertops, door handles, and doors in the sterilization area are to be disinfected at least once per week. The proper PPE will need to be worn when using the dry 4X4s and the approved surface disinfectant.
- The biohazard (red) bag in the sterilization area needs to be taken to the large clinic biohazard container at least once per week.

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Department of Orthodontics and Dentofacial Orthopedics
For the Year 2020-21
Note on Infection Control in The Department

- **Hand Hygiene**

  Hand contact is one of the main routes of transmission of multi drug resistant bacteria, etc. Hand hygiene reduces the risk of bacterial transmission to patient and health care personnel. We maintain hand hygiene:

  - ✓ before and after treating each patient (before glove placement and after glove removal)
  - ✓ after barehanded touching of objects that most likely to be contaminated with blood or saliva
  - ✓ before leaving dental operatory.

- **Gloves**

  We in the department wear gloves to prevent contamination of our hands when in contact with p a t I e n t s mouth to reduce the risk of transmission of microorganisms from our hands to the patient during performing dental procedures.

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Mouth Mask, Head Cap and Protective Eyewear

- **Mouth Mask** is worn to cover both nose and mouth during procedures to prevent splashes or spray of blood or body fluids. A mouth mask protects the patient against microorganisms from the wearer and also protects us from droplets that may contain bloodborne pathogens. A mouth mask is changed between each patient in our department.

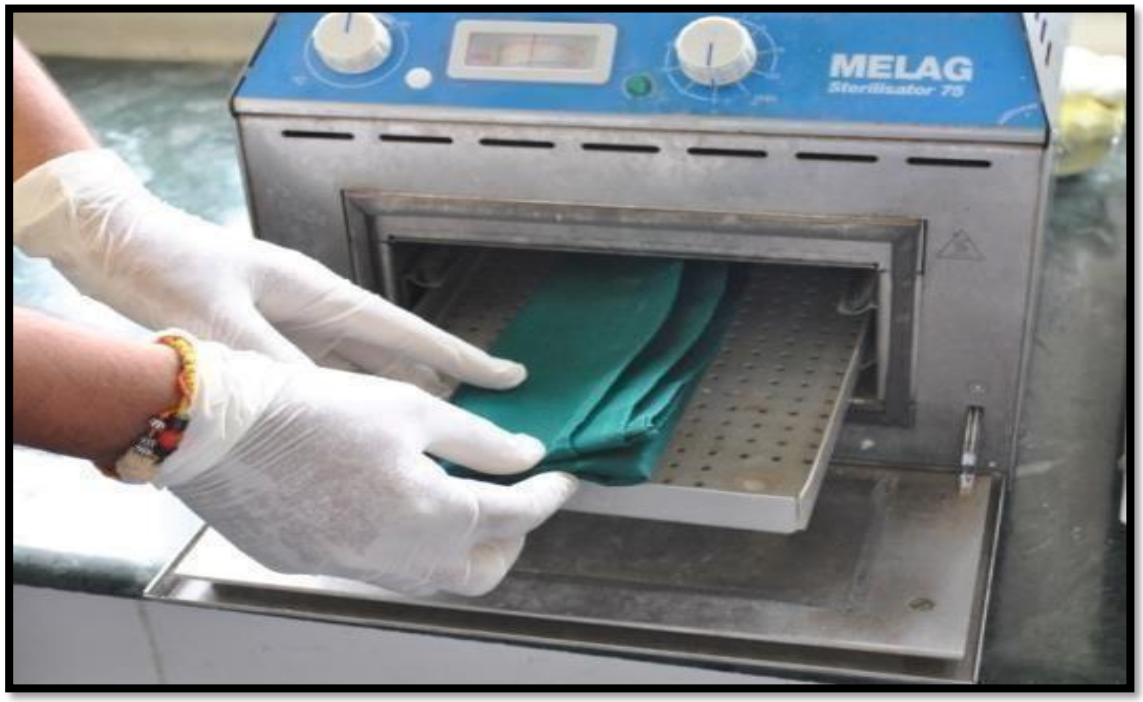
- **Head Cap** is used during every dental procedure to prevent splashes of blood and body fluids.

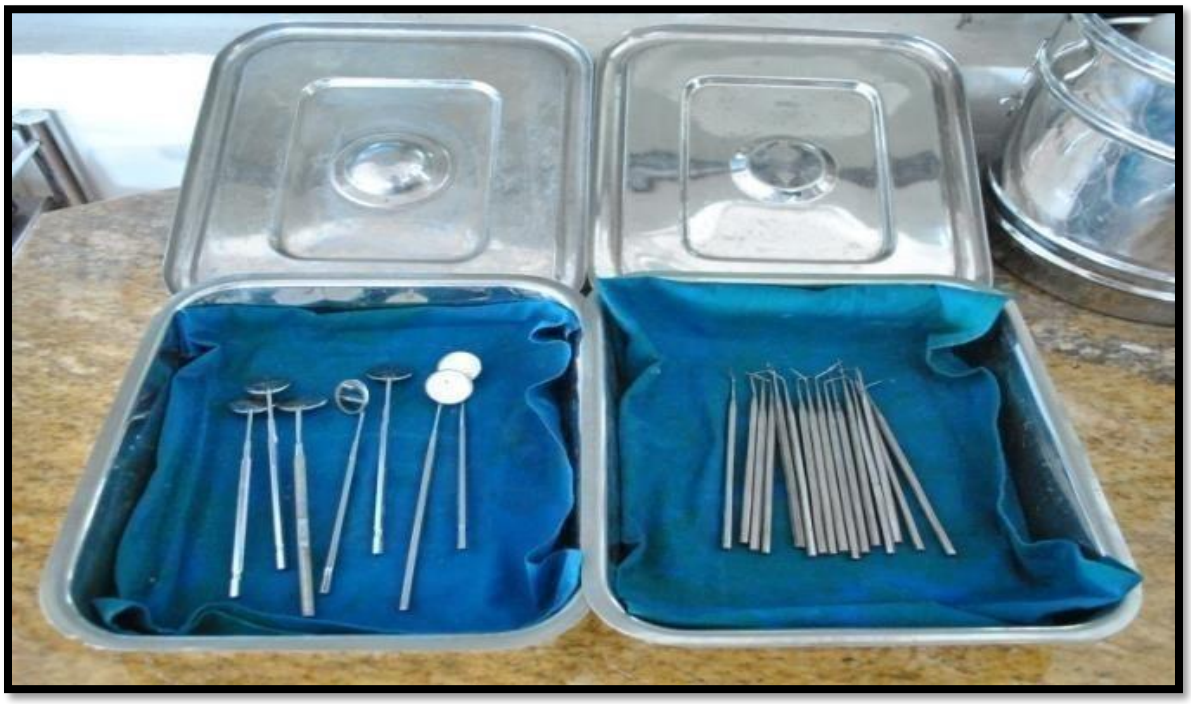
- **Protective Eye Wears : i**s used in our department during examination or any dental

procedures which is likely to generate splashes or sprays of blood or saliva. It protects the eyes from contact with microorganisms. It is always kept clean after use of each patient.

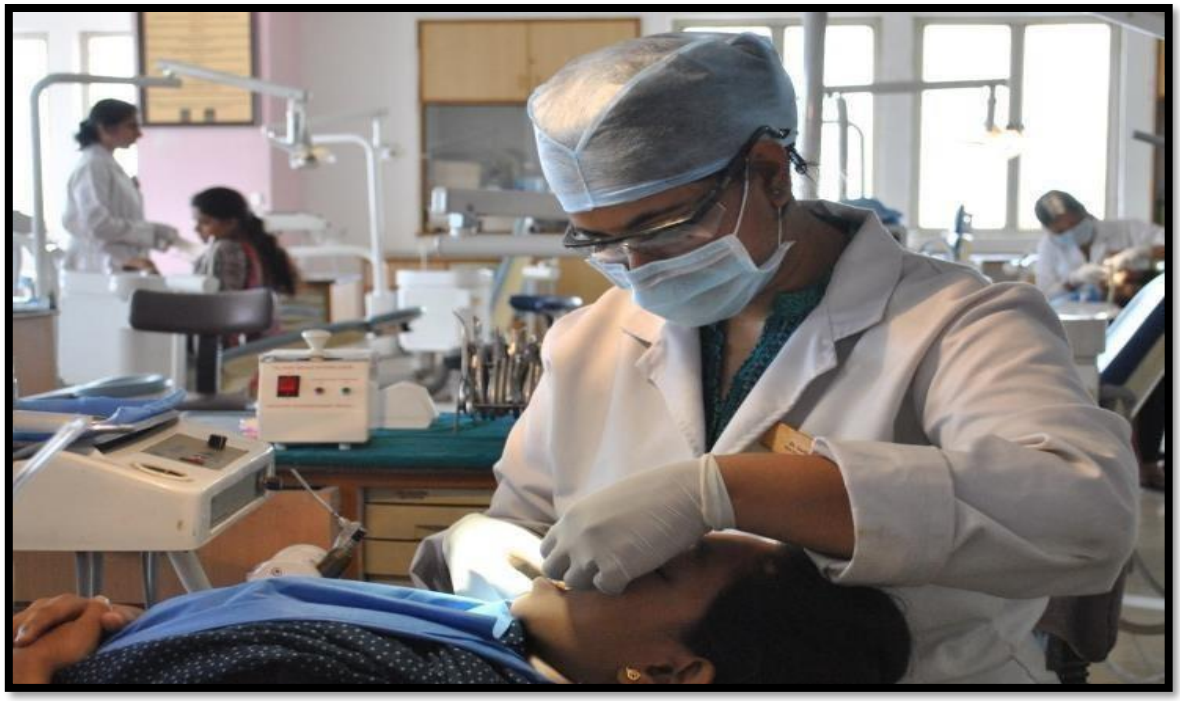
- **Cleaning and Sterilization of Dental Instruments**

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave.


MELAG
Sterilisator 75



Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven.



Each post graduate student has an individual chairside glass bead sterilizer.

- **Single Use Materials (Disposed After Single Use)**

- suction tips
- disposable glasses
- gloves
- mouth masks
- drapes
- head cap

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100
GLOVES
DENTAL SAFE
RAMSON'S

- **Waste Control (UG &PG Section)**
  - **Blue Bag**

Plastic Waste
(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

- **Yellow Bag**

Infected waste, anatomical parts and lab waste (Impression materials, cotton)

- **Can (White)**

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

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The waste material is segregated within the department after 3pm and transported by the attender to the disposal area, located at the back of the college.


TOUGH 'N'
DURABLE

Biomedical Waste Segregation, Transportation and Disposal

- **Infection Control Protocol**

1) Hand Washing and Hand Hygiene

Perform hand hygiene with anti-microbial soap and water when hands are visibly dirty or contaminated with blood or other potentially infectious material. If hands are not visibly soil, an alcohol-based hand rub can be used **(Sterillum).**

2) Personal protective equipment

Wear gloves, mask and eye protection. Disposable single use item should never be used on more than one patient.

3) Complete asepsis of operating area

All the items that will be touched during the alcohol-based tips, bracket table handle etc. should have barrier protection and the dental chairs should be cleaned and disinfected.

4) Instrument sterilization.

All instruments should be washed in running water and cleaning with brush to remove visible debris. Instruments that cannot be autoclaved should be subjected to cold sterilization in glutaraldehyde. Orthodontic instruments are cleaned and placed in autoclave. Chairside use of glass bead sterilizer for individual use is encouraged.

- Before treatment dental chair water lines should be flushed for 2 minutes at the start of the day and subsequently for 30 sec, between the patients.
- Proper handling and disposal of biomedical waste should be followed. Immunization of all operating staff for Hepatitis B and Tetanus is essential.

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Schedule of training of under graduate and post graduate students about infection control and biomedical waste

Training:

a. Under graduate students are trained regarding biomedical waste management on the first day of posting in the department of Orthodontics.
b. Postgraduate students are educated before entering clinics about biomedical waste management to be practiced throughout their course.
c. Training programme conducted for the paramedical staff and attenders regarding infection control and biomedical waste management in the department of orthodontics both postgraduate and undergraduate sections.
d. Staff in-charge: Dr Sameena B.M Attender in-charge: Sarvotham & Rani

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Research Centre Department of Orthodontics and Dentofacial Orthopaedics Infection Control and Biomedical Waste Management Report

I. Sterilization- (UG &PG Section)

The mouth mirror, probes and other diagnostic instruments washed and placed in the autoclave

Cotton and orthodontic instruments are being cleaned and placed in the autoclave and hot air oven. Chairside use of glass bead sterilizer for individual use is encouraged.

II. Waste Control- (UG &PGSection)

Blue Bag- Plastic Waste

(Gloves, mouth mask, suction tips, e-chain, O-rings, empty composite/etchant/bonding tubes)

Yellow Bag

Infected waste, anatomical parts and lab waste (Impression materials, cotton)

Can (White)

Puncture proof sharp container cans and thick cardboard box. (Bands, TPA, lingual arch, ligature wire, arch wire, brackets, needles)

III. Segregation, Transportation and Disposal

The waste material is segregated within the department after 3 P.M, and transported by the attender to the disposal area, located at the back of the college.

Department of Pedodontics And Preventive Dentistry Standard Operating Procedure

Infection Control

Infection is caused by the transmission of disease-causing microorganisms between people. Cross infection can be caused by:

- Direct contact with bodily substances such as blood, saliva, mucous membrane, urine, farces and other bodily fluids, secretions and excretions.
- Contact with contaminated equipment and medical apparatus.
- **Preventing the spread of infection in a healthcare environment involves the following practices.**

Practicing Good Hygiene Handwashing

It is the most effective method in reducing potentially infectious micro-organisms on the skin and avoids transfer of microorganisms to other patients or environments.

- Use liquid hand wash from dispenser when possible.
- While replenishing the dispenser, clean the dispenser before refilling.
- Routine hand washing must be done

✓ Before and after eating

✓ After going to toilet/blowing nose/grooming.

Technique:

- Wet hands thoroughly with lather vigorously using a neutral pH soap for 10-15seconds.
- Rinse under running water.
- Pat dry using paper towel.

Scrub Technique

Sterillum

Hand Washing in Clinics Must Be Done:

- Before any Non- surgical procedure
- Before any surgical procedure
- Before handling any instrument/ equipment
- Before or after routine wearing of gloves
- Before contact with patients (examination)

Technique:

1. Wash hands thoroughly using an anti-microbial soap/skin cleanser for 1 minute.
2. Rinse carefully, ensure taps are not touched with cleaned washed hands. Use paper towels to turns off the taps.
3. Pat dry using paper towel.

Method of washing:

1. Palm to Palm
2. Palm Over Dorsum
3. Palm to Palm (Fingers Interlocked)
4. Back to Fingers to Opposing Palms
5. Rotate Hands in Palms
6. Rotate Fingers in Palms

Alcoholic chlorhexidine can be used in procedures when there is insufficient time for routine or surgical hand wash. This method cannot be used when visible soil is present.

Hand Wash Prior to Any Invasive Surgical Procedure

Technique:

1. Wash nails, hands, forearms thoroughly.
2. Apply antimicrobial soap, wash for 5 minutes for first wash of the day for 3 minutes for the following washes.
3. Commence washing with the forearms and finish with the hands.
4. Rinse thoroughly, keep hands above the elbows.
5. Dry with sterile towel.

Wearing Protective Clothing

Wearing protective clothing such as gloves, aprons, masks and goggles when in contact with bodily substances is likely.

Gloves:

1. Wear non-sterile, powder face examination gloves for procedures that do not require sterile field.
2. Wear general purpose utility gloves for housekeeping.
3. Examination gloves must be used only once.
4. Provision should be made to utilize non-latex products for individuals with latex allergy.

Finger Nail Care

- Keep Finger Nails Clean and Trimmed to Avoid Puncturing the Gloves.
- Do Not Wear Artificial Nails/Nail Polish Which May Harbor Microorganisms.

Uniform

- Change into uniform while working in the clinics.
- Don't wear uniform outside the practice.
- Cover all patients with waterproof aprons to further enhance their protection.

Eyewear

- Wear protective eyewear prior to commencing of any procedure.
- Place protective eyewear on patients.
- It must be clean, clear, anti-fog, distortion free, close fitting and shielded.

Masks

- Wear when likelihood of blood/fluids or aerosols or droplets may occur.
- Must be fluid repellent deflector mask.
- Must be capable of filtering 3µm or less of impurities.

Cleaning and Sterilizing Instruments

According to Centre of Disease Control, dental instruments are classified into 3 categories depending on the risk of transmission of infection.

1. **Critical instruments:** are those used to penetrate the soft tissues or bone, or enter in to or contact the bloodstream or other normally sterile tissues. These instruments should be sterilized after every use. Sterilization is achieved by autoclaving, dry heat or chemicals. Instruments under this category are forceps, scalpels, bone chisels, scalers, surgical burs.
2. **Semi-critical instruments:** are those that do not penetrate soft tissues or bone, but contact mucous membranes or non - contact skin.eg mirrors, re-usable impression trays. They should be sterilized after every use.
3. **Non-critical instruments:** those which come in contact only with intact skin; low risk of transmission of disease. A hospital disinfectant can be used. Dental chair is to be cleaned with a disinfectant.

All critical and semi-critical dental instruments that are heat stable should be sterilized after each use by autoclaving (134°C for 18 minutes), dry heat or chemicals 2% NaOH for 1 hour. (e.g. Aluminum instruments).

Cleaning

Instruments should undergo preliminary cleaning as soon as possible after use. The cleaning procedure is the most important stage in the processing cycle.

When handling used instruments all personnel should wear heavy duty rubber gloves, plastic apron and protective wear. Gross contamination should be wiped off and disposed of in a biohazard waster container. Any residual contamination should be rinsed off with warm water and detergent.

There should be a designated area for cleaning instruments. This area should include:

- a dedicated sink for cleaning and rinsing instruments
- hand washing facilities
- specific bins for waste disposal (biohazards and non-hazardous waste)
- smooth bench top surfaces without cracks or crevices
- adequate bench and storage space

Only specially formulated cleaning agents should be used to remove residual soil and organic matter from instruments and equipment. Cleaning brushes must have firm plastic bristles and be able to withstand repeated sterilizations.

Household detergent or liquid soap is not suitable for cleaning instruments. Abrasive cleaners must also be avoided as they damage the surface coating and leave a powdery residue. Likewise, do not use steel wool as it also will damage instrument coatings.

Disinfection

After preliminary cleaning the following steps should be taken:

- Fully disassemble instruments.
- Immerse instruments in a sink filled with hot water and disinfectant.
- Scrub instruments with a sterilized brush, while holding instruments under water.
- Rinse instruments in hot water.
- Allow instruments to dry, or dry with a lint free cloth.
- When dry, check the instruments for damage or remaining contamination.

Sterilization

Autoclaving involves steam sterilization under pressure. Sterility is achieved when the recommended temperature is reached and held for a specific time.

Preparing Instruments

Some instruments will need to be wrapped before sterilization to prevent them from being decontaminated throughout or after the sterilization process. Wrapping is performed for instruments that need to be delivered sterile(aseptic) into a sterile environment.

Packaging designed for use in sterilization units should be used.

Instruments such as kidney trays, bowls etc. need not be wrapped. These instruments while sterilized and free from contamination do not require aseptic delivery to a sterile field. These items are referred to as being surgically clean, not aseptic.

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Autoclave and Packaged Instruments

Thermosealer

Sterilization of Hand Piece and Bur

Handpieces as well as various burs used in everyday clinical practice are sterilized before use. Also, handpieces are cleaned using brush followed by enclosing in a special pouch airtightly sealed either with a self-adhesive tape or a thermostable for autoclaving. Burs are sterilized in glass bead sterilizer or using spirit solution.

Handpiece & Glass Bead Sterilizer

Handling Instruments

All items should be positioned to allow air steam preparation to all surfaces and drainage of condensate. Items should not touch the walls of the unit.

After completion of the sterilizing cycle remove the tray and allow items to cool before handling. Do not place warm items onto solid surfaces as condensation will form, making them wet.

When cool, remove items from the chamber and inspect to make sure:

- there is no moisture present
- the chemical or biological indicators on packaging have changed color
- packaging is intact and seals are not broken.

Storing Sterilized Items

Once items have been sterilized, they should be stored:

- in an enclosed cupboard for items requiring aseptic delivery, or in a sealed container for surgically clean items
- away from direct sunlight and moisture
- away from dust, insects and other vermin
- loosely packed on clean, smooth, washable shelves.

Rotate the packages by placing the newly processed items behind the items already in storage. Regularly check sterilization dates or expiry dates and remove and reprocess out of date items.

If items are correctly processed and stored, they may have a shelf life of up to four weeks, however, the preferred shelf life is two weeks.

Hazardous Waste Sharps

Sharps are needles and scalpel blades must be disposed of safely. This minimizes the risk of injury and the transmission of disease.

The person who uses the sharp is responsible for safely disposing of that sharp immediately after use. Do not force a sharp into the container or fill the sharps or fill the sharps container beyond its recommended level-three quarters full.

When three-quarters full, sharps safe should securely store in the waste collection area.

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Syringe Needle Destroyer

Blood Spills and Other Bodily Substances

There are standard precautions in medical and dental environments when dealing with patients regardless of their infectious sate or perceived risk to the health of others.

The standard precautions apply to the handling of:

- Blood
- Dried blood
- Saliva
- Non-intact skin
- Mucous membranes

The precautions staff must take when dealing with these substances include the following:

- Wear latex gloves and use disposable hand towels to clean up blood spills or any other bodily substances.
- Place the contamination in a biohazard waste container in a biohazard waste container.
  - **a.** Clean the area thoroughly with detergent and apply undiluted disinfectant such as glutaraldehyde (Cidex) to the area.
  - **b.** Dispose of the gloves and wash your hands thoroughly.

Waste Collection

The key to waste management is waste sorting:

- Waste disposed of as sharps and infectious waste often contain many items of general waste.
- All waste contains much that could be recycled.
- Less waste, particularly sharps and infectious waste, means lower practice costs.
- Waste containment is achieved through streamlined work practices

The waste from the Department will be collected in separate containers and will be given to the

Sharps waste	Infectious non-sharp waste	General waste	Recyclable items	Pharmac-euticals
All disposable items that could inflict a penetrating injury including: ▪ needles, scalpel blades, glass, burs, glass anaesthetic cartridges, matrix bands, orthodontic wires, stainless steel crowns and offcuts, endodontic files and reamers ▪ broken instruments. (needle sheathes can be disposed of in the general waste to decrease sharp waste contents)	**All non-sharp waste that is contaminated by blood** including: ▪ all blood-stained waste; human tissue, other than extracted teeth;	**All waste other than sharps or infectious non-sharps** including: ▪ waste that can be washed free of blood, e.g. gloves, rubber dam, cups; ▪ firm plastics, which may be made of PVC and should not be incinerated ▪ extracted human teeth, washed and discarded in a glove	**Dental items:** ▪ amalgam, ▪ used fixer and developer, ▪ unwanted radiographs, ▪ lead foil from radiographs **Non-dental items:** ▪ paper, cardboard ▪ glass, plastic ▪ cans	**All unwanted pharma-ceuticals** are removed from their original containers

services of Biohazard Waste Management Services (MARIDI) who will collect the waste.

Needlestick And Sharp Injuries Treating the Contamination Site

If blood gets on the skin, irrespective of whether there are cuts or abrasions, wash the area well with medicated soap and water. Flush with a solution of one-part bleach to twenty parts waters.

If the skin has been penetrated allow the wound to bleed to assist in flushing out the contamination. If the eyes are contaminated, flush the eye area thoroughly with water or normal saline solution. If blood gets in the mouth, rinse the mouth with water several times.

Counselling

If the source individual is known to be positive for HIV antibody, Hepatitis B and/or D or C, consultation with a health professional with experience in the management of these infections should be arranged for.

It is important to deal with a needle stick injury immediately, as in some cases preventative medication can be offered to the affected individual to reduce the risk of infection.

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Department of Pedodontics

Infection control practices in the department

1. Basic sterilization protocol: everyday all the instruments are sterilized using autoclave.
2. Sterilized instruments are stored with the lids on the trays.
3. Use of disposable gloves, face masks & head caps for personnel protection.
4. Use of disposable head caps & disposable drapes for patients.
5. Eye protection by using proper eye wears during the procedures.
6. Use of disposable tin foils to cover the exposed areas of the chair.
7. Working condition of the dental chairs is checked on daily basis.
8. Dental Chairs are cleaned & disinfected on daily basis.
9. Suction tips changed for each patient.
10. Basic hand scrub technique, gloving procedure followed.
11. All the used instruments are thoroughly cleaned, dried & packed for sterilization.
12. At the end of the day all the suction lines are flushed with water & the chairs are raised.
13. Drains are checked for maintenance & cleaned on regular basis.
14. Posters about hand wash technique, gloving technique & gowning technique are put up for reinforcement.

Disposable Syringe and Suction Tips

Use of Disposable Tin Foils to Cover the Exposed Areas of The Chair

Autoclave

Handpiece & Glass Bead Sterilizer

Hot Water Bath

Formalin Tray

UG Clinic

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Biomedical Waste Segregation Protocol in The Department

- Biomedical Waste Segregation is done based on the guidelines given into their respective color-coded bags.
- Measures are taken to segregate & recheck the waste before disposing.
- All the support staff is provided with the utility gloves for the same.
- Staff is appointed on weekly basis to check for the disposal of waste to ensure that the guidelines are properly followed.
- Alginate & dental waste are segregated separately & disposed.

PG Clinic

UG Clinic

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Department of Oral Pathology
Standard Operating Procedures for Biomedical Waste Management

Biomedical waste includes any solid or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Objective: To segregate the biomedical waste from the general waste to avoid cross infection.

Procedure:

I. Categories the BMW into the following:

- Anatomical waste – Tissue specimen
- Contaminated waste – Used cotton swabs, blood
- Microbiology, biotechnology and other clinical laboratory waste – Used reagents such as those used in tissue processing, stains, body fluids
- Waste sharps – Needles, lancets, scalpel and other blades, broken glass and pipettes
- Glassware – tubes, pipettes

II. Segregation:

- Refers to the separation of different type of waste generated at source and thereby reducing the risks as well as cost of handling and disposal.
- Prevents mixture of medical waste with general waste
- Prevents illegal reuse of certain components of medical waste such as syringes, needles and other plastic
- Recycled plastics can be used for non-food grade applications.
- All the biowaste are segregated according to their nature
- The BMW are segregated into the appropriate color-coded bags.
- The body fluids and blood samples are autoclaved/ decontaminated if required and discarded into the sewage.

III. Proper labelling of the bins

- The bins are properly covered with the colored bags.
- BMW is disposed accordingly.

IV. Collection of the BMW:

- All the personnel involved in the collection are trained accordingly to use personal protective equipment's while handling the BMW.
- Collection of the waste is done once daily or once in thrice in a week depending upon the waste collected.

V. Storage:

- Waste is stored in a proper place and marked with a caution sign

VI. Transportation:

- Transportation is done in trolleys and manual loading is avoided.
- Container containing BMW is lidded before transportation.
- Before transportation the BMW is accompanied with a signed document from the doctor.
- The collected BMW is sent to the central collection point and then transported to the main disposal area.

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Department of Oral Pathology
Standard Operating Procedures for Infection Control

Objective: To prevent nosocomial or health care associated spread of infections
Infection control procedures are required for the following in the department:

A. Hematology laboratory – Deals with handling of blood and fluid samples
B. Histopathology and exfoliative cytology – Deal with handling of tissue and aspirate specimens
C. Patient examination

I. Hematology:

- This section of the department deals with the screening of the patients by blood tests advised to the patients by the doctors of the operating departments.
- The laboratory tests are done as a part of routine investigations for any dental procedure to check for any variation in the normal constituents of blood, serum and to check for any suspected infectious disease.
- The laboratory investigations begin with the collection of a clinical specimen for examination.
- Proper collection of an appropriate clinical specimen is the first step in obtaining an accurate laboratory diagnosis.

2. steps:

3 Collection of the specimen under asepsis:

- Prevention of cross infection from the patient to the doctor/ technician and vice versa by the use of personal protective equipment's such as mouth masks, apron and gloves
- Strict aseptic techniques are followed throughout the procedure.
- Hands of the doctor/ technician are washed before and after the collection.
- Disposable syringes are used for every patient and the seal of the syringe is opened in front of the patient.
- Mouth masks and sterile gloves are worn by the personnel.
- The sample collected is transferred to an appropriate labelled sterile container for further investigations.
- Disposable needles are used.
- The used needle is burnt by the needle burner and the syringe is disposed in the red color-coded bag.
- Sterile autoclaved cotton swabs are used for every patient.
- Every glassware or lab instrument which comes in contact with blood specimen undergo the standard sterilization process of cleaning and immersion into chemical sterilant.
  a. **Storage of the sample:** The blood or fluid samples are stored in labelled disposable vacutainers for further investigations.

II. Histopathology:

- The biopsy and aspirate specimen are received by the department in labelled formalin bottles and syringes respectively.
- The specimen received are inspected by the personal wearing mouth masks and gloves.
- Formalin and the tissue processing fluids are changed periodically.

III. Patient examination:

- Patient examination is done wearing aprons, disposable gloves, mouth masks.
- Autoclaved patient examination instruments such as mouth mirrors, probes and tweezers are used.
- These instruments are sealed in plastic autoclavable pouches and then autoclaved.
- The pouches are opened just prior to patient examination.
- The dental personnel wash their hands before and after coming in contact with the patient (or the instruments used) independently of wearing gloves or not during the operation.
- Hands are washed using water and soap followed by an antimicrobial solution
- After removing the gloves, hands must be carefully washed as very often there are pores in latex allowing the penetration of contaminating matter.
- In patients with confirmed HIV or HBV and HCV infection, it is recommended that double gloves are used for the protection of the surgeon.
- Dental chairs and other surfaces of inanimate surfaces such as electric switches, door handles, drawer knobs, taps, handles and device tubes which are not able to be sterilized or disinfected are meticulously covered with appropriate materials, such as:
    - Special rollers and plasticized paper sheets,
    - Cellulose film,
    - Aluminum foil,
    - Self-adhesive films,
    - Nylon cases,
    - Latex and vinyl cases.
- These protective coverings are replaced after every contact and every patient.

Protocols for Hematology

- Personnel involved in Hematological procedures should wear PPE along with N95 face masks, protective eyewear/face shields and gloves.
- Disinfection of working area before and after the procedure should be done using freshly prepared 1% sodium hypochlorite.

Blood Collection:

- Post hand sanitization of the patient, sterilized tourniquet is used.
- Collection of blood sample by the lab technician using disposable syringes and disposable vials.

Urine Collection:

- Urine samples are to be collected by the patient with gloved hands into a sterile container and transfer the same into disposable vials.
- Patient to be guided to dispose the container and the gloves into the yellow bag.

Investigations:

All the procedures to be carried out in a Bio-Safety Cabinet

- Sterilized test tubes and disposable pipettes to be used for the procedure
- Post investigation, test tubes are plugged with cotton dipped in 1% sodium hypochlorite solution.
- Disposal of cotton into yellow bag and test tube to be taken for autoclaving.

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Department of Public Health Dentistry
Sop of Infection Control

Terminologies: -

1. Alcohol based hand subject: - alcohol containing preparation designed for reducing number of viable microorganisms on hands.
2. Anti- microbial soaps- detergent containing antimicrobial agent, germicide used on skin or living tissue for inhibiting or destroying microorganisms.
3. Asepsis: - free of pathogenic microorganisms, method to protect against infection.
4. De-contamination: - process renders equipment or surfaces safe to handle.
5. Disinfection: - destruction of pathogens by thermal or chemical means. Less lethal than sterilization, as it does not kill spores. Degree of safety is less.
6. Germicide: - it destroys pathogenic organisms. It can be used to inactivate micro-organisms on tissue surfaces.
7. Hand hygiene: - technique of scrubbing hands with anti-microbial hand washes for surgical hand anti-sepsis.

Standard precaution taken to reduce risk of cross transmission of pathogens in healthcare settings.

- Sterile means free from all micro-organisms.
- OSHA prescribes employer duty to provide safe and healthy workplace for everyone on premises.
- Policy accountability and responsibility.
- Policy framework for infection control.
- Comprehensive program for information and training.
- Eliminating risk factors, modifying or changing procedures.

Standard Precautions: -

- Blood and blood products
- Body substances
- Non- intact skin and mucous membrane.

Safe Work Practices Include Hand Hygiene.

- Appropriate use of gloves
- Protective glasses and mouth mask.
- Impenetrable (water proof) aprons.
- Proper scrubbing using appropriate hands wash technique before and after patient care.
- Hand scrubbing for 30-60 seconds for non-surgical and3-5 minutes for surgical.

Gloving Technique: -

- Gloves should be worn touching the internal surface by the ungloved hand and external surface by gloved.
- If gloves are compromised at any step during treatment, it should be removed, scrubbing is done again and fresh pair is worn.
- It is better to use double gloves technique.
- All the hand accessories like rings, watches and wrist accessories should be removed during patient contact.
- Finger nails should be kept maximum to 0.5 cm and no nail accessories.
- Patient and visitors should also follow some amount of hand hygiene.
- Disposable gloves should not be re-used.

Mask and Eye-Wear: -

- Mask should be water- resistant and should be worn according to manufacturer instructions.
- Should not be touched by hands while worn.
- Both mouth and nose should be covered.
- If the mask is moist, barriers is breached, mask is no longer to be used.
- Mask must be touched only by the loops.
- Protective glass or face mask should also be water resistant to prevent aerosol, water, blood and body secretions splattering.
- Eye-wear must be clear, anti-fog, scratch-free, closed fitting and shielded.
- Should be properly cleaned and stored dry.

Additional Precautions: -

AIRBORNE, droplet and contact precautions should be taken to prevent cross- contamination.
Extra care should be taken for immune-compromised, children, geriatrics patient.
Fitting test should be done for eye-wear, mask and apron.

Needle Stick Injury: -

Needle stick injury or exposure to blood and blood products, body fluids should be reported in accordance with health organization policy.

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Standard Operating Protocol for Biomedical Waste Management

Health Waste Characterization

- Nonhazardous waste
- Hazardous waste
- Infectious
- Others (radioactive, cytotoxic)

Different Types of Hospital Wastes

Liquid wastes

- Approx. Quantity: 4 to 250 liters / bed /day
- Sewage from isolation wards,
- toilets & urinals, Bed-bath, bathrooms
- and hospital's laundry
- Wash waters from laboratories, OPD,
- Dressing rooms & Operation theaters.

Solid waste

1. Garbage
2. Bio-medical waste
   A. Wasted body remains (Blood, Cultures, Anatomical)
   B. Pharmaceutical & Chemical
   C. Pathological wastes (may be infectious)
3. Sharp Objects
4. Pressurized Containers & Discarded Instruments

Color coding and Type of Containers for Different Biomedical Wastes

- Segregation
- Packing,
- Bio-medical waste shall not be mixed with other wastes
- Bio-medical waste shall be segregated into containers/bags at the point of generation in accordance with Schedule II
- The containers shall be labeled.

Category 1 - Human/Animal tissue organs or body parts

Category 2 - Animal tissues, organs, body parts carcasses, bleeding parts, fluid, blood and experimental animals used in research, waste generated by veterinary hospitals, colleges, discharge from hospitals, animal houses.

Category 3 - Microbiology & Biotechnology Wastes: Wastes from clinical samples, pathology, biochemistry, hematology, blood bank, laboratory cultures, stocks specimens of micro-

organisms, live or attenuated vaccines human and animal cell culture used in research and infectious agent from research and industrial laboratories, waste from production of biologicals, toxins, dishes and devices used for transfer of cultures.

Category 4 - Waste Sharps (needles, glass syringes or syringes with fixed needles, scalpels, blades, glass etc.) that may cause puncture and cuts (Includes both used and unused sharps.

Category 5 - Discarded Medicines & Cytotoxic drugs (Wastes comprising of outdated, contaminated and discarded medicines)

category 6

Soiled Waste (Items contaminated with blood, & body fluids including cotton, dressings, soiled plaster casts, linens, beddings, other material contaminated with blood) Any non- plastic soiled waste (contaminated with blood/ body fluids) Cotton dressings, bandages Linen beddings Soiled plaster casts, Soiled paper.

Category 7 - Infectious Solid Waste (waste generated from disposable items other than the waste sharps such as tubing's, hand gloves, saline bottles with IV tubes, catheters, glass, intravenous sets etc.

Category 8 - Infectious Solid Waste (waste generated from disposable items other than the waste sharps such as tubing's, hand gloves, saline bottles with IV tubes, catheters, glass, intravenous sets etc.

Color coding

Color coding	**Type of container**	**Waste category**
Yellow	on chlorinated plastic bags	1,2,3,4
Red	Non-chlorinated plastic bags\puncture proof container for sharps	3,4,7
Blue	Non-chlorinated plastic bags \ container	8
Black	on chlorinated Plastic bags	Municipal waste

Personnel safety devices

The use of protective gears should be made mandatory for all the personnel handling waste.

Storage

In an area away from general traffic and accessible only to authorized personnel DO NOT store

for more than 48 hours

If for any reason it becomes necessary to store the waste beyond such period take measures to ensure that the waste does not adversely affect human health and environment.

Transport

Transport by wheeled trolleys/containers /carts only in vehicles authorized for the purpose They should be

- Easy to load and unload
- No sharp edges
- Easy to clean
- Disinfect daily, Trolleys, Wheelbarrows: should be covered

Treatment and Disposal

- Incinerator
- Autoclave
- Microwav

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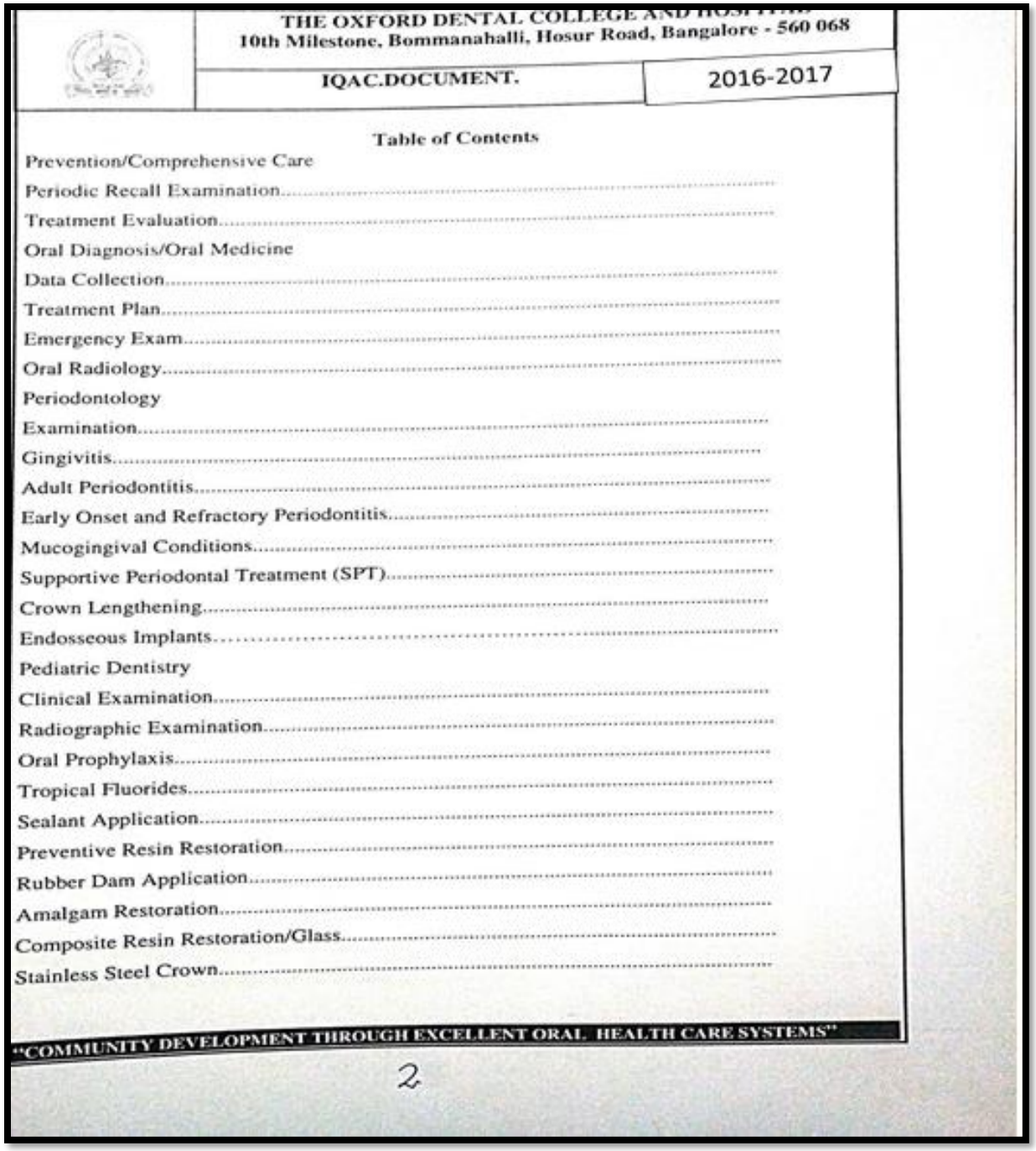
Copy of standard of care manual/patient safety manual



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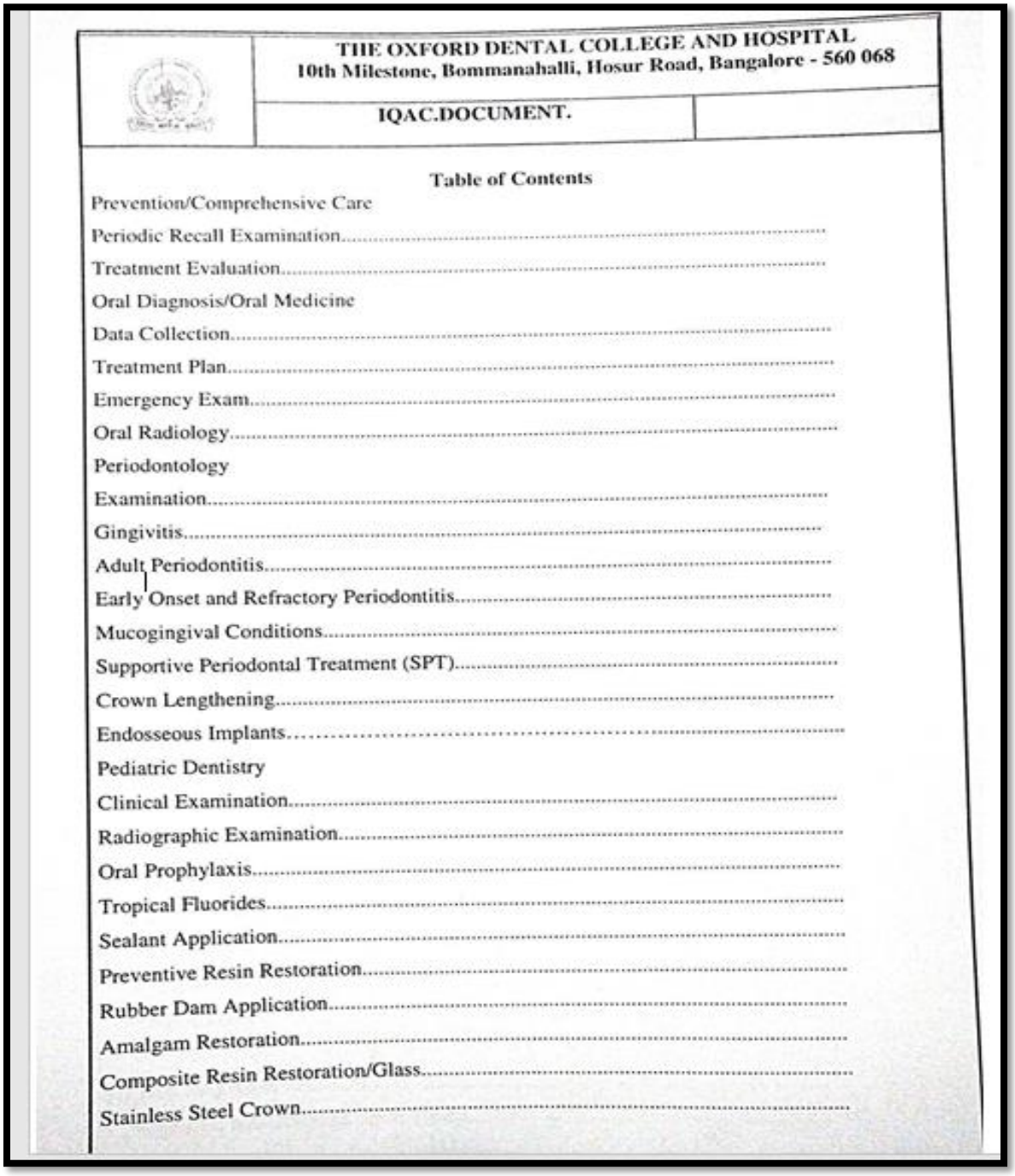

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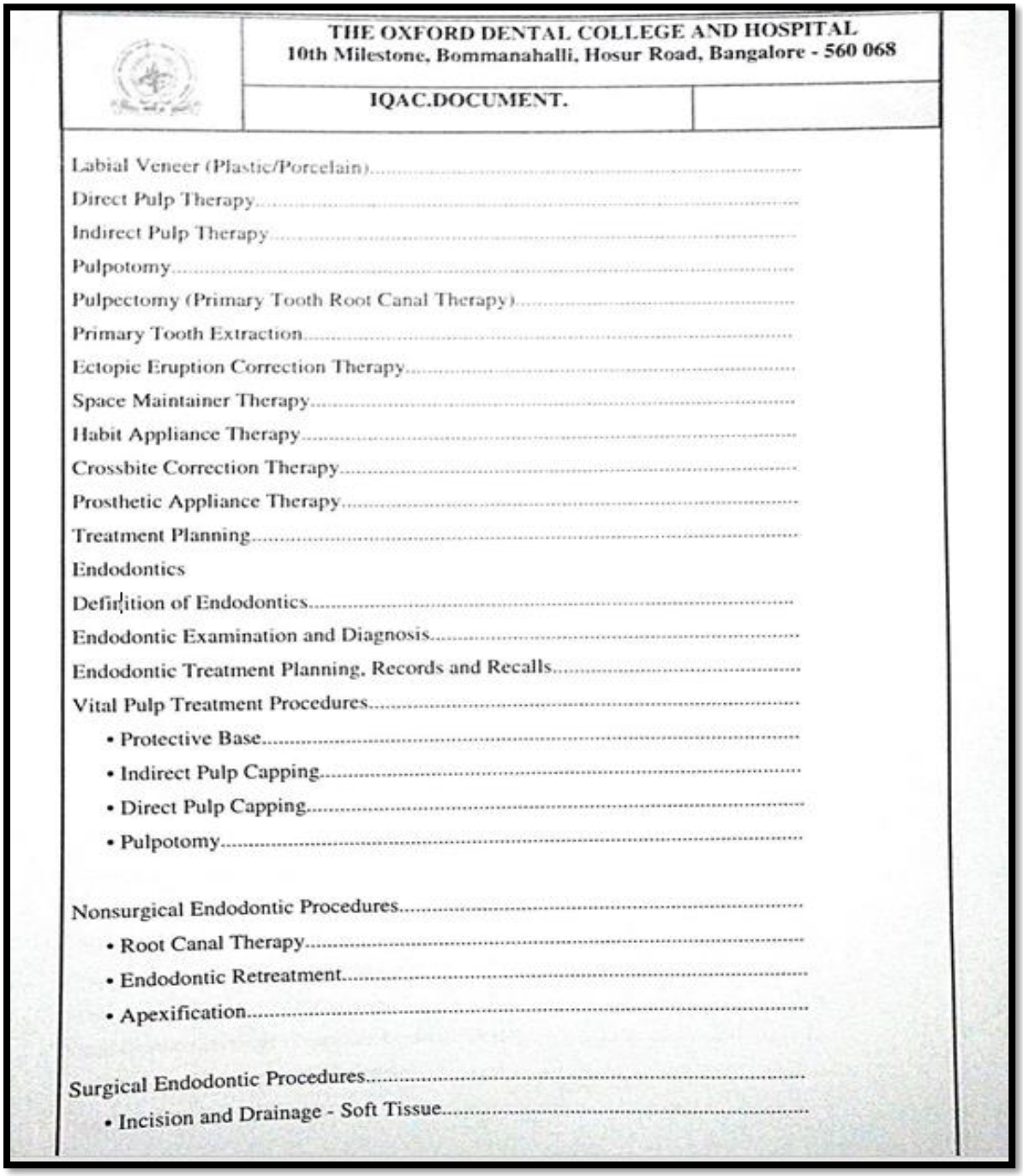

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Labial Veneer (Plastic/Porcelain).....
Direct Pulp Therapy.....
Indirect Pulp Therapy.....
Pulpotomy.....
Pulpectomy (Primary Tooth Root Canal Therapy).....
Primary Tooth Extraction.....
Ectopic Eruption Correction Therapy.....
Space Maintainer Therapy.....
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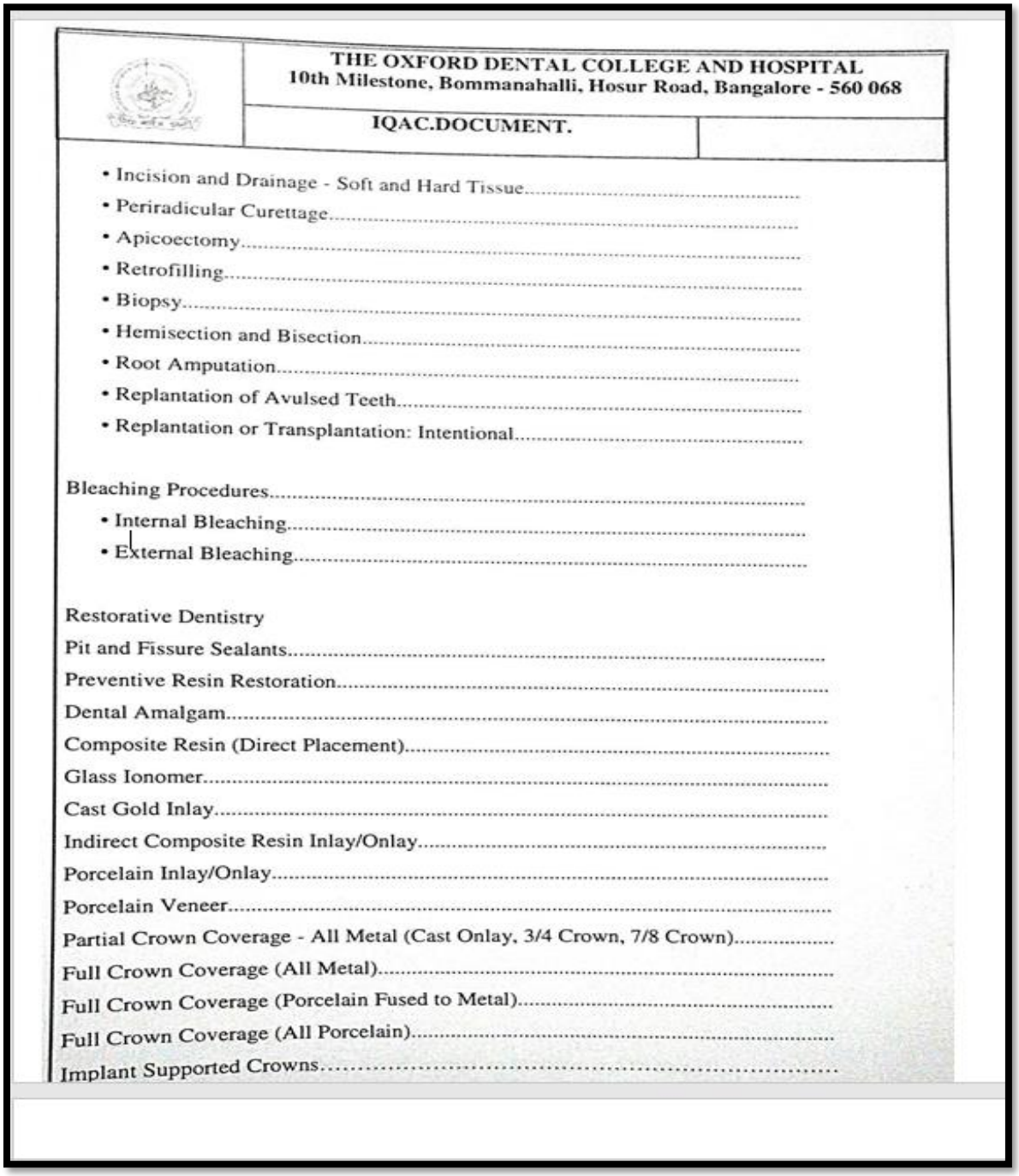

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- Incision and Drainage - Soft and Hard Tissue.....
- Periradicular Curettage.....
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Porcelain Inlay/Onlay.....
Porcelain Veneer.....
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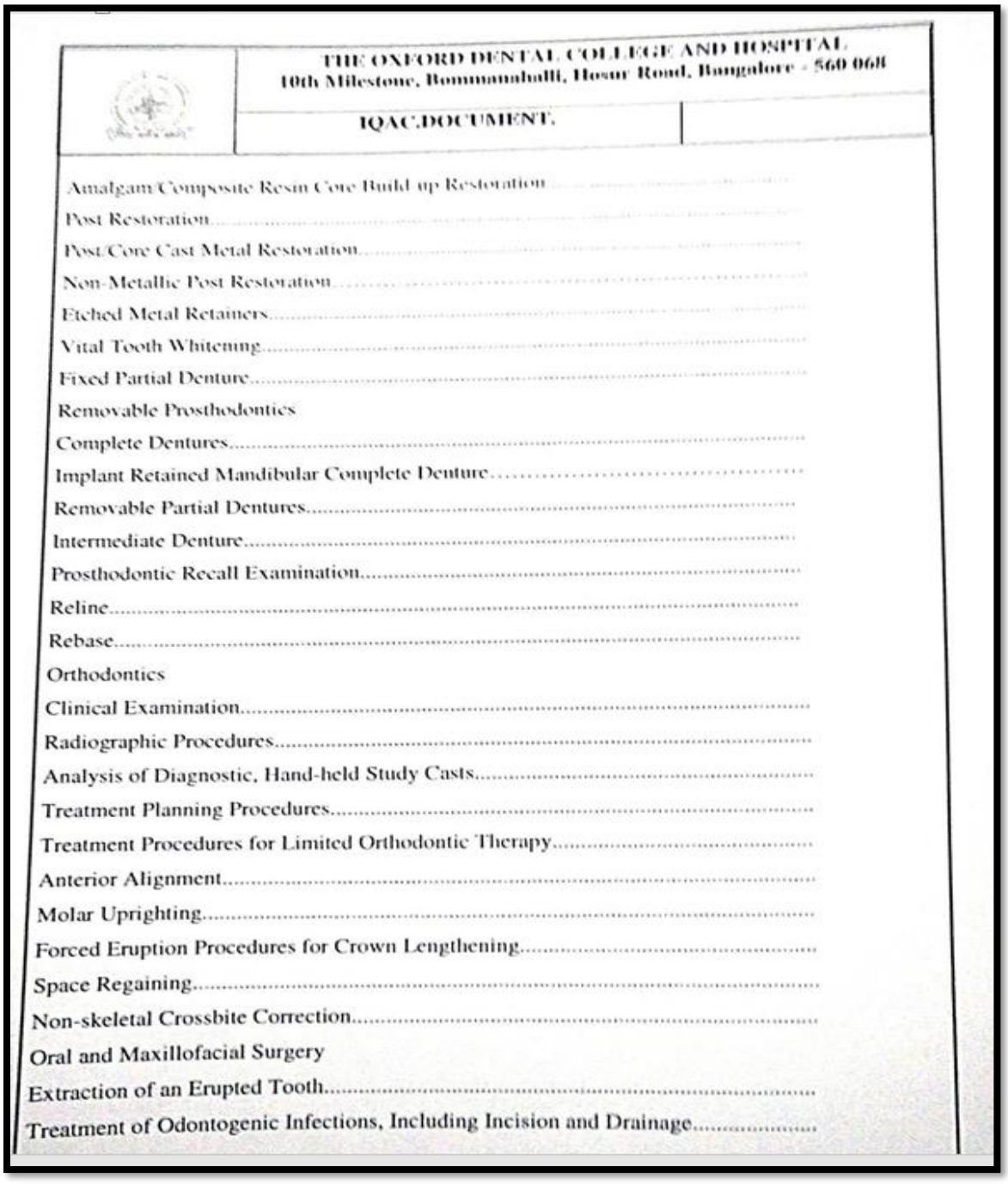
Full Crown Coverage (All Metal).....
Full Crown Coverage (Porcelain Fused to Metal).....
Full Crown Coverage (All Porcelain).....
Implant Supported Crowns.....



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Amalgam/Composite Resin Core Build up Restoration.....
Post Restoration.....
Post/Core Cast Metal Restoration.....
Non-Metallic Post Restoration.....
Etched Metal Retainers.....
Vital Tooth Whitening.....
Fixed Partial Denture.....
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Treatment of Odontogenic Infections, Including Incision and Drainage.....

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Tissue Management.....

PREVENTION/COMPREHENSIVE CARE

Preventive strategies are part of all patient care at the College of Dental Sciences. Formal prevention includes Oral Hygiene Instructions, Topical Fluoride (when indicated), and Debridement during the Initial Oral Examination. Instruction for proper home care is provided for patients when treatment is planned, during treatment, and at periodic recall examinations. Patients receiving orthodontic treatment, fixed partial dentures, removable prosthodontics, periodontal treatment, and any other dental treatment are provided instructions for cleaning and maintaining their oral health before, during and after treatment.

Periodic recall examinations are scheduled for patients to evaluate hard and soft tissue and reinforce home care. Treatment evaluation is performed at the end of active treatment to evaluate the dental care provided for the patient and work with patients who require additional instruction in prevention.

PERIODIC RECALL EXAMINATION

The periodic recall examination is provided at appropriate intervals to assist patients in maintaining their oral health. Hard and soft tissues are evaluated and recommendations for treatment are made.

Indications

All patients who request follow-up care.

Contraindications

None

Outcomes Assessment

1. All hard and soft tissues are examined and pathology is noted.
2. Home care and appropriate preventive techniques are reinforced or introduced.
3. Appropriate recall interval is established and completed.
4. Patient's oral hygiene is adequate; periodontium and dentition are healthy.

TREATMENT EVALUATION

The treatment evaluation is done at the completion of treatment to assess the care that has been provided and make improvements if needed. Prevention is evaluated and reinforced if necessary at this time.

Indications

All patients who have completed treatment.

Contraindications

None

Outcomes Assessment

1. All dental care provided for the patient is clinically acceptable.
2. Oral hygiene and periodontal condition are satisfactory.
3. Oral hygiene is reinforced, if needed, and appropriate recall interval is established.

ORAL DIAGNOSIS/ORAL MEDICINE

Oral Diagnosis is that aspect of dentistry that involves collection and interpretation of pertinent data essential to diagnosing oral disease. Oral Medicine is concerned with the oral health care of medically compromised patients and with the diagnosis and non-surgical management of medically-related diseases or conditions affecting the oral and maxillofacial region.

The predoctoral oral diagnosis/oral medicine curriculum is designed to educate the dental student to:

1. Gather and organize the necessary information to provide comprehensive and accurate oral health care for the patient;
2. be competent at collecting and recording a medical history;
3. be competent at eliciting and recording a complete dental history;
4. be competent at taking, recording and interpreting vital signs (blood pressure, temperature, pulse, respiration);
5. understand the clinical signs and symptoms of major diseases of each organ system;
6. understand the impact of diseases of various organ systems on the oral cavity and on the delivery of dental care;
7. be competent to perform a head and neck examination, including extraoral soft tissues and intraoral hard and soft tissue;
8. understand the anatomic and biologic bases of the head and neck examination;
9. understand the potential impact of dental therapy on systemic disease;
10. understand performance of a musculoskeletal examination including TMJ function;

11. be competent in the assessment of a functional relationship of the teeth and jaws;
12. diagnose and deliver appropriate care in urgent dental situations;
13. take and accurately interpret diagnostic radiographs;
14. be familiar with the procedures necessary to interact with physicians and other health care providers in total patient evaluation and care; and
15. work with the patient in understanding and supporting personal oral health care.

DATA COLLECTION

Comprehensive data is to be collected on all patients in the student clinic in order to secure an accurate diagnosis and to plan for appropriate oral health care for the patient.

Indications

All patients presenting for care in the student clinic.

Contraindications

None

Outcomes Assessment

1. Medical history is evaluated and all aspects of the patient's health that may impact on the delivery of oral health care are identified.
2. All dental disease is identified through a hard tissue and soft tissue examination.
3. Vital signs are accurately taken and recorded on all patients.
4. Appropriate radiographs are available that are diagnostic and current.
5. Consultants are contacted when appropriate and comments recorded in the dental record.
6. All data is recorded in the dental record in a logical sequence on appropriate forms.

TREATMENT PLAN

A treatment plan will be developed for each patient commensurate with their needs and desires.

Indications

All patients requesting care in the student clinic

Contraindications

None

Outcomes Assessment

1. Proposed treatment is based on documentable clinical and/or radiographic findings.

2. Treatment is sequenced in a logical manner including severity of disease, patient desire, difficulty of procedure, etc.

3. Treatment options are discussed with the patient, fees are explained, and informed consent for proposed treatment is obtained.

4. Treatment needs are sequenced according to: (1) preliminary needs (immediate care required); (2) phase I, elimination of disease; (3) phase II, elective treatment including fixed and/or removable prosthodontics, and (4) recall, maintenance therapy.

EMERGENCY EXAM

Patients presenting with urgent needs will receive an emergency exam and treatment necessary to stabilize their condition.

Indications

Patients of record reporting to the student clinic and patients of non-record reporting to the urgent care clinic.

Contraindications

Patients whose needs are determined to be a non-urgent nature by the attending dentist or are too complex for the student dentist.

Outcomes Assessment

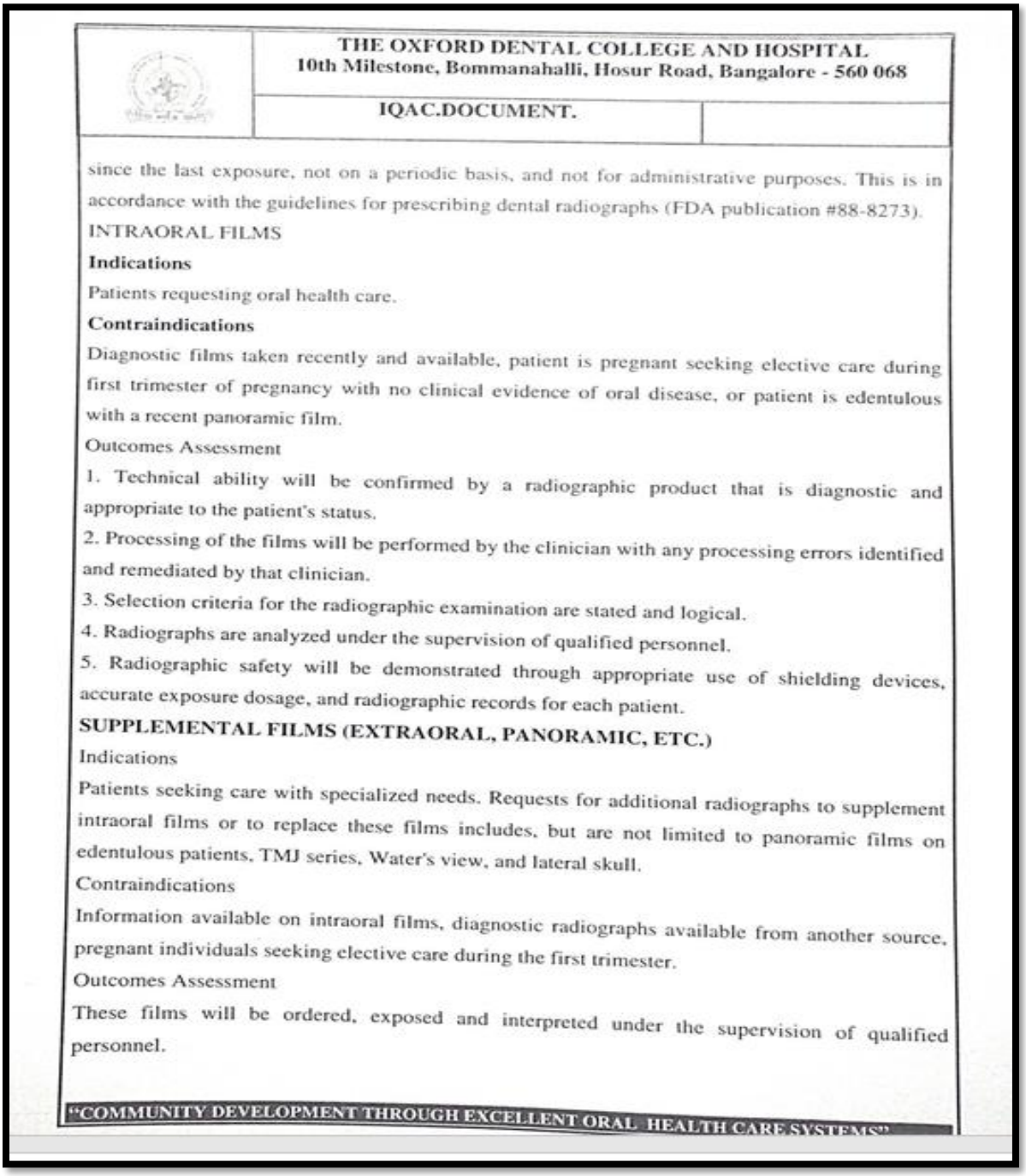
1. Patients of record with urgent needs will be evaluated and treated by their student dentist under the supervision of the appropriate discipline.

2. Patients of non-record will be seen in the urgent care clinic, stabilized, and referred to the appropriate source for follow-up care.

3. Patients whose needs are determined to be of a non-urgent nature will be referred to the appropriate source for follow-up care.

ORAL RADIOLOGY

Oral radiology is the area of dental practice that deals with the use of radiation, including diagnostic, therapeutic, and nuclear aspects of clinical practice and research. It is based on physical principles and biologic phenomena and is linked with most branches of dental science. Radiographic examinations are based on the needs of the patient, not the amount of time elapsed



since the last exposure, not on a periodic basis, and not for administrative purposes. This is in accordance with the guidelines for prescribing dental radiographs (FDA publication #88-8273).

INTRAORAL FILMS

Indications

Patients requesting oral health care.

Contraindications

Diagnostic films taken recently and available, patient is pregnant seeking elective care during first trimester of pregnancy with no clinical evidence of oral disease, or patient is edentulous with a recent panoramic film.

Outcomes Assessment

1. Technical ability will be confirmed by a radiographic product that is diagnostic and appropriate to the patient's status.
2. Processing of the films will be performed by the clinician with any processing errors identified and remediated by that clinician.
3. Selection criteria for the radiographic examination are stated and logical.
4. Radiographs are analyzed under the supervision of qualified personnel.
5. Radiographic safety will be demonstrated through appropriate use of shielding devices, accurate exposure dosage, and radiographic records for each patient.

SUPPLEMENTAL FILMS (EXTRAORAL, PANORAMIC, ETC.)

Indications

Patients seeking care with specialized needs. Requests for additional radiographs to supplement intraoral films or to replace these films includes, but are not limited to panoramic films on edentulous patients, TMJ series, Water's view, and lateral skull.

Contraindications

Information available on intraoral films, diagnostic radiographs available from another source, pregnant individuals seeking elective care during the first trimester.

Outcomes Assessment

These films will be ordered, exposed and interpreted under the supervision of qualified personnel.

PERIODONTOLOGY

"That specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes; the maintenance of the health, function and esthetics of these structures and tissues; and the replacement of lost teeth and supporting structures by grafting or implantation of natural and synthetic devices and materials" (1).

KNOWLEDGE

While periodontal disease diagnosis and treatment requires special knowledge, practitioners must possess a working knowledge of other disciplines to provide optimum care. Some of these disciplines are:

- Physiology
- Anatomy
- Histology
- Microbiology
- Immunology
- Pathology
- Restorative Dentistry
- Oral Medicine
- Pharmacology
- Systemic Disease
- Dental Implants
- Biochemistry
- Prosthodontics
- Pediatric Dentistry
- Endodontics
- Biomaterials
- Laboratory Medicine
- Critical Thinking

- Oral And Maxillofacial Surgery
- Radiology
- Oral Biology

INTRODUCTION

The goal of periodontics is to maintain or restore health in the periodontium. Arresting or slowing down the disease process may be alternative goals if "health" cannot be achieved. Generally the diseases dealt with are inflammatory and are categorized as gingivitis or periodontitis. The principle causative agents are intraoral microflora which colonize the tooth surface both supragingivally and subgingivally as well as the subgingival pocket area.

Transition of gingivitis to periodontitis does not always occur, although periodontitis is always preceded by gingivitis. Since the structures and microflora involved in gingivitis and periodontitis are different, treatment methodologies and outcomes will vary depending on the disease. Elimination of the bacteria present in gingivitis can lead to a complete reversal of the disease. Treatment of periodontitis always requires elimination of microflora but the periodontium will not return to its pre-diseased state.

9 The general practitioner should be able to diagnose health and disease, treatment plan, remove plaque, treat gingivitis, and manage periodontitis. Management may include nonsurgical treatment of early disease and working with a periodontist on a referral basis for treatment of all forms of periodontitis. The general practitioner should be well versed in multiple methods of patient control of oral microflora.

EXAMINATION

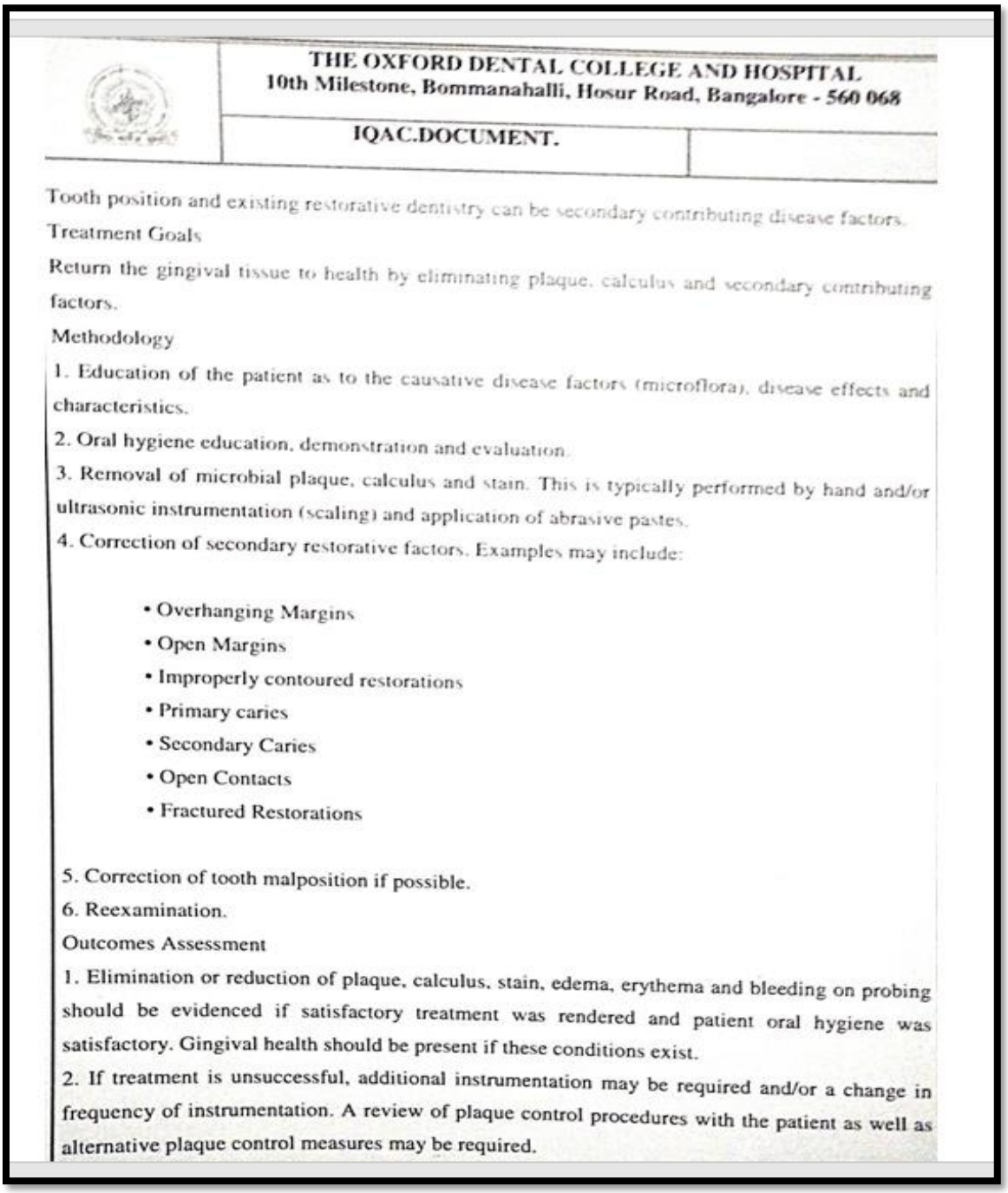
1. A thorough medical history should be taken on each patient. Various systemic diseases, conditions, and habits such as diabetes, hypertension, smoking and pregnancy can influence periodontal conditions and treatment. A complete list of all patient medications should be recorded, and their actions and interactions with drugs to be prescribed should be evaluated. Consultations with other health care professions should be obtained as needed.

2. A dental history should be obtained and any previous records and radiographs should be added to the current file. Contacts with previous dental practitioners may provide valuable information.
3. A head and neck extraoral examination should be performed. Abnormalities should be noted and appropriate referrals performed if necessary.
4. An intraoral examination of oral mucosa, tongue, floor of mouth, lips, palate, oropharynx, glands, and alveolus should be performed. Palpation should be utilized as required. All abnormalities should be noted and consultations obtained as needed.
5. Individual teeth, replacements, occlusion, caries, tooth position, pulpal status (as needed), restorations, and mobility should be noted. Diagnostic casts should be obtained.
6. Appropriate radiographs should be taken. A panoramic film and bite-wing radiographs are sufficient for analysis of the periodontium of a patient with gingivitis. Full mouth radiographs are required for patients with periodontitis.
7. The presence of plaque and calculus should be recorded.
8. The gingival and alveolar mucosa should be examined. Consistency, color and frenum insertions, probing depths, bleeding points, recession and furcation involvement should be recorded. The quantity of attached gingival should be noted.
9. Laboratory tests and additional radiographs should be obtained if needed.
10. Data should be analyzed and a diagnosis, treatment plan and prognosis formulated.

GINGIVITIS

Gingivitis is inflammation of the gingival by oral microflora (plaque) without attachment loss. Some or all of the following clinical findings may be present:

- Erythema
- Bleeding On Probing
- Contour Alteration
- Consistency Alteration
- Presence of Calculus
- Presence of Plaque
- Edema



Tooth position and existing restorative dentistry can be secondary contributing disease factors.

Treatment Goals

Return the gingival tissue to health by eliminating plaque, calculus and secondary contributing factors.

Methodology

1. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
2. Oral hygiene education, demonstration and evaluation.
3. Removal of microbial plaque, calculus and stain. This is typically performed by hand and/or ultrasonic instrumentation (scaling) and application of abrasive pastes.
4. Correction of secondary restorative factors. Examples may include:

- Overhanging Margins
- Open Margins
- Improperly contoured restorations
- Primary caries
- Secondary Caries
- Open Contacts
- Fractured Restorations

5. Correction of tooth malposition if possible.
6. Reexamination.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema and bleeding on probing should be evidenced if satisfactory treatment was rendered and patient oral hygiene was satisfactory. Gingival health should be present if these conditions exist.
2. If treatment is unsuccessful, additional instrumentation may be required and/or a change in frequency of instrumentation. A review of plaque control procedures with the patient as well as alternative plaque control measures may be required.

ADULT PERIODONTITIS

"Periodontitis is inflammation of the supporting tissues of the teeth. It is usually a progressively destructive change leading to loss of bone and periodontal ligament or an extension of inflammation from gingival into the adjacent bone and ligament. Adult periodontitis usually has an onset beyond age 35. Bone resorption usually progresses slowly and predominantly in the horizontal direction. Well-known local environmental factors are prominent and abnormalities in host defense have not been found" (1). Clinical features may include some or all of the following:

- Edema
- Erythema
- Bleeding on Probing
- Suppuration
- Bone Loss (early to moderate up to 1/3, advanced > 6 mm)
- Furcation involvement (early to moderate-class i, advanced-class ii or iii)
- Tooth Mobility
- Radiographic Evidence Of Bone Loss
- Probing Depths (early to moderate up to 6 mm, advanced > 6 mm)
- Attachment Loss (early to moderate up to 5 mm, advanced > 5 mm)
- Localized or Generalized Presentation
- Early, Moderate And or Advanced Stages

Treatment Goals

Eliminate arrest or slow down the disease by the elimination and/or alteration of the oral microflora and secondary factors. Preservation of a healthy, comfortable, functional and esthetic dentition is the goal for each patient.

Methodology

1. Evaluate contributing factors such as smoking, diabetes, medications, and pregnancy. Eliminate as many contributing factors as possible.

12. Reexamination as deemed appropriate.

Surgery

1. The appropriate surgical modality will be determined by a periodontal faculty member, periodontal resident and the dental student.
2. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
3. Reexamination as deemed appropriate.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema, probing depths, and bleeding points if satisfactory treatment was rendered. Stabilization or gain of clinical attachment should also be evident during the clinical reexamination. Improvement may be seen in radiographic appearance.
2. Alteration of occlusal forces.
3. Effective patient oral hygiene.
4. Unresolved areas of periodontal disease may occur and be characterized by:
    - inflammation
    - increased probing depths
    - continued attachment loss
    - persistent bleeding on probing
    - persistent plaque deposition
5. Patient response is variable and treatment modalities may require modification or alteration as needed.

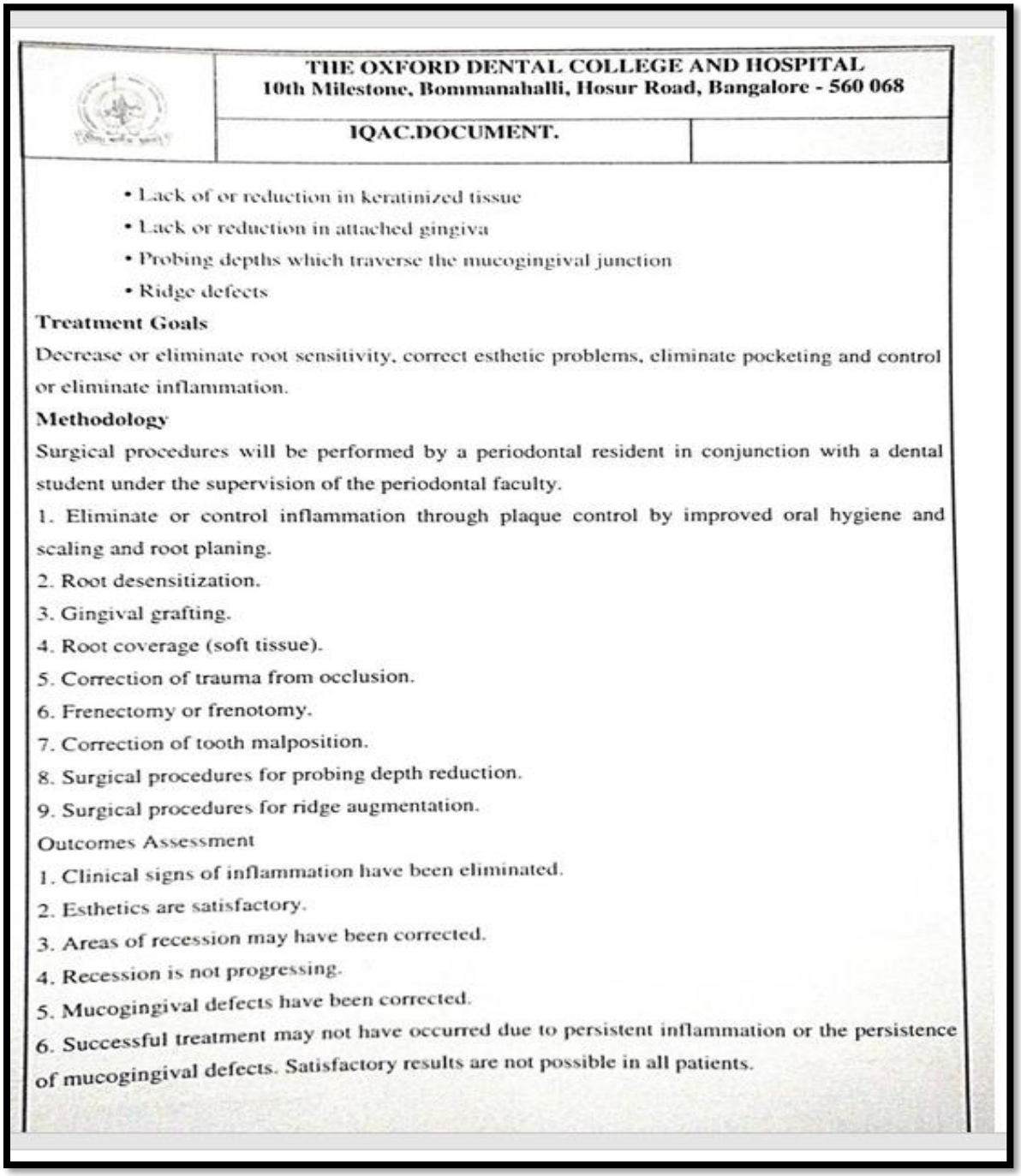
EARLY ONSET AND REFRACTORY PERIODONTITIS

These disease entities will receive treatment by periodontal residents and/or faculty.

MUCOGINGIVAL CONDITIONS

Mucogingival conditions are alterations of the normal relationship between the free gingival margin and the mucogingival junction. Alterations of morphology position and quantity of gingival may be present (1). Clinical features may include:

- Recession



- Lack of or reduction in keratinized tissue
- Lack or reduction in attached gingiva
- Probing depths which traverse the mucogingival junction
- Ridge defects

Treatment Goals

Decrease or eliminate root sensitivity, correct esthetic problems, eliminate pocketing and control or eliminate inflammation.

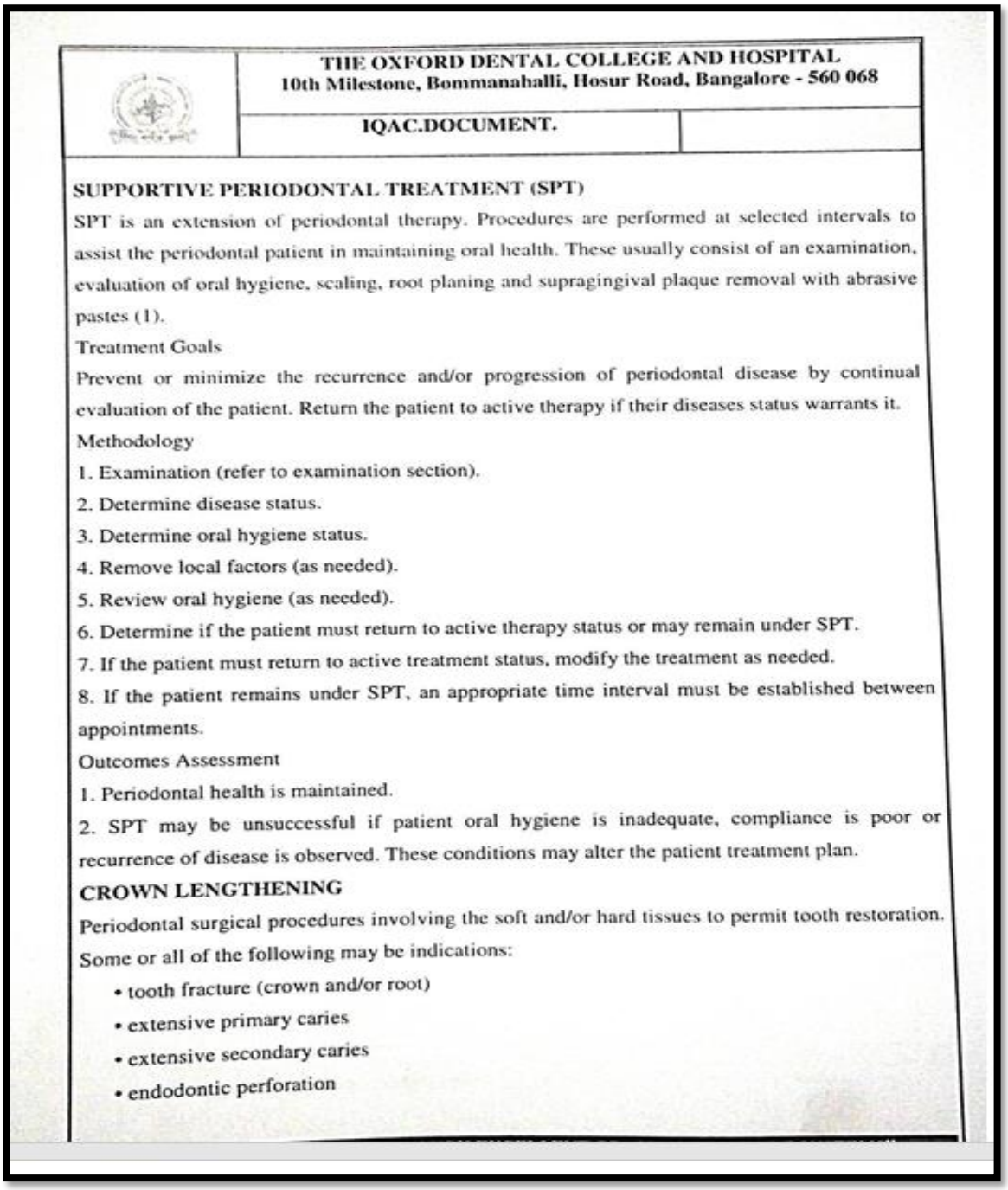
Methodology

Surgical procedures will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.

1. Eliminate or control inflammation through plaque control by improved oral hygiene and scaling and root planing.
2. Root desensitization.
3. Gingival grafting.
4. Root coverage (soft tissue).
5. Correction of trauma from occlusion.
6. Frenectomy or frenotomy.
7. Correction of tooth malposition.
8. Surgical procedures for probing depth reduction.
9. Surgical procedures for ridge augmentation.

Outcomes Assessment

1. Clinical signs of inflammation have been eliminated.
2. Esthetics are satisfactory.
3. Areas of recession may have been corrected.
4. Recession is not progressing.
5. Mucogingival defects have been corrected.
6. Successful treatment may not have occurred due to persistent inflammation or the persistence of mucogingival defects. Satisfactory results are not possible in all patients.



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SUPPORTIVE PERIODONTAL TREATMENT (SPT)

SPT is an extension of periodontal therapy. Procedures are performed at selected intervals to assist the periodontal patient in maintaining oral health. These usually consist of an examination, evaluation of oral hygiene, scaling, root planing and supragingival plaque removal with abrasive pastes (1).

Treatment Goals

Prevent or minimize the recurrence and/or progression of periodontal disease by continual evaluation of the patient. Return the patient to active therapy if their diseases status warrants it.

Methodology

1. Examination (refer to examination section).
2. Determine disease status.
3. Determine oral hygiene status.
4. Remove local factors (as needed).
5. Review oral hygiene (as needed).
6. Determine if the patient must return to active therapy status or may remain under SPT.
7. If the patient must return to active treatment status, modify the treatment as needed.
8. If the patient remains under SPT, an appropriate time interval must be established between appointments.

Outcomes Assessment

1. Periodontal health is maintained.
2. SPT may be unsuccessful if patient oral hygiene is inadequate, compliance is poor or recurrence of disease is observed. These conditions may alter the patient treatment plan.

CROWN LENGTHENING

Periodontal surgical procedures involving the soft and/or hard tissues to permit tooth restoration.

Some or all of the following may be indications:

- tooth fracture (crown and/or root)
- extensive primary caries
- extensive secondary caries
- endodontic perforation

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- extensive primary caries
- extensive secondary caries
- endodontic perforation

- inadequate crown length for adequate preparation
- iatrogenic dentistry
- post-orthodontic extrusion

Treatment Goals

Provide adequate crown length, and maintain proper crown to root ratio while preserving the biologic width.

Methodology

1. Determination of need will be made by the periodontal and restorative faculty in conjunction with the periodontal resident and dental student.
2. Resective soft and/or hard tissue surgery.
3. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
4. Determine patient oral hygiene.

Outcomes Assessment

1. Post-operative crown length adequate for required post-surgical procedures.
2. Adequate patient oral hygiene.
3. Unfavorable results can be evidenced due to inadequate tissue resection, poor oral hygiene, inadequate crown to root ratio, and fractures requiring tooth extraction.

ENDOSSEOUS IMPLANTS

Replacement of (a) teeth (tooth) with (a) machined root form shaped titanium alloy to improve function and/or esthetics. The following may be indications for placement:

1. Tooth and/or root fracture
2. Missing teeth due to trauma
3. Previous extraction sites
4. Spaces created by orthodontic movement
5. Endodontic failures
6. Restorative failures
7. Extractions due to periodontal disease

8. Non-restorable teeth due to caries (following extraction)
9. To avoid preparation of virgin teeth for bridge abutments
10. Anchorage for orthodontic tooth movement

Treatment Goals

Provide the patient with 1) replacement function and/or esthetics in edentulous areas of the mandible and/or maxilla or 2) anchorage for orthodontic tooth movement.

Methodology

1. The determination of the appropriate treatment will be determined by clinical faculty in the appropriate disciplines which would generally be periodontics, restorative dentistry, prosthodontics, and orthodontics. The Implant Consent and Treatment Planning Form (5D) and financial arrangements must be completed before treatment begins.

2. The supervising periodontal resident and the dental student will be involved in the treatment plan.

3. Appropriate faculty, the periodontal resident, and the dental student will explain the treatment plan to the patient.

4. Existing periodontal disease in the dentition must be resolved prior to implant placement.

5. A plaque score of 25% must be achieved prior to implant placement.

6. Implant placement will be performed by the periodontal resident who will be assisted by the dental student assigned to the patient. The procedure will be performed in the periodontal graduate clinic under the supervision of the periodontal faculty.

Outcomes Assessment

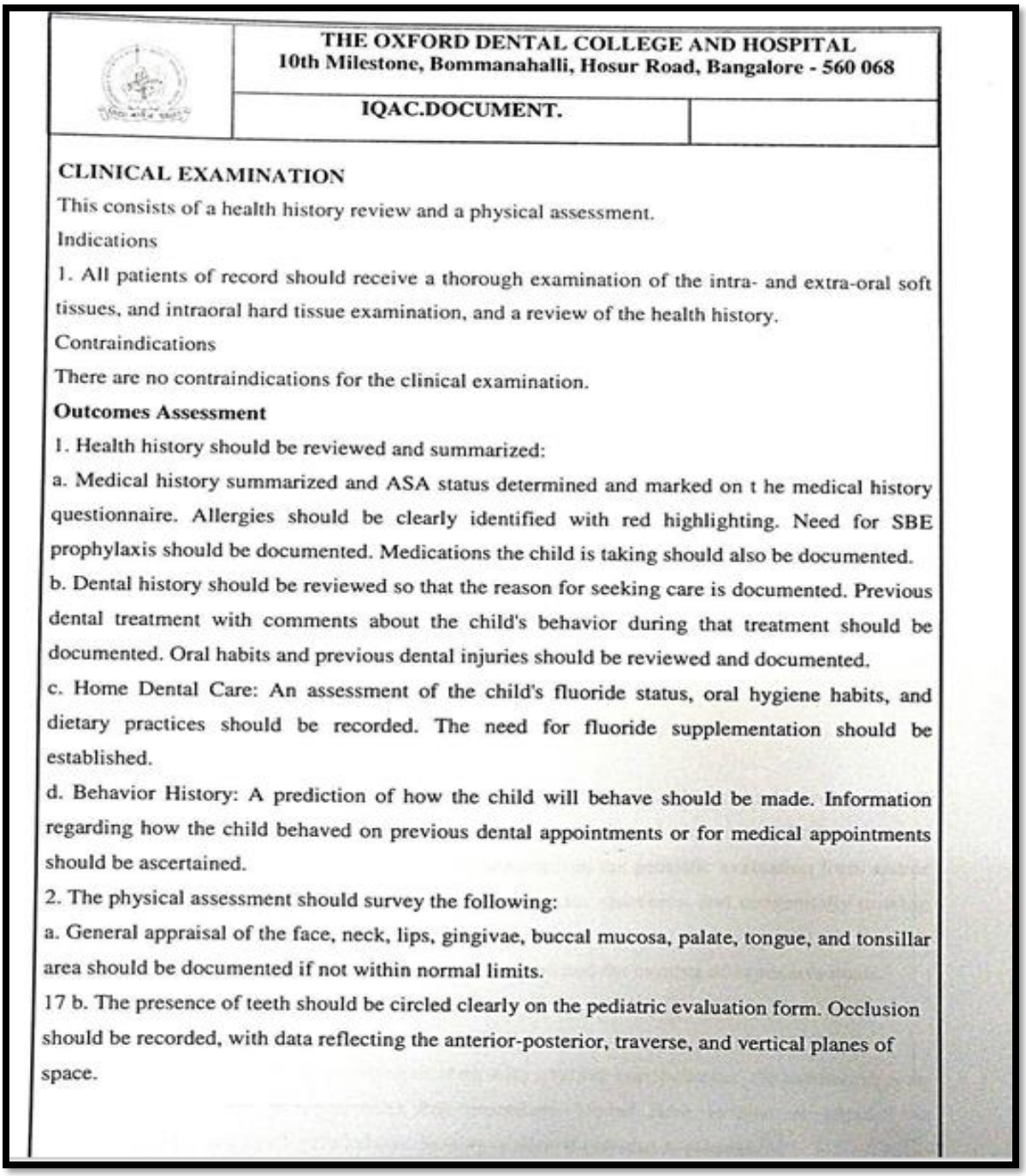
1. The implant will be evaluated radiographically for adequate placement (See Radiographic Guidelines for Implant Patients in the Clinic Manual).
2. Following healing (3-6 months) the implant will be evaluated for mobility and probing depth.
3. Patient oral hygiene will be evaluated and corrected as required.
4. Radiolucencies, implant mobility, and increased probing depths are indications that an implant is ailing, failing or has failed and further treatment is required.

References

1. Glossary of Periodontal Terms. The American Academy of Periodontology, 1992.

PEDIATRIC DENTISTRY

Pediatric Dentistry is an age specific dental specialty that encompasses all aspects of dentistry. Since children are unique in their stages of development, oral diseases, and oral health treatment needs, this section will focus on comprehensive preventive and therapeutic oral health care of children. One goal is to provide a basic philosophical and technical foundation for diagnosis, treatment planning, and providing treatment procedures in children. Another goal is to provide practical experience in managing the behaviors of children. The former goal is scientifically more definitive, while the latter goal is less clearly defined. Regarding the practical experience gained through behavior management; it is only expected that the student should clearly document the child's initial behavior and describe uncooperative or inappropriate behaviors. Once strategies for managing the behaviors are implemented it is then expected that the student document effectiveness of the techniques. The goal is to have the management techniques positively affect the child's emotional development. Further, the student should understand that behavior management methods employed are to allow the opportunity for communicating, educating, coping, and cooperating during treatment procedures. In addition to words, it is desired that the student appreciate the impact of voice tone, facial expression and gestures. The more definitive pediatric dentistry treatments follow:



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CLINICAL EXAMINATION

This consists of a health history review and a physical assessment.

Indications

1. All patients of record should receive a thorough examination of the intra- and extra-oral soft tissues, and intraoral hard tissue examination, and a review of the health history.

Contraindications

There are no contraindications for the clinical examination.

Outcomes Assessment

1. Health history should be reviewed and summarized:

a. Medical history summarized and ASA status determined and marked on t he medical history questionnaire. Allergies should be clearly identified with red highlighting. Need for SBE prophylaxis should be documented. Medications the child is taking should also be documented.

b. Dental history should be reviewed so that the reason for seeking care is documented. Previous dental treatment with comments about the child's behavior during that treatment should be documented. Oral habits and previous dental injuries should be reviewed and documented.

c. Home Dental Care: An assessment of the child's fluoride status, oral hygiene habits, and dietary practices should be recorded. The need for fluoride supplementation should be established.

d. Behavior History: A prediction of how the child will behave should be made. Information regarding how the child behaved on previous dental appointments or for medical appointments should be ascertained.

2. The physical assessment should survey the following:

a. General appraisal of the face, neck, lips, gingivae, buccal mucosa, palate, tongue, and tonsillar area should be documented if not within normal limits.

17 b. The presence of teeth should be circled clearly on the pediatric evaluation form. Occlusion should be recorded, with data reflecting the anterior-posterior, traverse, and vertical planes of space.

c. Anomalies in number, size, shape, texture, eruption, exfoliation, and tooth position should be documented. All dental restorations and carious lesions should be charted by tooth number and surface.

d. History of traumatic injuries and oral habits should be documented to identify teeth affected, description of how injured, duration of habit, and date of injury.

RADIOGRAPHIC EXAMINATION

Indications

All patients of record should receive an assessment of dental caries, periodontal status, developmental status, pathologic disturbances, swelling and pain or dysfunction.

All radiographs will be ordered based on the guidelines set forth by the American Academy of Pediatric Dentistry (AAPD) and as published reference manual indicates in the "Pediatric Dentistry Journal." (FDA publication #88-8273)

Contraindications

Patients in the first trimester of pregnancy seeking elective care. Radiographs will only be ordered according to the guidelines of the AAPD.

Outcomes Assessment

1. All radiographs are of diagnostic quality to permit assessment of health and development of the dentition and oral structures. They are to supplement the clinical examination findings.
2. Pathologic interpretations should also be documented on the pediatric evaluation form and/or in the progress notes. This includes eruption interferences, abscesses, and congenitally missing teeth.
3. A radiographic record should document films ordered and the number of exposures made.

ORAL PROPHYLAXIS

Traditionally this has been the polishing of teeth with a rubber cup; however, the toothbrush is an acceptable instrument for completing this procedure. Dental floss is also an adjunct for intraproximal portion of the prophylaxis. Scaling is done if calculus is present.

Indications

1. Removal of plaque, calculus, and/or extrinsic stains from the teeth.
2. Polishing the teeth.
3. Education of the child and/or caregiver.

Contraindications

1. Patients who are susceptible to subacute bacterial endocarditis need to be managed with the appropriate antibiotic therapy according to current AHA guidelines.
2. Patients who suffer with a bleeding disorder need to be managed with the appropriate precautions if bleeding is likely for this procedure.

Outcomes Assessment

1. All plaque should be removed from the crowns of all tooth surfaces.
2. Extrinsic stains and calculus should be removed and the teeth should be polished.

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3. Child should be given instructions on plaque removal and should minimally demonstrate with a toothbrush. As coordination improves, flossing instructions should be implemented.
4. A recall plan should be established and documented.

TOPICAL FLUORIDES

Indications

Caries susceptible children as demonstrated by enamel decalcifications or clinically diagnosed caries. Systemic fluoride supplementation schedule is attached.

Contraindications

1. Children who do not understand or who are unable to prevent swallowing the fluoride products.
2. Children who are a low caries risk (caries free, excellent oral hygiene, and open contacts).

Outcomes Assessment

1. Fluoride application is retained in child's mouth for one to four minutes.
2. Child does not eat or drink for the next 30 minutes.

SEALANT APPLICATION

Indications

1. Deep, retentive pits and fissures that may cause wedging or catching of an explorer.
2. History of previous occlusal caries.
3. Tooth erupted within the last 4-5 years.
4. Can be placed on primary or permanent molars, premolars, and the cingula of maxillary incisors with deep pits and/or fissures.

Contraindications

1. Well coalesced, self cleaning pits and fissures.
2. Patients with interproximal lesions on a tooth that is planned for a sealant or occlusal caries.
3. Inability to keep tooth contained with dry isolation.

Outcomes Assessment

1. Sealant is intact and covers all susceptible pits and fissures.
2. Occlusion is evenly distributed as before placement of the sealant.
3. No evidence of caries development.

PREVENTIVE RESIN RESTORATION

Indications

1. Deep pits and fissures in primary and permanent teeth that contain questionable caries areas.
2. Implicit carious lesions.
3. Well confined carious lesions.
4. Enamel defects.

Contraindications

1. Interproximal caries on suspect tooth.
2. Need to extend preparation beyond the suspect pit and/or fissure.

Outcomes Assessment

1. Restoration is intact and covering all involved and/or susceptible pits and fissures.
2. Normal occlusal relationship is maintained.
3. No evidence of caries development beneath or around the margins of the restoration.

RUBBER DAM APPLICATION

Indications

1. Restorative or endodontic procedures for primary or permanent teeth.
2. Protect soft tissues and improve patient management.
3. Prevent dental instruments and other materials from entering the oropharynx.

Contraindications

1. Orthodontic bands on teeth.
2. Patients with poor nasal exchange.
3. Patients with allergy to latex.
4. Clamp cannot be retained due to state of eruption of the tooth.

Outcomes Assessment

1. Rubber dam does not block the nose for air exchange.
2. Rubber dam barrier remains intact through procedures, does not become dislodged, and isolates teeth to be treated.
3. All stabilizing ligatures and rubber dam material is removed upon completion of restorative procedures.

AMALGAM RESTORATION

Indications

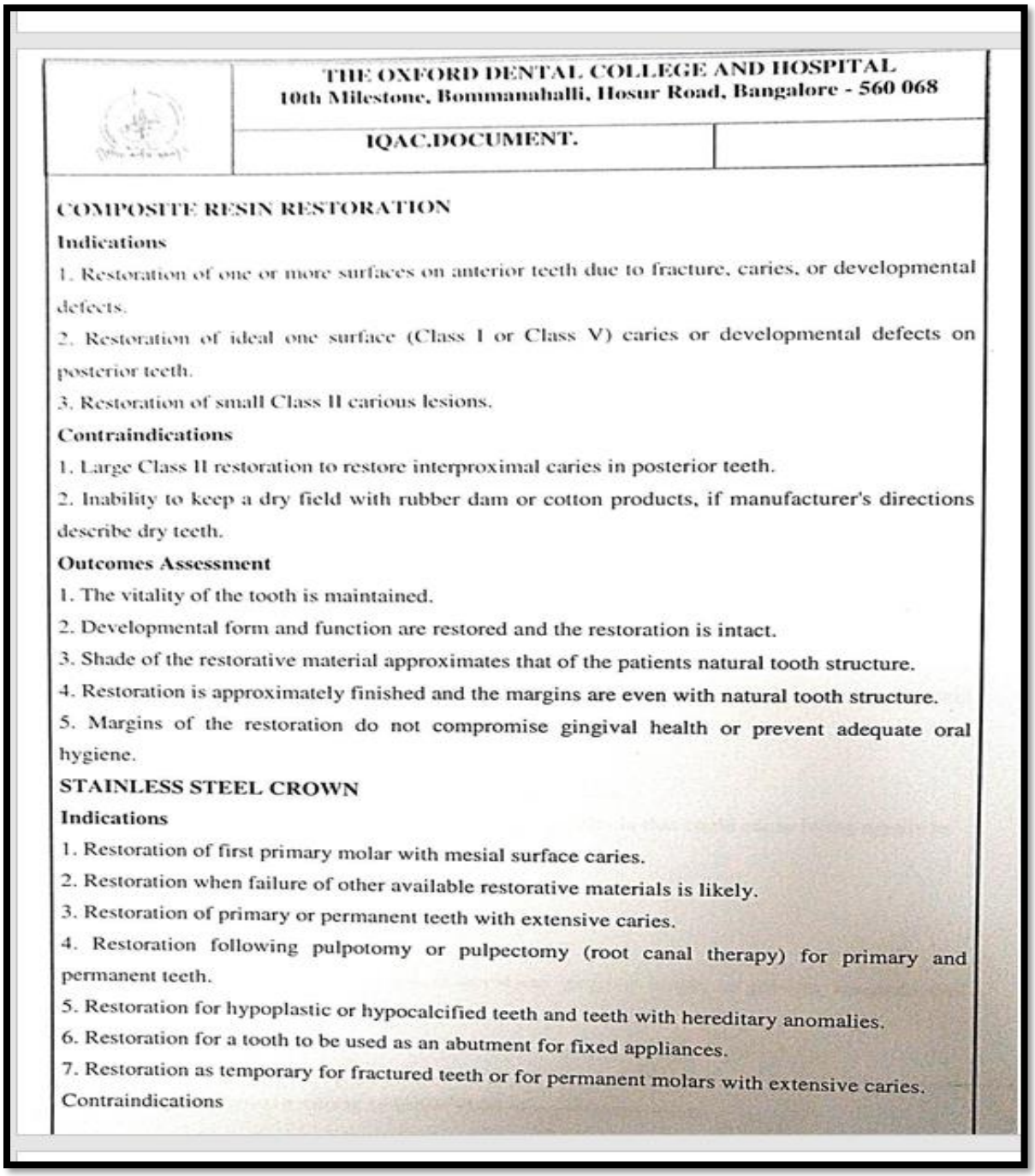
1. The restoration of dental caries.
2. The restoration of developmental defects.

Contraindications

1. First primary molar with mesial caries.
2. Interproximal caries that goes beyond the buccalline angle.
3. Caries greater than 1/3 the isthmus of the occlusal portion of the amalgam preparation in primary molars.

Outcomes Assessment

1. Vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration remains intact.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.



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COMPOSITE RESIN RESTORATION

Indications

1. Restoration of one or more surfaces on anterior teeth due to fracture, caries, or developmental defects.
2. Restoration of ideal one surface (Class I or Class V) caries or developmental defects on posterior teeth.
3. Restoration of small Class II carious lesions.

Contraindications

1. Large Class II restoration to restore interproximal caries in posterior teeth.
2. Inability to keep a dry field with rubber dam or cotton products, if manufacturer's directions describe dry teeth.

Outcomes Assessment

1. The vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration is intact.
3. Shade of the restorative material approximates that of the patients natural tooth structure.
4. Restoration is approximately finished and the margins are even with natural tooth structure.
5. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

STAINLESS STEEL CROWN

Indications

1. Restoration of first primary molar with mesial surface caries.
2. Restoration when failure of other available restorative materials is likely.
3. Restoration of primary or permanent teeth with extensive caries.
4. Restoration following pulpotomy or pulpectomy (root canal therapy) for primary and permanent teeth.
5. Restoration for hypoplastic or hypocalcified teeth and teeth with hereditary anomalies.
6. Restoration for a tooth to be used as an abutment for fixed appliances.
7. Restoration as temporary for fractured teeth or for permanent molars with extensive caries.

Contraindications

Not enough space to place an adequately fitting crown.

Outcomes Assessment

1. Adequate caries removal and/or pulp treatment is completed and tooth is reduced for the crown.
2. Crown is appropriately trimmed, adapted, smoothed, and polished.
3. Appropriate sized crown that maintains arch length.
4. Adequate marginal adaptation for gingival health and excess cement is removed.
5. Functional occlusion is restored.
6. Tooth vitality is maintained when possible.
7. Restoration enables patient to maintain oral hygiene.
8. Restoration does not interfere with tooth eruption.

LABIAL VENEER (PLASTIC/PORCELAIN)

Indications

1. Esthetic restoration for anterior teeth that need to be restored or are deeply stained or discolored.
2. Conservative restoration for preventing full coverage restorations of fractured permanent incisors.

Contraindications

1. Occlusal disharmonies that could cause restoration failure.
2. Patients with disorders such as esophageal reflux or bulimia that could cause luting agents to fail.

Outcomes Assessment

1. Restore form and esthetics.
2. Maintain vitality of the tooth restored.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

DIRECT PULP THERAPY

Indications

1. Minimal pulp exposure during caries removal

2. Therapy for permanent tooth that sustains a mechanical exposure during preparation or that has a traumatic exposure such as in the case of a fracture.

Contraindications

1. Primary teeth.
2. Greater than minimal pulp exposure (gross exposure).
3. Radiographic periapical radiolucency; signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. Hemorrhage is controlled and calcium hydroxide is placed over the exposed pulp.
2. Preparation is sealed with an appropriate restorative material.
3. Vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident (pain, swelling).
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification.

INDIRECT PULP THERAPY

Indications

A tooth that has caries approaching the pulp. Placing a protective dressing over a layer of remaining dentin protects against pulpal injury and stimulates healing.

Contraindications

1. Radiographic periapical radiolucency indicating a pathologic condition.
2. Signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. An appropriate base is placed over the remaining carious dentin.
2. The preparation is sealed with an appropriate restorative material.
3. The vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident.
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.

PULPOTOMY

Indications

1. Carious or mechanical exposures in primary molars with vital pulps.
2. Permanent teeth when the pulp is exposed and is vital.
3. Permanent teeth as urgent treatment in preparation for conventional root canal therapy.

Contraindications

1. Inability to control hemorrhage upon removing infected or affected canal pulp tissues.
2. Periapical radiolucency in suspect primary molar.
3. Clinical signs and symptoms of irreversible pulpitis or abscess for primary molar.

Outcomes Assessment

1. Appropriate selection and use of pulp therapy medicament.
2. Radicular pulp vitality is maintained and no prolonged adverse clinical signs and symptoms are evident.
3. No pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.
4. Normal root apical closure and root length occurs.

PULPECTOMY (PRIMARY TOOTH ROOT CANAL THERAPY)

Indications

1. Primary incisors traumatized with consequent pathology.
2. Non vital permanent teeth with immature roots.
3. Non vital primary molars.
4. Primary molars that sustain hemorrhage upon attempting pulpotomy procedures.

Contraindications

1. Facial swelling associated with non vital primary molar.
2. Tooth is not restorable.
3. Pathology extends to developing permanent teeth.
4. Internal or external resorption in crown and root.
5. Less than 2/3 of the primary tooth root structure remains.
6. Treatment could cause untoward sequela for medically compromised patient.

Outcomes Assessment

1. Evidence of a successful root canal filling with the appropriate material (no gross overextension or underfilling of canal).
2. Radiographic observation reveals root end closure (apexification).
3. No prolonged adverse clinical signs and symptoms.
4. No radiographic evidence of internal/external resorption.
5. No exacerbation of previous periradicular radiolucency or development of periradicular radiolucency where none existed.

PRIMARY TOOTH EXTRACTION

Indications

1. Acute or chronic pathology associated with primary teeth.
2. Over-retained teeth.
3. Cariously involved, non-restorable tooth.
4. Natal/neonatal teeth that are mobile and subject to aspiration, are a source of ulceration, or interferes with feeding.
5. Supernumerary teeth.
6. Fractured or traumatized non-restorable teeth.

Contraindications

1. Acute oral infection such as herpetic stomatitis or necrotizing ulcerative gingivitis.
2. Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Appropriate anesthesia is obtained and the correct tooth is extracted.
2. Alveolus remains intact.
3. Hemorrhage is managed.
4. Post extraction instructions (written and oral) are reviewed with the child and/or child's caregiver.
5. Antibiotic therapy is initiated when appropriate.
6. Hospital care is sought when appropriate.

ECTOPIC ERUPTION CORRECTION THERAPY

Indications

1. Radiograph reveals that delayed eruption is due to atypical direction of tooth eruption.
2. Delayed eruption is due to impingement by previously placed restoration in an adjacent tooth.

Contraindications

Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Restoration is replaced and allows proper eruption of the ectopically erupting tooth.
2. Appropriate mechanical therapy repositions the ectopically erupting tooth (create enough space) to reascertain the arch length and/or preserve as much space as possible for the developing permanent dentition.

SPACE MAINTAINER THERAPY

Indications

Premature loss of teeth where it is necessary to prevent migration of adjacent teeth.

Contraindications

1. Procedure could cause untoward sequela for patients who are medically compromised.
2. Patients who are high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design is chosen to maintain the space and alignment of teeth.
2. The space present when the appliance is placed continues to be preserved until eruption of the succedaneous tooth.
3. Appliance does not prevent the normal eruption of succedaneous teeth.

HABIT APPLIANCE THERAPY

Indications

Management of a habit that is causing or may cause unfavorable consequences in the permanent dentition and orofacial development.

Contraindications

1. Child cannot understand instructions and the function of the appliance.
2. Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Eliminate or decrease the intensity of the habit.
2. Eliminate or decrease the effect of the habit on permanent dentition and orofacial development.

CROSSBITE CORRECTION THERAPY

Indications

1. Anterior and/or posterior non-skeletal crossbites.
2. End to end dental occlusion that demonstrates potential for severe attrition.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design to achieve correction of crossbite and/or improved inter arch relationships.
2. The desired occlusion is maintained.

PROSTHETIC APPLIANCE THERAPY

Indications

1. Caries causing multiple tooth extraction.
2. Trauma resulting in tooth loss.
3. Missing teeth due to congenital/genetic defects.
4. Congenital or genetic disturbances as in dentinogenesis/amelogenesis imperfecta or cleft palate.
5. Facilitation of establishing esthetics, occlusal function, speech development, and/or feeding.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Facial profile, function, and esthetics are improved.
2. Ability to adequately remove plaque from the natural teeth is facilitated.

3. Appliance has adequate retention.
4. Appliance does not interfere with normal speech development.
5. Appliance allows normal eruption of teeth and does not prevent normal orofacial growth and development.

TREATMENT PLANNING

Indications

All pediatric patients' care must be treatment planned with a CD-12 signed by a faculty member in the section of Pediatric Dentistry.

Contraindications

None

Outcomes Assessment

1. Accurate diagnosis of clinical findings.
2. Appropriate prevention plan is established.
3. Appropriate treatment procedures are planned for each tooth to be treated.
4. Radiographic interpretation confirms the presence of suspected disease/pathology.
5. Informed consent is gained by parent or guardian.

ENDODONTICS

DEFINITION OF ENDODONTICS

Endodontics is the dental specialty concerned with the morphology, physiology, and pathology of the human dental pulp and periradicular tissues. Its study and practice encompass the basic clinical sciences including normal pulp biology; the etiology, diagnosis, prevention, and treatment of diseases and injuries of the pulp; and associated periradicular conditions.

The scope of endodontics is defined by the educational requirements for the training of a specialist in this discipline. Its scope of endodontics includes but is not limited to the differential diagnosis and treatment of oral pain of pulpal or periradicular origin; vital pulp therapy such as pulp capping and pulpotomy; root canal therapy such as pulpectomy, nonsurgical treatment of root canal systems with or without periradicular pathosis of pulpal origin, and the obturation of these root canal systems; selective surgical removal of pathological tissues resulting from pulpal

pathosis; replantation of avulsed teeth; surgical removal of tooth structure such as in apicoectomy, hemisection, and root amputation; endodontic implants; bleaching of discolored dentin and enamel; retreatment of teeth previously treated endodontically; and treatment procedures related to coronal restoration by means of post or cores involving the root canal space.

Dental practitioners must perform endodontic therapy consistent with their educational training and clinical experience. Keeping in mind that dentistry's main goal is for the public to maintain a healthy, natural dentition, every dental practitioner must be able to recognize and effectively treat pulpal injuries and diseases that are common and comply with the skills acquired by graduates of dental schools in the United States. Endodontic cases that are beyond the training, experience, and expertise of individual practitioners should be referred to practitioners who can appropriately provide treatment. All endodontic treatment should be of such quality that predictable and favorable results will routinely occur.

ENDODONTIC EXAMINATION AND DIAGNOSIS

Many features of endodontic evaluation are common to all dental practice.

An adequate medical and dental history with accompanying visual and radiographic examination provides basic information. Appropriate pulpal and periapical tests such as thermal, electrical, percussion, palpation, and mobility should be performed. Additional periodontal examination, transillumination, and bacteriologic testing may be indicated. Pre-operative radiographs may be taken from more than one angle to gain a better perspective of the morphology of the tooth or teeth in question. Bitewing radiographs, occlusal plane films, and radiographs of the contralateral and opposing teeth may also be necessary.

It may be necessary to recall some patients at periodic intervals to compare the examination data from one time interval to another for an accurate diagnosis. At times it is advisable to secure radiographs from previous practitioners or the existing dental record to gain a better understanding of the evolution of the current situation.

ENDODONTIC TREATMENT PLANNING, RECORDS AND RECALLS

Appropriate treatment is predicated on an accurate analysis of all diagnostic data. Treatment planning should include determining the strategic importance of the tooth or teeth considered for treatment, the expectations of the patient, the endodontic prognosis, and other factors such as excessively curved canals, periodontal disease, occlusion tooth fractures, calcified or occluded canals, and teeth with unusual or abnormal canal morphology.

27 Treatment records should include the chief complaints or patient comments, clinical impression, results of diagnostic tests and clinical examination. Also included are the pulpal and periapical diagnosis, treatment rendered, and required pre-operative, intra-operative, post-operative, and recall radiographs. Records should also include patient commentaries or complaints before and during treatment, or at any subsequent post-operative examination.

Endodontic care also includes the evaluation of the patient's post-operative response to treatment. Endodontic providers should encourage patients to return at intervals appropriate for the procedures undertaken to allow continued clinical evaluation.

VITAL PULP TREATMENT PROCEDURES

Vital pulp treatments attempt to preserve the integrity and function of the pulpal tissue in whole or in part as dictated by the degree of pulpal injury. Materials used in vital pulp therapy, such as calcium hydroxide, should meet the guideline of the ADA Council on Dental Therapeutics. The permanent restoration should be placed as soon as possible.

PROTECTIVE BASE

A protective filling material is placed at the base of a deep preparation to act as a barrier to minimize further injury and permit possible pulp healing and repair.

Indications

1. Deep dentin preparations in teeth with vital pulp without pulp exposure.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Location of a radiopaque base between the permanent restoration and the dentin.
3. Appropriate responsiveness to electrical and thermal pulp tests.
4. No breakdown of the periradicular supporting tissues.

INDIRECT PULP CAPPING

In a tooth which has a carious lesion near the pulp, a protective dressing or cement is placed over a layer of remaining dentin which, if removed, might expose the pulp. The purpose is to protect the pulp against possible injury and to stimulate healing and repair.

Indications

1. Carious lesions in teeth with vital pulp, which, if removed, might expose the pulp.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to but not in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal vitality tests.
4. No breakdown of the periradicular supporting tissues.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

DIRECT PULP CAPPING

In a tooth with a carious lesion near or into the pulp, a protective calcium hydroxide dressing or cement is placed directly over the vital pulp at the site of the exposure to protect the pulp against further injury and to stimulate healing or repair.

Indications

1. Aseptic small mechanical or iatrogenic pulpal exposures.
2. Small pulp exposures in teeth with incompletely formed apices.

3. Socioeconomic reasons.
4. Vital pulp without history of irreversible pulpitis.

Contraindications

1. Irreversibly inflamed or necrotic pulp.
2. Tooth is to serve as an abutment for a fixed or removable prosthesis or the restoration of choice is a crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to, and in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal pulp vitality tests.
4. No breakdown of the periradicular supporting tissue.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

PULPOTOMY

Pulpotomy is the surgical amputation of the coronal portion of vital pulp. It is used to preserve the vitality and function of the remaining radicular portion of the pulp.

Indications

1. Small pulp exposures in tooth with incompletely formed apices.
2. Socioeconomic reasons.
3. Vital pulp without history of irreversible pulpitis.
4. An emergency procedure until root canal treatment can be accomplished.

Contraindications

1. Irreversibly inflamed or totally necrotic pulp.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Radiographic evidence of canal and root apex closure occasionally accompanied by an increase in root length.
3. No breakdown of periradicular supporting tissues

4. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

NONSURGICAL ENDODONTIC PROCEDURES

ROOT CANAL TREATMENT

Endodontic therapy for permanent teeth involves a biologically based chemical and mechanical debridement of the root canal system to eliminate pulpal disease and to promote healing and repair of periradicular tissues. The debridement and shaping of the canal system is followed by obturation with a biologically acceptable nonabsorable semisolid or solid core root canal filling material.

All canals are shaped, cleansed, and disinfected using aseptic technique. Proper access is dictated by the size and shape of the pulp chamber as well as by the tooth position in the arch. In all cases, the entire roof of the chamber must be removed. Debridement, enlargement, and disinfection of all canals and obturation are accomplished under rubber dam isolation. When indicated, microbial culture and sensitivity determinations are used.

Obturation is the three-dimensional filling of the entire root canal system as close to the cemento-dentinal junction as possible. Minimal amounts of root canal sealers, which have been demonstrated to be biologically compatible, are used in conjunction with core filling material to establish an adequate seal.

It is recognized that root canal instruments will fail occasionally due to manufacturing deficiencies beyond the control of the practitioner. When instrument failure occurs in a root canal, the remainder of the root canal space should be sealed with a biologically acceptable non-restorable semi-solid or solid core root canal filling material. The patient must be informed of the complication.

Indications

1. Carious pulp exposure on a permanent tooth.
2. Vital, irreversibly inflamed pulp.
3. Tooth with necrotic pulp.
4. Extensive loss of tooth structure where restorative considerations exist.

Contraindication

Pulp is vital, but with reversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e., without gross overextension or underfilling in the presence of a patent canal; no ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, within 4 years the recall radiographs should demonstrate return to an intact lamina dura and a normal periodontal ligament space around the entire root or roots under observation.
4. If a tooth had a normal periodontal ligament space and an intact lamina dura around the root or roots at the time of obturation, recall radiographs taken 6 months or later postobturation should demonstrate a similar appearance.

ENDODONTIC RETREATMENT

Retreatment is preferred to surgical retrofilling in teeth where the root system is accessible and amenable to reinstrumentation and obturation. Retreatment involves removal of the previously
30 placed obturation materials in addition to the procedures normally used in orthograde endodontic treatment. Post removal may also be necessary. Further efforts may be required to correct radicular defects, ledges, calcifications, and separated instruments.

Retreatment cases vary greatly in complexity, requiring greater effort, time, and skill, and should be undertaken with due regard to practitioner ability and expertise. Retreatment may need to be augmented by other procedures such as apexification or transmucosal intervention.

Indications

1. An incompletely debrided or filled root canal system with a radiographically observable unfilled root canal space.
2. Cases of unresolved periradicular pathosis and radiographic evidence of a deficiency in the quality of root canal filling.

3. Cases where removal of existing obturation materials as dictated by anticipated restorative or prosthetic procedures.
4. Cases where persistent symptoms are associated with a previously treated tooth and there is reason to question the adequacy of previous endodontic debridement and/or obturation.
5. Evidence of prolonged coronal leakage into the root canal system.

Contraindications

1. Persistent apical inflammation despite evidence of adequate debridement and obturation and in the presence of an adequate cast restoration.
2. Presence of a vertical root fracture.
3. Calcification, separated instrument, and/or other errors precluding access to apical canal system.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e. without gross overextension or underfilling in the presence of a patient canal. No ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, then the recall radiographs should demonstrate a return to an intact lamina dura and normal periodontal ligament space around the entire root or roots under observation. If a tooth had a normal periodontal ligament space and intact lamina dura around the root or roots at the time of obturation, the subsequent postoperative radiographic appearance should remain the same.

APEXIFICATION

Apexification is a method of inducing apical closure or apical development of the root or roots of an incompletely formed permanent tooth with a pulp. It may involve several treatments over an extended period of time. Calcium hydroxide compounds are commonly used for this purpose. When root closure is complete, endodontic therapy must be performed.

Indications

1. Root pulp necrotic, with or without apical periodontitis.

Contraindications

1. Pulp vital.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic evidence of apical closure without supporting tissue breakdown.
3. No lateral root surface pathosis.
4. Healing of periradicular pathosis.

SURGICAL ENDODONTIC PROCEDURES

INCISION AND DRAINAGE - SOFT TISSUE

Incision and drainage is a surgical procedure designed to release accumulated byproducts of tissue breakdown, collect samples for bacteriologic analysis, and provide a more favorable gradient and pathway for drainage.

Indications

Acute swelling with localized fluctuance.

Contraindications

1. No abscess localized or fluctuating.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of accurate symptoms.
3. Reduction of acute cellulites with localized fluctuance.
4. Return to normal soft tissue architecture.

INCISION AND DRAINAGE - SOFT AND HARD TISSUE

Incision and drainage through both the soft and hard tissues is a surgical procedure performed to liberate accumulated byproducts of tissue breakdown by surgical reflection of the soft tissue and penetration of the cortical plate in the periradicular area.

Indications

1. For the relief of pain caused by a buildup of fluid within the bony tissue.

Contraindications

1. Fluctuating abscess that can be localized and drained.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of acute symptoms.
3. No damage to root structure because of the procedure.
4. Soft tissue closure over the surgical site without fenestration.
5. No damage to the alveolar bone, roots of adjacent teeth, or other anatomical structures.

PERIRADICULAR CURETTAGE

Periradicular curettage consists of the removal of soft tissue and/or foreign material around the root apex without root end removal.

Indications

1. A marked apical over extension into the periradicular tissue of filling materials, that acts as an irritant.
2. A periradicular lesion that is enlarging after acceptable root carnal treatment, as noted on follow-up radiographs.
3. A persistent periradicular lesion that has not decreased in size one or two years after the completion of root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases when a biopsy or surgical exploration of the area is deemed necessary.

Contraindications

1. As the sole procedure for treatment of endodontic failures without addressing the cause.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the apex of the treated root(s) has a normal appearance with reestablishment of a normal periodontal ligament space.
3. No damage to adjacent teeth or anatomical structures.
4. No sinus tract present.

APICOECTOMY

Apicoectomy is a surgical procedure in which part of the tooth root apex is removed to evaluate or improve the apical seal of the root canal filling; to facilitate access for creation of a root end preparation for a retrofilling; to allow for curettage behind the root; or to remove a portion of the root that cannot be obturated because of severe curvature of the root, calcification of the root canal space, etc. This procedure may include curettage of the apical tissue.

Indications

1. A marked apical or lateral over extension of filling materials into the periradicular tissues.
2. A periradicular lesion that is enlarging as noted on follow-up radiographs.
3. A periradicular lesion that has not decreased in size one or two years after root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases where apical curettage reveal an inadequate seal of a previously filled root.
6. An unfilled apical portion of the root canal system not accessible from a coronal approach.
7. Roots that cannot be retreated nonsurgically because of an obstruction such as a post or a separated **instrument.**

Contraindications

When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.

2. Alveolar bone at the apex of the surgically altered root(s) should have normal appearance with reestablishment of the normal periodontal ligament space.
3. Sinus tract, if previously present, has healed.
4. No damage to adjacent teeth or anatomical structures.

RETROFILLING

Retrofilling is an additional procedure following apicoectomy by which a cavity is prepared in the root end or lateral aspect of the root and a biologically acceptable filling material is placed into that prepared cavity.

Indications

1. Correction of respective defects of the root.
2. Cases where the dentist is unable to negotiate a canal in a routine manner because of iatrogenic problems or anatomic complications of the canal system.
3. Previously treated teeth where an inadequate apical seal is indicated by a periradicular lesion which is enlarging or has not decreased in size over a two year period after completion of root canal filling.
4. A tooth that has periradicular symptoms or pathosis and had a post crown which cannot be removed.
5. Treatment of root perforations.
6. Persistent or recurrent signs and/or symptoms of laterial or periapical pathosis which cannot be sealed by a nonsurgical approach.

Contraindications

1. When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the site of repair of the treated root(s) should have normal appearance with reestablishment of the periodontal ligament space.

3. Retrofilling material should be within the confines of the root and should seal the root canal(s) and isthmus areas if present.

4. Scatter of retrofilling material into the surrounding bone should be avoided.

5. No damage to adjacent teeth or anatomical structures.

BIOPSY

A biopsy involves the surgical removal of a hard or soft tissue specimen for microscopic examination.

Indications

1. Tissue or foreign material is removed at or near the surgical site.

2. Unusual tissues are noted on clinical or radiographic examination.

3. A medical history indicates the merits of biopsy of all tissues removed. (See Oral Pathology Tissue Management)

Contraindications

1. For apical periodontitis of obvious or probable endodontic origin which would be treated by root canal treatment or nonsurgical treatment. (See Oral Pathology Tissue Management)

Outcomes Assessment

1. To establish or confirm a diagnosis by microscopic examination of tissues or foreign materials.

HEMISECTION AND BISECTION

Hemisection and Bisection (Bicuspidization) are surgical procedures that are used to separate a portion of the crown and one or more of the roots of a multirooted tooth. Both procedures are most commonly performed on mandibular molars. Hemisections may, however, be performed on maxillary molars or maxillary bicuspids. The separated segments may be removed or restored. In certain instances it is feasible to section a mandibular molar into two distinct separate roots.

34 Subsequently, the separate roots are restored as though each root was a bicuspid root. This procedure is commonly called a bisection.

Hemisection requires root canal treatment on all remaining roots. Bisection requires root canal therapy on all canals of each root. In each case, it is preferable to complete the root canals

fillings before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Crown fracture extending into the furcation.
4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and apical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root which is to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, recurrent periradicular pathosis, or periradicular inflammation where nonsurgical treatment or periradicular surgery is not possible.
8. Inoperative or uncorrectable resorptive defects of the root.
9. Furcal perforation.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of a furcation and periodontal pockets; total amputation of the coronal portion of the tooth that is associated with the root to be removed.
3. Adequate structure supporting the remaining roots(s) to maintain tooth function.
4. Remaining root in satisfactory condition.
5. Adequate root canal fillings in the remaining root.

ROOT AMPUTATION

Root amputation is the removal of a root of a multirooted tooth without the corresponding portion

of the crown when insufficient periodontal supporting tissue warrants the removal of this section of the tooth.

Root amputation requires root canal treatment of all remaining roots, preferably before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Fractures extending into the furcation.

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4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and periapical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, periradicular inflammation, or periradicular pathosis where nonsurgical root canal therapy or periradicular surgery is not possible.
8. Inoperative or uncorrectable root resorptive defects.
9. Furcal or stripping perforations.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of the furcation and periodontal pockets.
3. Adequate supporting structure surrounding the remaining roots to maintain tooth function.
4. Adequate root canal fillings in remaining root(s).
5. Seal of all external openings into the pulp chamber.
6. Elimination of pre-operative signs and symptoms of pathosis.

REPLANTATION OF AVULSED TEETH

Replantation of the avulsed tooth involves the replacement of a tooth into its natural alveolus after it has been accidentally avulsed or luxated out of its alveolar socket. The goal is normal reattachment of the periodontal ligament and the return of normal tooth function. Success depends upon accomplishing the replantation as soon as possible after the accident and keeping the root moist during the extraoral period. The involved teeth should be stabilized for a period of time. Pulp tissues should be removed within two weeks following the injury. The intracanal treatment usually consists of placement of calcium hydroxide, which may need to be replaced periodically, followed by placement of an acceptable root canal filling material. These teeth should be periodically re-examined following replantation.

Indications

1. Tooth avulsed due to trauma.

Contraindications

1. Tooth with additional fractures compromising future root canal treatment.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic placement of tooth into the socket.
3. Minimal resorption of tooth root structure.
4. No ankylosis.
5. No breakdown of periradicular supporting tissues.
6. Maintenance of the tooth as a firm, functional member of the dentition.

INTENTIONAL REPLANTATION OR TRANSPLANTATION

Intentional replantation involves the removal of a tooth from its alveolar socket, the apical retrograde sealing of the canals or lateral root defect with an inert filling material, and the insertion of the tooth into its alveolar socket.

Intentional transplantation involves the same procedures as the replantation except the tooth is transplanted into the socket of another extracted tooth

These teeth should be periodically reexamined following replantation or transplantation.

Indications

1. Pulpectomy or root canal treatment is not possible, has not been successful, or when conventional surgery in situ is not advisable.

Contraindications

1. Conventional orthograde or retrograde endodontic therapy can be performed.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic orientation of tooth in its socket.
3. Elimination or absence of lateral root or periapical pathosis (some root resorption may occur).
4. No periodontal pathosis.
5. Root length minimally shortened.
6. Proper placement of the apical seal(s).
7. Maintenance of the tooth as a firm, functional member of the dentition.

BLEACHING PROCEDURES

Bleaching is the reduction of discoloration of a vital or pulpless tooth through the application of oxidizing agents to the available surfaces of the affected tooth. Success in restoration to normal tooth shade and translucency is dependent upon the cause, severity, and duration of the discoloration.

INTERNAL BLEACHING

Internal bleaching is indicated for discolored teeth that have previously received a root canal filling. Assuming that the canal seal is adequate, 30 to 35 percent hydrogen peroxide, along with other activating agents, is used to affect the oxidation process.

Indications

1. Discolored teeth which have previously received a root canal filling.

Contraindications

1. Tooth has root filling of poor quality.
2. Extensive restorations of crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. Improved translucency.
4. No cervical external root resorption.

37 EXTERNAL BLEACHING

External bleaching is indicated for treatment of discolored enamel. It can use acid conditioning procedures along with oxidizing agents to lighten affected teeth. These agents are applied to the external surface of the tooth. This procedure is commonly indicated for teeth that are discolored because of endemic fluorosis or tetracycline staining.

Indications

1. Discolored vital tooth with normal pulp.

Contraindications

1. Extensive dental restorations.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. No cervical external root resorption.

RESTORATIVE DENTISTRY

Definition of Restorative Dentistry

The discipline of Restorative Dentistry is that area of dental practice concerned with the diagnosis, prevention, interception, preservation and treatment of natural teeth defects by restorations and replacement with fixed partial dentures. These defects may include dental caries, erosion, abrasion, attrition, hypoplasia, developmental anomalies, hypocalcifications, discoloration, trauma, and missing teeth. Treatment goals are to restore the natural dentition to normal health and function. These goals can offer significant challenge and great satisfaction to both patient and clinician by transforming a poorly functioning masticatory system to an attractive, comfortable and healthy orofacial unit. Success requires meticulous attention to detail

from the initial patient interview through treatment planning and operative procedures into a planned schedule of follow-up care. Restorative treatment spans an age range from adolescence to geriatric patients. It also involves an array of clinical and laboratory procedures, thereby testing the depth of knowledge and experience of the clinician.

PIT AND FISSURE SEALANTS

Pit and Fissure Sealants protect caries-susceptible tooth surfaces least benefited by fluoride. Sealants can play a significant role in the prevention and control of dental caries in pits and fissures of primary and permanent teeth. Sealants should be placed as soon as possible after tooth eruption when isolation can be achieved without moisture contamination.

Indications

1. Non-carious or questionable carious primary or permanent, premolar and molar teeth with deep pits and/or fissures, and in the cingulum area of maxillary incisors with deep lingual pits and/or fissures.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Obvious dental caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the sealant.
2. Normal occlusal relationship maintained.
3. Sealant remains intact and covers susceptible pits and fissures.

PREVENTIVE RESIN RESTORATION

Preventive resin restorations are small, distinct composite resin restorations that are used to restore carious lesions followed by placement of occlusal sealants to protect susceptible, but uninvolved pits and/or fissures. Preventive resin restorations generally require minimal tooth preparation to remove caries from one or more susceptible sites in the pits and/or fissures.

Indications

1. Deep pits and fissures in primary and permanent teeth that are suspected of being carious or exhibit frank caries in isolated areas.

Contraindications

2. Normal occlusal relationships maintained.
3. The restoration remains intact and functions acceptably.

COMPOSITE RESIN (DIRECT PLACEMENT)

Composite resin is a polymer based resin matrix containing an inorganic filler particle phase. It is used to restore tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Composite resin is primarily used in anterior teeth where esthetics is a primary concern. However, it has also found use in posterior teeth where clinical conditions and patient preferences are appropriate.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, esthetic concerns, or replacement of defective restorations.
2. For use in Class I, III, IV, V or veneer anterior restorations.
3. For use in Class I, II, or V posterior restorations when:

- Esthetics is a primary patient concern.
- Appropriate isolation is attainable.
- Where there are some centric occlusal stops remaining in tooth enamel.
- Tooth reinforcement is required in situations where a cast restoration may not be an option.
- When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
- Restoration of the post-endodontically treated tooth in which minimal loss of tooth structure has occurred.
- Patient economic resources.
- Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.

3. When all occlusal centric stops would be restored with composite resin.

Treatment Goals/Expected Outcomes

1. No evidence of caries development beneath or adjacent to the composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

GLASS IONOMER

Glass ionomers are water-based cements consisting of alumnio-silicate glasses, interacted with a form of poly (alkenoic) acid, with or without a polymer based resin matrix. Glass ionomers are used to restore tooth defects from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Primary use for the glass ionomer is in clinical situations where adhesion to tooth is required and fluoride release is a clinical benefit.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I (not including the occlusal surface), III or V restorations.
3. Restoration of root surface carious lesions.
4. When fluoride release may be beneficial.
5. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restorative material to tooth is required.
6. When esthetics is a consideration.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.
3. When occlusal centric stops or proximal contact areas would be restored with glass ionomer.
4. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

Outcomes Assessment

1. No caries development beneath or adjacent to the glass ionomer restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

41 CAST GOLD INLAY

An indirect restorative procedure using cast gold dental alloy primarily in intracoronal restorations. The cast gold inlay is used to restore conservative tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. Where patient has an occlusal function or needs a proximal contour that exceeds the capacity of dental amalgam or composite resin as suitable restorative material options.
4. When specific tooth contours are required, i.e. axial contours necessary for fabrication of a clasp on a removable partial denture.
5. A retainer for an etched metal restoration.
6. Patient preference.

Contraindications

1. When there is insufficient sound tooth structure to support and retain the restoration.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. Where esthetics is a primary concern.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the cast gold restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. Pulp vitality maintained.

4. The restoration remains intact and functions acceptably.

INDIRECT COMPOSITE RESIN INLAY/ONLAY

An Indirect Composite Resin Inlay/Onlay is an indirect restorative procedure using composite resin. Usually the composite resin will have received an additional extra-oral cure to improve its clinical performance. This is a restoration that is bonded to the tooth with a composite resin luting material.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV, V or veneer restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. Tooth reinforcement is required when a cast restoration is not an option.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Esthetics.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When all occlusal centric stops would be restored with composite resin.
7. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

9. Patient preference.
10. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the indirect composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN INLAY/ONLAY

A Porcelain Inlay/Onlay is an indirect restorative procedure using dental porcelain as the restorative material. This is a restoration that is bonded to the tooth with a composite resin luting material and is primarily limited to use in the posterior teeth where esthetics and tooth reinforcement are indicated.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV or V restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. When tooth reinforcement is required in situations where a cast restoration is not an option.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When there is insufficient sound tooth structure to support and retain the restoration.

7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the porcelain inlay/onlay.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN VENEER

The porcelain veneer is primarily an esthetic restoration involving the incisor teeth and sometimes the maxillary premolars. A labial veneer is constructed in the dental laboratory and is bonded to the tooth with a composite resin luting material. These restorations are used to modify tooth color and contour.

Indications

1. For use on facial surfaces of incisor and maxillary premolar teeth.
2. When there is sufficient tooth enamel remaining (75% of the restored tooth surface).
3. Esthetic improvement of tooth color and/or contour.
4. Closure of anterior diastemas.
5. Normal occlusal function and posterior occlusal support.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. When proper isolation of the operating field is not possible.
4. When there is insufficient sound tooth structure, enamel, to support and retain the restoration.
5. Patient economic resources.
6. Unrealistic patient expectations.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal functions and tooth contours are maintained.

3. Desired, achievable, esthetic result obtained.
4. The restoration remains intact and functions acceptably.

PARTIAL CROWN COVERAGE-ALL METAL (Cast Onlay, 3/4 Crown, 7/8 Crown)

The Partial Crown Coverage-all metal restoration is an indirect restorative procedure which requires some cuspal coverage but less than full replacement or coverage of the enamel crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations involving a significant amount of the clinical crown.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (ALL METAL)

The Full Crown Coverage-all metal restoration is an indirect restorative procedure involving full replacement of the functional clinical crown.

Indications

1. For restoration of tooth defects from extensive dental caries, tooth fracture, or to replace defective restorations.
2. Short clinical crowns that would compromise retention of partial coverage restorations.
3. Restoration where definitive occlusal support is to be created and maintained.
4. Retainer for a fixed partial denture.
5. Retainer and rest seat for removable partial denture clasp.
6. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal or endodontic prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (Porcelain Fused to Metal)

The Full Crown Coverage-(Porcelain Fused to Metal) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. A cast metal core is veneered with dental porcelain to provide an esthetic and functional outer surface.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or to replace defective restorations.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is not sufficient sound tooth structure to support and retain the restoration.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Normal occlusal relationships and crown contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (All Porcelain)

The Full Crown Coverage-(All Porcelain) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. The crown is fabricated from different porcelains without a metal substructure. These restorations are usually limited to single unit crowns and are indicated when maximum esthetics is desired for a full coverage crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or replacement of defective restorations.
2. When full coverage is required and the esthetic demand is paramount.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Excessive or abrasive occlusal function.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the Full Crown Coverage-(All Porcelain) restoration.
2. Normal occlusal functions and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

IMPLANT SUPPORTED CROWNS

An implant supported crown(s) is a treatment option for patient with partial edentulism. Prosthodontic evaluation is performed to determine the patient's suitability for an implant supported crown(s). Surgical assessment is performed to determine if contraindications exist for implant therapy.

Indications

1. Lack of mastication

2. Impaired speech.
3. Esthetics.
4. Partial edentulism.
5. Unsatisfactory existing prostheses.

Contraindications or Risk Factors Affecting Quality of Treatment

1. Bone factors (quantity and quality).
2. Pre-existing systemic conditions.
3. History of radiation therapy.
4. Insufficient interarch space.
5. Active periodontal disease.
6. Tobacco use.
7. Biomechanical loading factors.
8. Occlusal factors.
9. Current and past pharmaceutical therapies.

Outcomes Assessment (favorable)

1. Long-term preservation of supporting bone.
2. Improved function.
3. Improved speech.
4. Improved esthetics.
5. Reduced pain during function.
6. Preserve tooth structure.
7. Improved intra-arch and interact integrity and stability.

AMALGAM/COMPOSITE RESIN CORE BUILD-UP RESTORATION

A core restoration replaces tooth structure before crown fabrication. Without a core, there would not be enough remaining clinical crown for adequate crown retention and resistance form. Core restorations are fabricated from dental amalgam or composite resin and may or may not involve a post.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. A tooth with inadequate coronal structure to provide retention and resistance form for a crown restoration.
3. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal restoration.
4. There is enough tooth structure to provide support and retention for dental amalgam or composite resin.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient tooth structure remaining to adequately support and retain the core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. The restoration remains intact and continues to function acceptably.

POST RESTORATION

A Post is a restorative procedure in which part of a metallic post is placed into the prepared space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post can be either a prefabricated post or one which is custom made to adapt to the specific root canal space. The post provides a retentive base serving as a portion or all of the retentive form upon which a core build-up is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of coronal tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or extensive dental amalgam or composite resin restoration.

3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured form the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic apical seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

POST/CORE CAST METAL RESTORATION

A post is placed in an endodontically treated tooth to provide retention for the overlaying core of restorative material. The core serves as a foundation for the final tooth restoration. It is not intended for tooth reinforcement. When there is insufficient remaining tooth structure to adequately retain a direct placement post/core restoration, the cast metal post/core is a viable clinical alternative.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal crown.
3. There is insufficient tooth structure to provide retention for the core component of the restoration.
4. A prepared post space that permits 3-6 mm of undisturbed root canal filling material as measured from the tooth apex.
5. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately support a post and core restoration.
3. Inadequate crown to root ratio of the final restoration.
4. Tortuous canals or thin, ribbon shaped roots.
5. Poor periodontal prognosis for tooth retention.
6. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the case metal post/core restoration.
2. Absence of root fracture.
3. No compromise of endodontic apical seal.
4. The observed restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

NON-METALLIC POST RESTORATION

The non-metallic post restoration is a prefabricated post restoration that is either ceramic or fiber reinforced polymer material. The non-metallic post is placed into the prepared post space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post provides the retentive base serving as a portion or all of the retentive form upon which a core buildup is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal. The non-metallic post is cemented using a total-etch / bonded technique.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or composite resin restoration.
3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured from the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

5. In anterior esthetic situations where metallic posts which block light transmission in the cervical area of the tooth resulting in "graying" of the free marginal gingival.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the bonded post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

ETCHED METAL RETAINERS

An etched metal retainer is an indirect restoration that achieves its retentive form from micromechanical bonding between tooth enamel and microporosities in the metal retainer. The luting agent between the etched metal retainer and tooth enamel is a composite resin material and is, therefore, subject to all the clinical requirements of a polymer bonded restoration. These restorations rely on the availability of adequate tooth enamel for retentive form.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations.
2. For restoration of partial crown coverage of metal based crowns.
3. Abutments for short span (less than 2 pontics) etched metal fixed partial dentures.
4. Abutments for tooth splints.
5. Restorations to modify tooth contours facilitating design of a removable partial denture.

Inadequate periodontal support for abutment teeth, poor oral hygiene, inadequate clinical crown contours and/or strength of abutment teeth.

Outcomes Assessment

1. Partial dentures are retentive, stable; acrylic bases are adequately extended.
2. Patient is satisfied with esthetics, function, and comfort.
3. Remaining teeth and soft tissues are healthy.

INTERMEDIATE DENTURE

An intermediate or temporary denture for a patient who requests immediate replacement of teeth following extraction of remaining teeth. The intermediate denture is for esthetics more than function.

Indications

A patient who wants to maintain esthetics immediately after extractions.

Contraindications

Patients requiring extensive recontouring of alveolar bone or removal of tori.

Outcome Assessment

1. Dentures are retentive and stable.
2. Vertical dimension, centric occlusion, and esthetics are preserved.

PROSTHODONTIC RECALL EXAMINATION

A prosthodontic recall examination is regularly performed to evaluate the fit and performance of the complete or partial denture and the patient's oral health. Adjustments are made if needed; the denture or partial is polished, remaining teeth are examined and cleaned and prevention is reinforced.

Indications

A patient wearing removable partial or complete dentures.

Contraindications

None

Outcomes Assessment

1. Dentures and or partial dentures are stable and fit adequately.
2. Remaining teeth and soft tissue are healthy.
3. Any further treatment is explained to patient and treatment planned.
4. Preventive strategies have been reinforced to the patient.
5. Recall interval is agreed upon.

RELINE

A reline restores the tissue bearing surfaces of a denture base when base adaptation to the edentulous alveolar ridge is deficient. A reline can be performed on a complete or partial denture.

Indications

1. Lack of retention and/or stability of the maxillary or mandibular acrylic base due to resorption of the edentulous ridges or inadequate border extension.
2. Lack of retention and/or stability of the maxillary acrylic base due to an inadequate posterior palatal seal.

Contraindications

1. Retention and/or stability are affected by factors other than lack of tissue bearing surface adaptation.

Outcomes Assessment

1. Denture or partial is well extended, retentive, and esthetic.
2. Improved retention and stability result in patient satisfaction.

REBASE

Rebasing a denture replaces the original denture base to compensate for lost oral tissues while leaving teeth in their original position.

Indications

Denture teeth are positioned correctly and provide stable occlusion. The vertical dimension is correct and tissues are relatively healthy.

Contraindications

Dentures exhibit gross occlusal disharmony. Size, shade, and position of denture teeth are inappropriate or inadequate. The dentures have improperly extended borders

Outcome Assessment

1. Dentures are retentive, stable, and esthetic.
2. Occlusion is preserved and functional.

ORTHODONTICS

CLINICAL EXAMINATION

All patients of record should receive an initial cursory examination noting facial form and occlusal relationships to detect possible malocclusion. All candidates for limited orthodontic treatment must subsequently receive a comprehensive evaluation. Limited treatment is defined as conditions that can be treated by tipping mechanics and that generally are correctable within six to nine months including the retention phase. This normally limits treatment to minor anterior alignment, uncomplicated molar uprighting, crown lengthening by means of forced eruption, space regaining, and non-skeletal crossbite corrections. The following data are recorded in the chart: medical and dental histories; extraoral facial evaluation and classification; occlusal relationships; functional problems related to mastication, speech and mandibular range of motion. Students are expected to obtain consultations related to pathology, periodontal problems and restorative treatment needs. Active disease must be detected and corrected prior to orthodontic

Treatment.

Indications

A cursory analysis of facial form and occlusal relationships is required for all patients of record. The in-depth exam described above is for patients with specific limited orthodontic treatment needs.

Contraindications

1. There are no contraindications for the cursory clinical examination.

2. The more in-depth analysis may be unwarranted if the patient has no interest in further treatment or desires referral for comprehensive orthodontic treatment.

Outcomes Assessment

1. Occlusal and facial relationships, functional problems and the morphologic basis of malocclusion are summarized in the orthogonal format.

2. All data and interpretations are recorded on the 4-D form.

3. The patient's chief complaint, collection of consults, determination of interacting factors, and supplement records to permit a thorough, comprehensive diagnosis for treatment planning are properly documented.

RADIOGRAPHIC PROCEDURES

All candidates for limited orthodontic treatment must have a panoramic radiograph and periapical and bitewing films sufficient to determine general health, root form and position, periodontal status and developmental status of the dentition. Lateral or posterior-anterior cephalometric, or other films will be ordered as necessary to assess skeletal relationships in the appropriate planes of space.

Indications

1. All developmental patients who are candidates for limited orthodontic treatment will have at minimum a panoramic film, anterior periapical radiographs and bitewing radiographs.
2. All information and interpretations are recorded on the 4-D form.
3. The health and morphologic variables of root form and position are properly determined.
4. Cephalometric films are accurately exposed with the patient in natural head posture. Landmarks and tracings should reveal that the morphologic basis of the patient's dentofacial relationships are accurately and comprehensively determined.

ANALYSIS OF DIAGNOSTIC, HAND-HELD, STUDY CASTS

Properly trimmed hand-held study casts are required for all patients receiving limited orthodontic treatment. The casts facilitate a more in-depth analysis of the patient's occlusion, arch form and symmetry, alignment problems and tooth size. These are indicated for assessing space requirements and tooth size discrepancies (Bolton analysis).

Indications

1. Patients receiving limited orthodontic treatment.

Contraindications

None

Outcomes Assessment

1. Impressions are accurate and undistorted, stored properly in 100% humidity with a wax occlusal registration in centric occlusion (maximum intercuspation) with additional wax registrations if there are occlusal discrepancies.

2. Impressions are poured as soon as possible, trimmed, and labeled to orthodontic specifications.

3. Casts are not distorted and accurate measurements are made. Analysis of casts produces a comprehensive data base for a thorough and accurate treatment plan.

4. All appropriate measures and interpretations will be included on the 4-D form.

TREATMENT PLANNING PROCEDURS

Treatment planning in ORT 841 is based on developing a prioritized problem list in three planes of space along with an assessment of significant interacting factors that may influence treatment decisions and outcomes. Students will develop the problem list with possible solutions, determine the appropriate goals (long term) and objectives (sequence of treatment procedures in the short term) to reach the treatment goals. A biomechanical plan that includes the patient's

chief complaint, consultations from other disciplines, anchorage requirements, force diagrams in all planes of space and a sequence of appointments to meet treatment objectives. Fees, limitations and risks, and retention requirements are also included for discussion during treatment planning. Treatment planning sessions are scheduled with an attending faculty member away from clinical activity to minimize distractions.

Indications

1. All limited treatment must be treatment planned with a signed 4-D form.

Contraindications

None

Outcomes Assessment

1. The treatment plans have goals and objectives stated along with a description of risks and limitations, fees, estimated time for active treatment, retention needs, appointment sequence with mechanical plan, description of the appliance and force diagrams, and faculty signature.
2. Patients are informed of their treatment needs and understand clearly the limitations and risks of orthodontic treatment.
3. Students have a clear understanding of the goals and objectives of the treatment plan and have an in-depth understanding of appliance design and management for each appointment.
4. Treatment occurs in a timely manner and effective retention strategies are implemented.
5. The patient is satisfied with the results.

TREATMENT PROCEDURES FOR LIMITED ORTHODONTIC THERAPY

Limited orthodontic treatment for ORT 841 typically refers to therapy that can be accomplished in 6- to 9-months. Force systems are usually restricted to tipping movements of the crown, but can occasionally involve some root movement with approval of the attending faculty. These requirements most commonly involve the correction of minor anterior alignment problems, uncomplicated molar uprighting, crown lengthening procedures, space regaining, and non-

skeletal crossbites. Treatments may use fixed or removable appliances as indicated by force analysis, anchorage requirements and sometimes patient request.

ANTERIOR ALIGNMENT

Indications

1. Misaligned anterior teeth with anterior crowding (no more than 2 to 3 mm), excess spacing (less than 3 mm), or minor rotations (less than 10 degrees) may be candidates for anterior alignment procedures. These may relate to repositioning teeth for esthetic purposes alone, or for correction of minor occlusal interferences, or for improvement of crown positions for esthetic crown restorations, or for abutment placement for fixed or removable prostheses.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Severe underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
6. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improved alignment of anterior teeth that meets esthetic, functional, and restorative or periodontal treatment objectives.
2. Alignment objectives are met within the estimated time.
3. Minimal trauma to teeth and supporting structures.
4. Anchorage units are stable with minimum displacement.

5. Patient maintains acceptable oral hygiene and periodontal maintenance during treatment. Retention measures are in place.
6. Prognosis for additional dental treatment is good.
7. Patient is satisfied.

MOLAR UPRIGHTING

The primary purpose of molar uprighting is to improve the axial inclination of a tipped molar that will serve as an abutment for a fixed or removable partial denture.

Indications

1. Tipped molar planned as an abutment tooth.
2. Eliminate unfavorable root proximity.
3. Eliminate or reduce periodontal pockets to enhance post treatment maintenance.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Serve underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
5. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improvement of the axial inclination of a tipped molar to facilitate restorative and periodontal treatment and maintenance.

2. Treatment did not cause excess occlusal stress or cause significant vertical bite opening. (Frequent checks and occlusal adjustments are expected.)
3. Anchor units show minimal change, unless specific changes were planned.
4. Molar is uprighted to the desired position with minimal trauma to roots and supporting structures and with minimal occlusal interferences.
5. Treatment should be completed within an appropriate time interval and the prognosis for prosthetic treatment should be good.
6. Following active treatment, the uprighted molar is properly stabilized for a minimum of 6 weeks prior to abutment preparations.

FORCED ERUPTION PROCEDURES FOR CROWN LENGTHENING

Forced tooth eruption is primarily an adjunctive procedure to create sufficient crown length to facilitate restorative and endodontic treatments. Additional gingival and alveolar bone recontouring may be required in order to establish level crestal bone and gingival margin height.

Indications

1. Fractured or carious tooth requiring additional crown height.

Contraindications

1. Unfavorable crown/root ration, uncontrolled periodontitis.
2. Untreatable pulpal disease.
3. Inadequate anchorage.
4. Poor root morphology.
5. Root resorption, root fracture.
6. Ankylosis.
7. Other negative factors are poor oral hygiene, active caries, poor patient compliance.
8. Unresolved systemic illness may also contraindicate orthodontic treatment.

Outcomes Assessment

1. Adequate extrusion of an unrestorable tooth to facilitate restorative and/or root canal treatment.
2. Minimal trauma to the tooth and supporting structures.
3. The tooth does not exhibit excessive mobility.

4. Minimal unwanted changes in the anchorage segments.
5. The tooth is stabilized for a minimum of 6 weeks prior to restorative treatment.

SPACE REGAINING

The most common indication is to regain space lost during the mixed dentition due to mesial drifting of the first permanent molar resulting from the premature loss of a second primary molar.

Indications

1. Mesial drifting of the first permanent molar.
2. Skeletal relationships should be Class I with a balanced soft tissue profile.

Contraindications

1. Underlying tooth size-arch size discrepancy.
2. Severe crowding and/or skeletal jaw discrepancies that require additional corrective measures.
3. Space loss greater than 3 mm.
4. Space loss associated with bodily tooth migration.
5. Poor patient compliance.
6. Poor oral hygiene.
7. Inadequate anchorage.

Outcomes Assessment

1. Normal molar occlusion with sufficient space for the erupting succedaneous tooth.
2. Adequate space maintenance to preserve tooth positions until gingival emergence occurs.

NON-SKELETAL CROSSBITE CORRECTION

Indications

1. Crossbites of dental origin that can be corrected by dental tipping forces.

Contraindications

1. Severe bilateral posterior crossbites and anterior crossbites in which there are dental compensations for Class III jaw relationships.
2. Poor patient compliance.
3. Poor oral hygiene.
4. Active disease states of the hard and soft oral tissues.

5. Unresolved oral habits.
6. Vertical malocclusions involving either an excessively deep bite or an anterior open bite tendency.

Outcomes Assessment

1. Correction of the crossbite within the estimated time with minimal tissue trauma.
2. Placement of appropriate retention for a minimum of 3 months.
3. Following retention the correction should exhibit some rebound but settle into a stable occlusion.
4. There should be no functional shifts.

ORAL AND MAXILLOFACIAL SURGERY

EXTRACTION OF AN ERUPTED TOOTH

Indications

1. Pulpitis or pulp necrosis.
2. Periodontal disease.
3. Periapical pathosis.
4. Nonrestorable tooth.
5. Infection/abscess.
6. Malpositioned tooth.
7. Extraction necessary for prosthetic treatment plan.
8. Extraction necessary for orthodontic treatment plan.
9. Tooth associated with pathologic lesion.
10. Supernumerary tooth.
11. Extraction related to or in conjunction with medical disease.
12. Patient refuses other therapy for financial or other reasons.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.

4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Adjacent tooth (teeth).
7. Degree to which caries is present.
8. Size and density of alveolar bone.
9. History of endodontic treatment.
10. Relationship of tooth to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Absence of pain.
2. Absence of infection.
3. Uncomplicated healing of surgical site.
4. Restored function.
5. Complete hemostasis.
6. Removal of pathosis, if present.
7. Limited period of disability.

TREATMENT OF ODONTOGENIC INFECTIONS, INCLUDING INCISION AND DRAINAGE

Indications

1. Symptoms: pain, swelling, trismus, chills, altered function, malaise, dysphagia.
2. Clinical findings: erythema, tissue induration, lymphadenopathy, purulence, fistula, fever.

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3. Other findings: caries, periodontal bone loss, periapical pathosis, osteolytic area, abnormal results of blood count, positive culture or Gram stain.

Factors affecting risk

1. Presence of major coexisting disease or systemic condition(s).

2. Presence of psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Extent of infection.
6. Direction and/or rate of infection extension.
7. Virulence of microorganism.
8. Susceptibility of microorganism to antibiotics.
9. Ability to gain access to affected areas.
10. Relationship of infection to vital structures.
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Eliminate acute and/or chronic infection.
2. Limit pain.
3. Restore function.
4. Preserve vital structures.
5. Prevent recurrence.
6. Limit period of disability.

MODIFICATIONS OF THE DENTOALVEOLAR PROCESS (EG. TORUS REMOVAL, ALVEOLOPLASTY, SOFT TISSUE MODIFICATION, TUBEROSITY REDUCTION)

Indications

1. Clinical findings of dentoalveolar soft tissue or bone abnormality.
2. Infection, ulceration, and/or pain.
3. Speech abnormality.
4. Masticatory dysfunction.
5. Dysphagia.
6. Interference with prosthetic treatment.

7. Periodontal disease.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Anatomical location, size, and extent of the abnormality.
7. Relationship of the abnormality to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
8. Quality of alveolar bone or soft tissue.
9. Ability to gain access to the surgical site.

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10. Lack of patient compliance.

Outcomes Assessment

1. Adequate soft and hard tissue base for prosthetic reconstruction or rehabilitation.
2. Improved physiological condition of dentoalveolar structures.
3. Restoration, retention, and function of previously diseased tooth or teeth.
4. Improved mastication, speech, and/or appearance.
5. Pain relief.
6. Absence of infection.
7. Limited period of disability.
8. No unanticipated loss of hard or soft tissues.

PRE-SURGICAL EVALUATION

Pre-surgical evaluation is performed to assess the patient's chief complaint and medical history, and review systems, physical examination, and laboratory studies.

Indications

1. Presentation of a patient to the oral and maxillofacial surgery clinic for evaluation, diagnosis, care, and/or treatment.

Factors affecting risk

1. Incomplete initial assessment.
2. Communication barriers (e.g. Language, cultural, communication disorders, altered mental status or level of consciousness).
3. Patient's guardian's/responsible party's failure to disclose.
4. Physical barriers (e.g. trismus, obesity).
5. Psychological barriers.
6. Degree of patient compliance.
7. Other factors that would reduce the clinician's ability to make a complete, accurate diagnosis.

Outcomes Assessment

Achieving assessment goals resulting in adequate knowledge upon which to base a diagnosis, treatment plan, and/or to safely render treatment using either no anesthetic, local anesthesia, or conscious sedation.

CONSCIOUS SEDATION, USING PARENTERAL AGENTS, NITROUS OXIDE, AND/OR ORAL MEDICATIONS

Indications

1. Need to minimally depress the level of consciousness, anxiety, and/or pain so that the patient can undergo a procedure.
2. Need to retain the patient's ability to independently and continuously maintain an airway and respond to physical stimulation and verbal commands.

Factors affecting risk

1. Degree to which the patient and/or family understand the etiology and course of disease or condition, therapy goals, and acceptance of proposed treatment.
2. Major coexisting disease or systemic conditions.
3. Psychological conditions or psychiatric diseases.
4. Patient age.

5. Infection or other pathology.
6. Noncompliance with NPO recommendation.
7. History of drug allergies or sensitivities.
8. Psychological aversion to intravenous or intramuscular injections.
9. History of substance abuse.
10. History of untoward reactions or complications with anesthetics.
11. Lack of patient compliance.

Outcomes Assessment

1. Diminution or elimination of anxiety during therapeutic procedure.
2. Procedure completed.
3. Lack of unintended change in patient's level of consciousness.
4. Return to preanesthetic physiological and psychological state within 12 hours following cessation of anesthetic agent administration.
5. Anesthetic experience deemed satisfactory by both patient and clinician.
6. Lack of other complications or sequelae requiring follow up care related specifically to the anesthetic (e.g. phlebitis).

ENDOSSEOUS IMPLANTS

Indications

11. tooth and/or root fracture
12. missing teeth due to trauma
13. previous extraction sites
14. spaces created by orthodontic movement
15. endodontic failures
16. restorative failures
17. extractions due to periodontal disease
18. non-restorable teeth due to caries (following extraction)
19. to avoid preparation of virgin teeth for bridge abutments
20. anchorage for orthodontic tooth movement

Factors affecting risk

1. Presence of bone and/or soft tissue infection or pathology.
2. Inadequate prosthetic or surgical treatment planning (Implant Consent and Treatment Planning Form (5D) not completed).
3. Inadequate bone quality and volume.
4. Psychological conditions or psychiatric diseases.
5. Patient age.
6. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
7. Systemic conditions that may interfere with normal healing process.
8. Inadequate oral hygiene.
9. Patient age.
10. Proximity of implant placement site to adjacent structures (eg, teeth, maxillary sinus, inferior alveolar nerve).
11. Lack of patient compliance.

Outcomes Assessment

1. Retained, stable, functional implant.
2. No evidence or peri-implant radiolucency (See Implant Radiographic Guidelines in Clinic Manual).
3. Peri-implant soft tissue health.
4. Patient satisfaction with function, asthetics, and ease of maintenance.
5. Limited period of pain and disability.

6. Patient (family) acceptance of procedure and understanding of outcomes.

ORAL PATHOLOGY

SOFT TISSUE EXAMINATION

All patients should receive a soft tissue examination of the oral cavity, tonsillar area and posterior pharyngeal wall, perioral tissue and upper neck. A dentist is also in a unique situation to observe the face which should be included in the visual examination.

This standard should apply to all new patients and recall patients after continuous dental treatment has been completed.

RADIOGRAPHIC EXAMINATION

All patients should receive a radiographic examination of the teeth and jaws prior to comprehensive dental treatment. Recall patients should undergo radiographic examination in accordance with published standards for periodic radiographic examination and signs and symptoms of disease.

Patients presenting with signs and symptoms of a disease process related to teeth, bone and maxillary sinus must have radiographs taken to help with the diagnosis and to determine the extent of the process. In addition, radiographs may be needed in evaluating soft tissue disease processes.

SOFT TISSUE AND RADIOGRAPHIC ALTERATIONS/ABNORMALITIES

All soft tissue and radiographic alterations from normal must be recognized, evaluated, diagnosed and managed appropriately. The diagnosis may require a variety of diagnostic tests and may require referral to additional health care providers. Management may be carried out by the original dentist or another health care provider.

TISSUE MANAGEMENT

All tissue removed from patients in the College of Dentistry and allied clinics undergoes gross and/or microscopic examination and findings placed in the patient record. Guidelines for facilitating this process are as follows:

A. Teeth with no attached soft or hard tissue and no abnormalities beyond caries

Example: Uncomplicated carious tooth

A gross description of the tooth and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of in compliance with human waste management standards.

B. Teeth with no attached soft or hard tissue and with variations or abnormalities excluding caries

Example: Dilaceration

Concrescence

A gross description of the tooth, a diagnosis and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of as in condition A.

C. Teeth with no attached soft and hard tissue and with abnormalities excluding caries in which a specific diagnosis of the condition is required

66 Example Dentinogenesis imperfecta

Dentinal dysplasia

The tooth is submitted to oral pathology for gross and microscopic examination.

D. Teeth with no attached soft and hard tissue and no abnormalities in patients with unexplained symptoms associated with the teeth

Example Premature exfoliation of teeth

The tooth is submitted to oral pathology for gross and microscopic examination.

E. Teeth with attached soft tissue

In general, soft tissue is sent to oral pathology for gross and microscopic examination. An acceptable exclusion is the situation of an impacted tooth with pericoronal tissue interpreted clinically as dental follicle.

Criteria for what represents normal follicular tissue and what is pathology may not be clear-cut, but submission to an oral pathology laboratory for microscopic diagnosis should occur if any of the following is present:

1. A radiolucency of more than .4 cm.
2. A radiolucency that exhibits a sclerotic border.
3. A radiolucency that extends along the tooth root surface.
4. A focal increase in the size of the radiolucency.

5. A radiolucency that is associated with resorption of adjacent teeth.
6. A radiolucency that contains radiopacities.
7. Soft tissue lining a distinct cavity.
8. A cavity with luminal contents.
9. Luminal surface vegetations and growths.
10. Thickened lining.

A tooth with tissue interpreted as follicle receives a gross description which is entered in the patient's progress notes by the attending dentist. The tissue is disposed of as in A. However, the submission of normal follicular tissue for microscopic confirmation is totally acceptable.

Tissue required for submission to oral pathology includes periocoronal, periodontal and radicular pathology.

F. Teeth with attached non-diseased bone

Example Traumatic extraction

A gross description of the tooth and bone, reason for removal and interpretation of the bone are included in the patient's progress notes by the attending dentist and the tissue is disposed of as in A.

G. Bone specimens

All diseased or abnormal bone is submitted for gross and microscopic examination. Acceptable exclusions include non-pathologic bone associated with tooth extraction and pre-prosthetic surgery.

H. Soft tissue

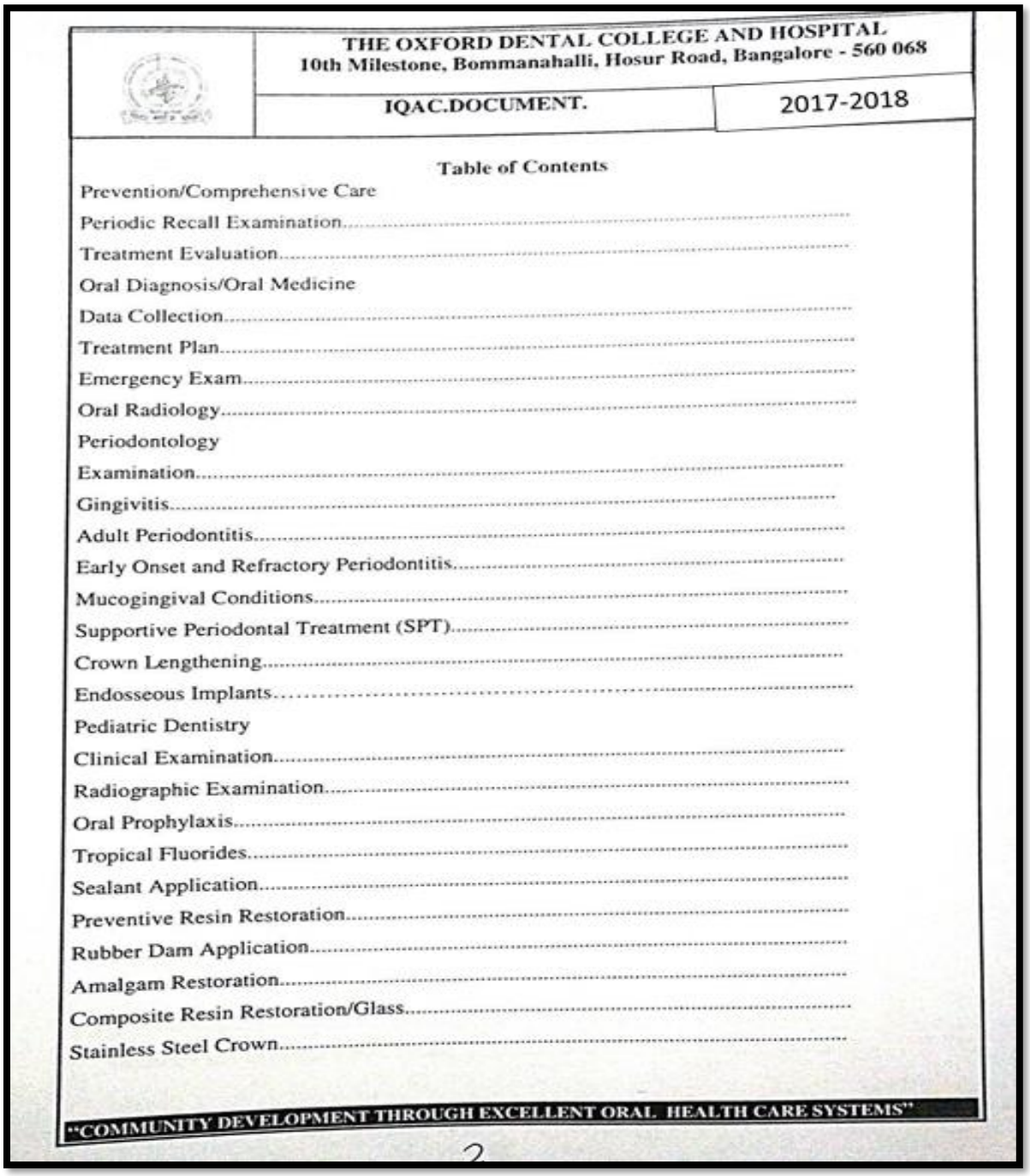
All altered or diseased soft tissue is submitted for gross and microscopic examination. Acceptable exclusions are inflamed pulp, dental follicle as described in E and essentially normal tissue such as mucosa that is removed for treatment of impacted teeth and typical inflammatory periodontal disease.

Tissue removed from routine periodontal procedures may not be submitted for microscopic examination if the clinical and radiographic presentation follows the typical pattern of periodontal disease. A description of the tissue and reason for removal should be entered in the

patient's progress notes by the attending dentist. The tissue should be disposed of as in A, but it is acceptable to submit this tissue for microscopic examination.

Tissue removed in the following situations must be submitted for microscopic examination:

1. Discrete enlargement of gingival soft tissue excluding routine gingivitis.
2. Gingivitis refractory to normal treatment.
3. Isolated alveolar bone defects.
4. Rapidly progressing alveolar bone loss.
5. Areas of exaggerated bone loss in chronic periodontitis.
6. Medical history indicating a systemic illness and/or cancer.
7. Signs and symptoms of a possible undiagnosed systemic illness.
8. Unexplained etiology.
9. Persistent active disease after appropriate therapy.



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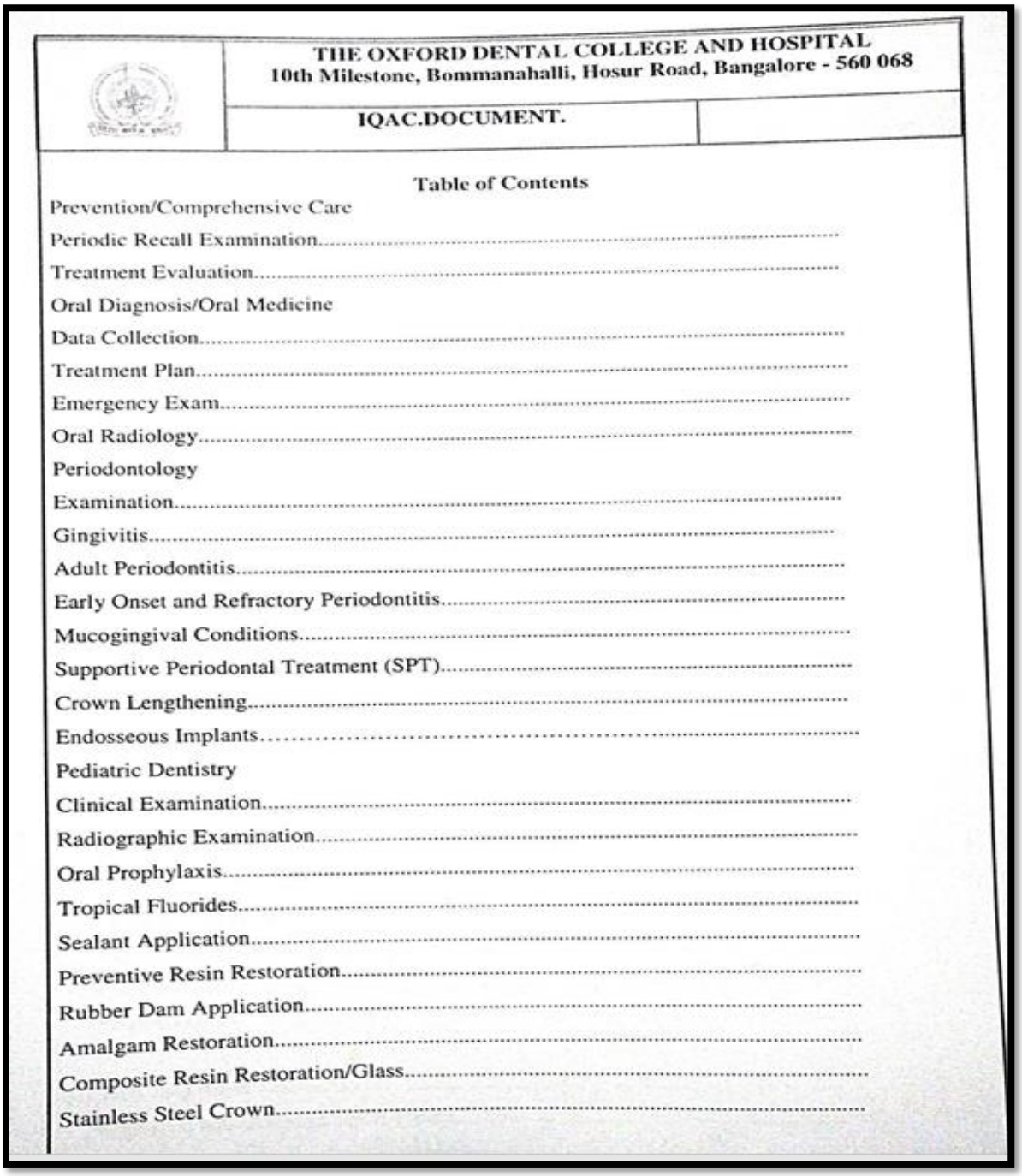

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Primary Tooth Extraction.....
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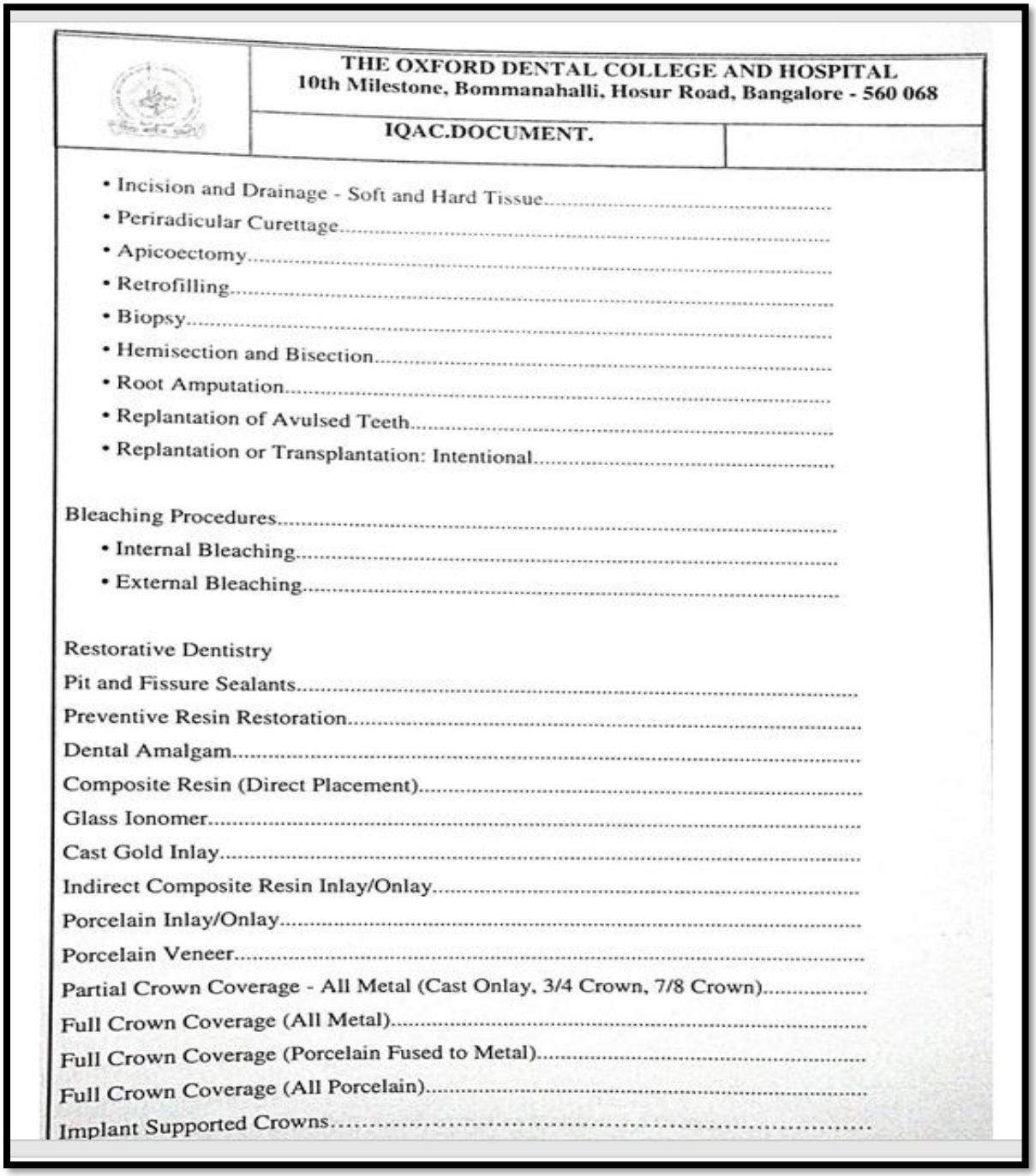

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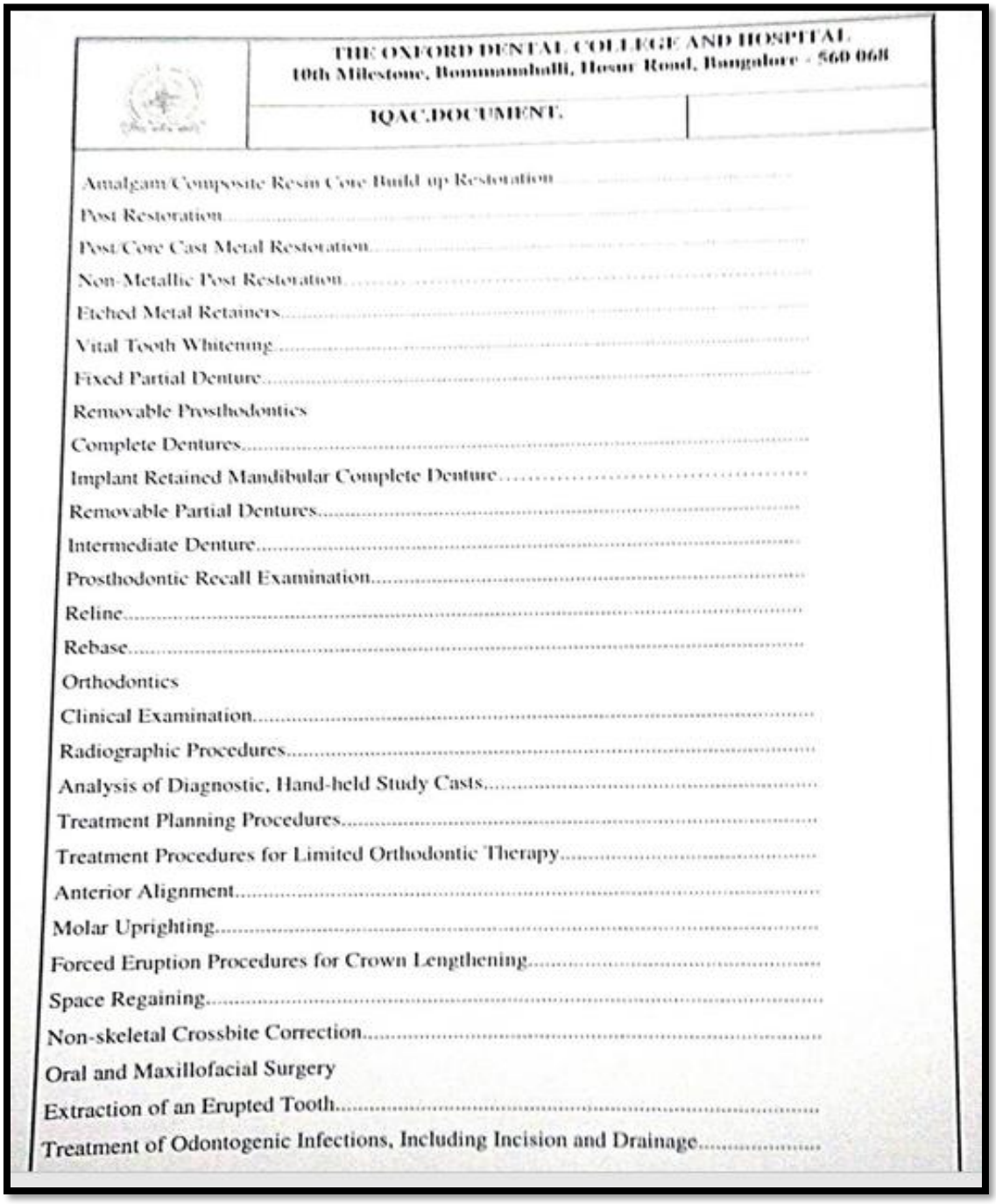

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Amalgam/Composite Resin Core Build up Restoration
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PREVENTION/COMPREHENSIVE CARE

Preventive strategies are part of all patient care at the College of Dental Sciences. Formal prevention includes Oral Hygiene Instructions, Topical Fluoride (when indicated), and Debridement during the Initial Oral Examination. Instruction for proper home care is provided for patients when treatment is planned, during treatment, and at periodic recall examinations. Patients receiving orthodontic treatment, fixed partial dentures, removable prosthodontics, periodontal treatment, and any other dental treatment are provided instructions for cleaning and maintaining their oral health before, during and after treatment.

Periodic recall examinations are scheduled for patients to evaluate hard and soft tissue and reinforce home care. Treatment evaluation is performed at the end of active treatment to evaluate the dental care provided for the patient and work with patients who require additional instruction in prevention.

PERIODIC RECALL EXAMINATION

The periodic recall examination is provided at appropriate intervals to assist patients in maintaining their oral health. Hard and soft tissues are evaluated and recommendations for treatment are made.

Indications

All patients who request follow-up care.

Contraindications

None

Outcomes Assessment

1. All hard and soft tissues are examined and pathology is noted.
2. Home care and appropriate preventive techniques are reinforced or introduced.
3. Appropriate recall interval is established and completed.
4. Patient's oral hygiene is adequate; periodontium and dentition are healthy.

TREATMENT EVALUATION

The treatment evaluation is done at the completion of treatment to assess the care that has been provided and make improvements if needed. Prevention is evaluated and reinforced if necessary at this time.

Indications

All patients who have completed treatment.

Contraindications

None

Outcomes Assessment

1. All dental care provided for the patient is clinically acceptable.
2. Oral hygiene and periodontal condition are satisfactory.
3. Oral hygiene is reinforced, if needed, and appropriate recall interval is established.

ORAL DIAGNOSIS/ORAL MEDICINE

Oral Diagnosis is that aspect of dentistry that involves collection and interpretation of pertinent data essential to diagnosing oral disease. Oral Medicine is concerned with the oral health care of medically compromised patients and with the diagnosis and non-surgical management of medically-related diseases or conditions affecting the oral and maxillofacial region.

The predoctoral oral diagnosis/oral medicine curriculum is designed to educate the dental student to:

1. Gather and organize the necessary information to provide comprehensive and accurate oral health care for the patient;
2. be competent at collecting and recording a medical history;
3. be competent at eliciting and recording a complete dental history;
4. be competent at taking, recording and interpreting vital signs (blood pressure, temperature, pulse, respiration);
5. understand the clinical signs and symptoms of major diseases of each organ system;
6. understand the impact of diseases of various organ systems on the oral cavity and on the delivery of dental care;
7. be competent to perform a head and neck examination, including extraoral soft tissues and intraoral hard and soft tissue;
8. understand the anatomic and biologic bases of the head and neck examination;
9. understand the potential impact of dental therapy on systemic disease;
10. understand performance of a musculoskeletal examination including TMJ function;

11. be competent in the assessment of a functional relationship of the teeth and jaws;
12. diagnose and deliver appropriate care in urgent dental situations;
13. take and accurately interpret diagnostic radiographs;
14. be familiar with the procedures necessary to interact with physicians and other health care providers in total patient evaluation and care; and
15. work with the patient in understanding and supporting personal oral health care.

DATA COLLECTION

Comprehensive data is to be collected on all patients in the student clinic in order to secure an accurate diagnosis and to plan for appropriate oral health care for the patient.

Indications

All patients presenting for care in the student clinic.

Contraindications

None

Outcomes Assessment

1. Medical history is evaluated and all aspects of the patient's health that may impact on the delivery of oral health care are identified.
2. All dental disease is identified through a hard tissue and soft tissue examination.
3. Vital signs are accurately taken and recorded on all patients.
4. Appropriate radiographs are available that are diagnostic and current.
5. Consultants are contacted when appropriate and comments recorded in the dental record.
6. All data is recorded in the dental record in a logical sequence on appropriate forms.

TREATMENT PLAN

A treatment plan will be developed for each patient commensurate with their needs and desires.

Indications

All patients requesting care in the student clinic

Contraindications

None

Outcomes Assessment

1. Proposed treatment is based on documentable clinical and/or radiographic findings.

2. Treatment is sequenced in a logical manner including severity of disease, patient desire, difficulty of procedure, etc.

3. Treatment options are discussed with the patient, fees are explained, and informed consent for proposed treatment is obtained.

4. Treatment needs are sequenced according to: (1) preliminary needs (immediate care required); (2) phase I, elimination of disease; (3) phase II, elective treatment including fixed and/or removable prosthodontics, and (4) recall, maintenance therapy.

EMERGENCY EXAM

Patients presenting with urgent needs will receive an emergency exam and treatment necessary to stabilize their condition.

Indications

Patients of record reporting to the student clinic and patients of non-record reporting to the urgent care clinic.

Contraindications

Patients whose needs are determined to be a non-urgent nature by the attending dentist or are too complex for the student dentist.

Outcomes Assessment

1. Patients of record with urgent needs will be evaluated and treated by their student dentist under the supervision of the appropriate discipline.

2. Patients of non-record will be seen in the urgent care clinic, stabilized, and referred to the appropriate source for follow-up care.

3. Patients whose needs are determined to be of a non-urgent nature will be referred to the appropriate source for follow-up care.

ORAL RADIOLOGY

Oral radiology is the area of dental practice that deals with the use of radiation, including diagnostic, therapeutic, and nuclear aspects of clinical practice and research. It is based on physical principles and biologic phenomena and is linked with most branches of dental science. Radiographic examinations are based on the needs of the patient, not the amount of time elapsed

since the last exposure, not on a periodic basis, and not for administrative purposes. This is in accordance with the guidelines for prescribing dental radiographs (FDA publication #88-8273).

INTRAORAL FILMS

Indications

Patients requesting oral health care.

Contraindications

Diagnostic films taken recently and available, patient is pregnant seeking elective care during first trimester of pregnancy with no clinical evidence of oral disease, or patient is edentulous with a recent panoramic film.

Outcomes Assessment

1. Technical ability will be confirmed by a radiographic product that is diagnostic and appropriate to the patient's status.
2. Processing of the films will be performed by the clinician with any processing errors identified and remediated by that clinician.
3. Selection criteria for the radiographic examination are stated and logical.
4. Radiographs are analyzed under the supervision of qualified personnel.
5. Radiographic safety will be demonstrated through appropriate use of shielding devices, accurate exposure dosage, and radiographic records for each patient.

SUPPLEMENTAL FILMS (EXTRAORAL, PANORAMIC, ETC.)

Indications

Patients seeking care with specialized needs. Requests for additional radiographs to supplement intraoral films or to replace these films includes, but are not limited to panoramic films on edentulous patients, TMJ series, Water's view, and lateral skull.

Contraindications

Information available on intraoral films, diagnostic radiographs available from another source, pregnant individuals seeking elective care during the first trimester.

Outcomes Assessment

These films will be ordered, exposed and interpreted under the supervision of qualified personnel.

PERIODONTOLOGY

"That specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes; the maintenance of the health, function and esthetics of these structures and tissues; and the replacement of lost teeth and supporting structures by grafting or implantation of natural and synthetic devices and materials" (1).

KNOWLEDGE

While periodontal disease diagnosis and treatment requires special knowledge, practitioners must possess a working knowledge of other disciplines to provide optimum care. Some of these disciplines are:

- Physiology
- Anatomy
- Histology
- Microbiology
- Immunology
- Pathology
- Restorative Dentistry
- Oral Medicine
- Pharmacology
- Systemic Disease
- Dental Implants
- Biochemistry
- Prosthodontics
- Pediatric Dentistry
- Endodontics
- Biomaterials
- Laboratory Medicine
- Critical Thinking

- Oral And Maxillofacial Surgery
- Radiology
- Oral Biology

INTRODUCTION

The goal of periodontics is to maintain or restore health in the periodontium. Arresting or slowing down the disease process may be alternative goals if "health" cannot be achieved. Generally the diseases dealt with are inflammatory and are categorized as gingivitis or periodontitis. The principle causative agents are intraoral microflora which colonize the tooth surface both supragingivally and subgingivally as well as the subgingival pocket area.

Transition of gingivitis to periodontitis does not always occur, although periodontitis is always preceded by gingivitis. Since the structures and microflora involved in gingivitis and periodontitis are different, treatment methodologies and outcomes will vary depending on the disease. Elimination of the bacteria present in gingivitis can lead to a complete reversal of the disease. Treatment of periodontitis always requires elimination of microflora but the periodontium will not return to its pre-diseased state.

9 The general practitioner should be able to diagnose health and disease, treatment plan, remove plaque, treat gingivitis, and manage periodontitis. Management may include nonsurgical treatment of early disease and working with a periodontist on a referral basis for treatment of all forms of periodontitis. The general practitioner should be well versed in multiple methods of patient control of oral microflora.

EXAMINATION

1. A thorough medical history should be taken on each patient. Various systemic diseases, conditions, and habits such as diabetes, hypertension, smoking and pregnancy can influence periodontal conditions and treatment. A complete list of all patient medications should be recorded, and their actions and interactions with drugs to be prescribed should be evaluated. Consultations with other health care professions should be obtained as needed.

2. A dental history should be obtained and any previous records and radiographs should be added to the current file. Contacts with previous dental practitioners may provide valuable information.
3. A head and neck extraoral examination should be performed. Abnormalities should be noted and appropriate referrals performed if necessary.
4. An intraoral examination of oral mucosa, tongue, floor of mouth, lips, palate, oropharynx, glands, and alveolus should be performed. Palpation should be utilized as required. All abnormalities should be noted and consultations obtained as needed.
5. Individual teeth, replacements, occlusion, caries, tooth position, pulpal status (as needed), restorations, and mobility should be noted. Diagnostic casts should be obtained.
6. Appropriate radiographs should be taken. A panoramic film and bite-wing radiographs are sufficient for analysis of the periodontium of a patient with gingivitis. Full mouth radiographs are required for patients with periodontitis.
7. The presence of plaque and calculus should be recorded.
8. The gingival and alveolar mucosa should be examined. Consistency, color and frenum insertions, probing depths, bleeding points, recession and furcation involvement should be recorded. The quantity of attached gingival should be noted.
9. Laboratory tests and additional radiographs should be obtained if needed.
10. Data should be analyzed and a diagnosis, treatment plan and prognosis formulated.

GINGIVITIS

Gingivitis is inflammation of the gingival by oral microflora (plaque) without attachment loss. Some or all of the following clinical findings may be present:

- Erythema
- Bleeding On Probing
- Contour Alteration
- Consistency Alteration
- Presence of Calculus
- Presence of Plaque
- Edema

Tooth position and existing restorative dentistry can be secondary contributing disease factors.

Treatment Goals

Return the gingival tissue to health by eliminating plaque, calculus and secondary contributing factors.

Methodology

1. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
2. Oral hygiene education, demonstration and evaluation.
3. Removal of microbial plaque, calculus and stain. This is typically performed by hand and/or ultrasonic instrumentation (scaling) and application of abrasive pastes.
4. Correction of secondary restorative factors. Examples may include:

- Overhanging Margins
- Open Margins
- Improperly contoured restorations
- Primary caries
- Secondary Caries
- Open Contacts
- Fractured Restorations

5. Correction of tooth malposition if possible.
6. Reexamination.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema and bleeding on probing should be evidenced if satisfactory treatment was rendered and patient oral hygiene was satisfactory. Gingival health should be present if these conditions exist.
2. If treatment is unsuccessful, additional instrumentation may be required and/or a change in frequency of instrumentation. A review of plaque control procedures with the patient as well as alternative plaque control measures may be required.

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ADULT PERIODONTITIS

"Periodontitis is inflammation of the supporting tissues of the teeth. It is usually a progressively destructive change leading to loss of bone and periodontal ligament or an extension of inflammation from gingival into the adjacent bone and ligament. Adult periodontitis usually has an onset beyond age 35. Bone resorption usually progresses slowly and predominantly in the horizontal direction. Well-known local environmental factors are prominent and abnormalities in host defense have not been found" (1). Clinical features may include some or all of the following:

- Edema
- Erythema
- Bleeding on Probing
- Suppuration
- Bone Loss (early to moderate up to 1/3, advanced > 6 mm)
- Furcation involvement (early to moderate-class i, advanced-class ii or iii)
- Tooth Mobility
- Radiographic Evidence Of Bone Loss
- Probing Depths (early to moderate up to 6 mm, advanced > 6 mm)
- Attachment Loss (early to moderate up to 5 mm, advanced > 5 mm)
- Localized or Generalized Presentation
- Early, Moderate And or Advanced Stages

Treatment Goals

Eliminate arrest or slow down the disease by the elimination and/or alteration of the oral microflora and secondary factors. Preservation of a healthy, comfortable, functional and esthetic dentition is the goal for each patient.

Methodology

1. Evaluate contributing factors such as smoking, diabetes, medications, and pregnancy. Eliminate as many contributing factors as possible.

12. Reexamination as deemed appropriate.

Surgery

1. The appropriate surgical modality will be determined by a periodontal faculty member, periodontal resident and the dental student.
2. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
3. Reexamination as deemed appropriate.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema, probing depths, and bleeding points if satisfactory treatment was rendered. Stabilization or gain of clinical attachment should also be evident during the clinical reexamination. Improvement may be seen in radiographic appearance.
2. Alteration of occlusal forces.
3. Effective patient oral hygiene.
4. Unresolved areas of periodontal disease may occur and be characterized by:
    - inflammation
    - increased probing depths
    - continued attachment loss
    - persistent bleeding on probing
    - persistent plaque deposition
5. Patient response is variable and treatment modalities may require modification or alteration as needed.

EARLY ONSET AND REFRACTORY PERIODONTITIS

These disease entities will receive treatment by periodontal residents and/or faculty.

MUCOGINGIVAL CONDITIONS

Mucogingival conditions are alterations of the normal relationship between the free gingival margin and the mucogingival junction. Alterations of morphology position and quantity of gingival may be present (1). Clinical features may include:

- Recession

- Lack of or reduction in keratinized tissue
- Lack or reduction in attached gingiva
- Probing depths which traverse the mucogingival junction
- Ridge defects

Treatment Goals

Decrease or eliminate root sensitivity, correct esthetic problems, eliminate pocketing and control or eliminate inflammation.

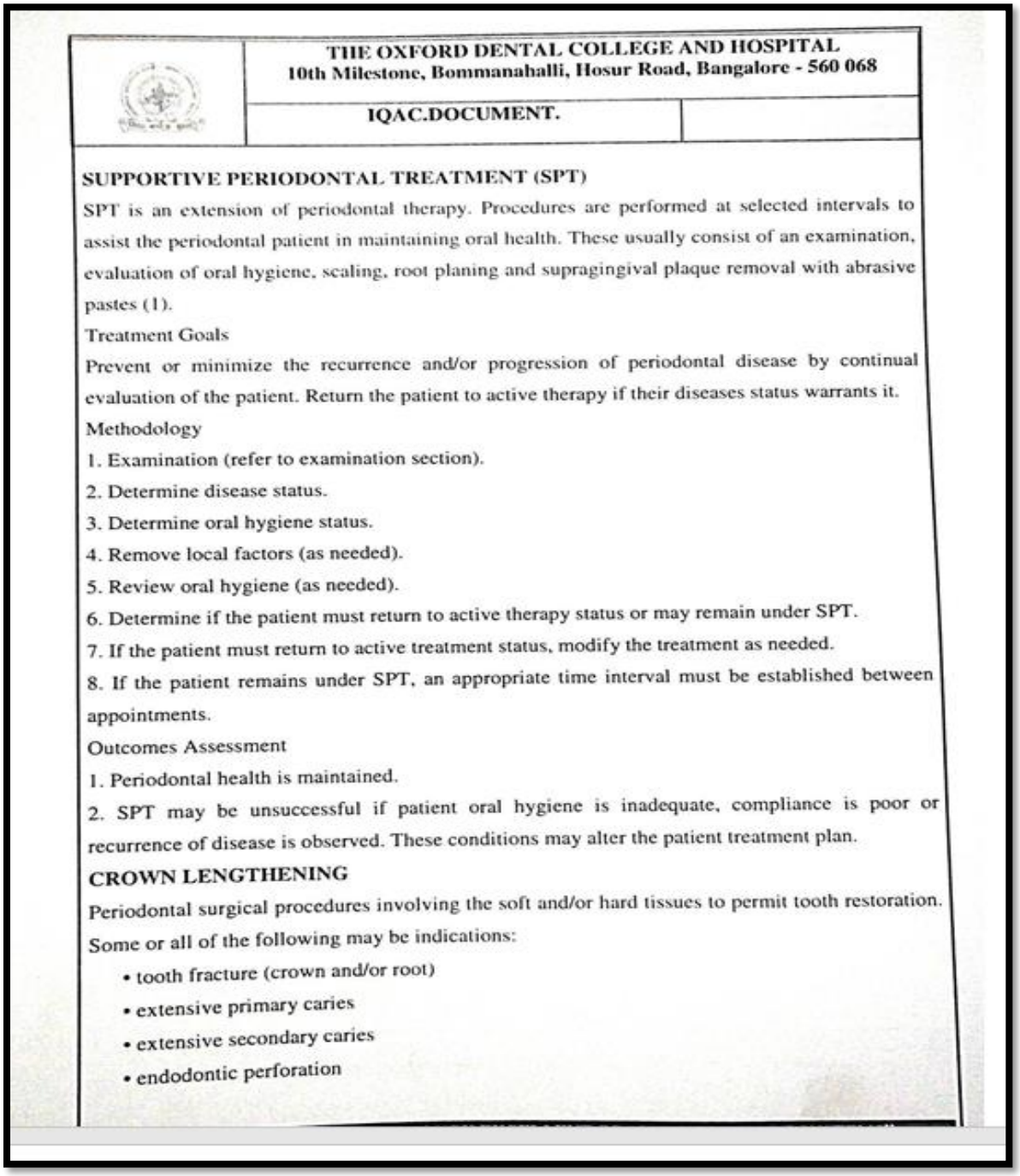
Methodology

Surgical procedures will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.

1. Eliminate or control inflammation through plaque control by improved oral hygiene and scaling and root planing.
2. Root desensitization.
3. Gingival grafting.
4. Root coverage (soft tissue).
5. Correction of trauma from occlusion.
6. Frenectomy or frenotomy.
7. Correction of tooth malposition.
8. Surgical procedures for probing depth reduction.
9. Surgical procedures for ridge augmentation.

Outcomes Assessment

1. Clinical signs of inflammation have been eliminated.
2. Esthetics are satisfactory.
3. Areas of recession may have been corrected.
4. Recession is not progressing.
5. Mucogingival defects have been corrected.
6. Successful treatment may not have occurred due to persistent inflammation or the persistence of mucogingival defects. Satisfactory results are not possible in all patients.



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SUPPORTIVE PERIODONTAL TREATMENT (SPT)

SPT is an extension of periodontal therapy. Procedures are performed at selected intervals to assist the periodontal patient in maintaining oral health. These usually consist of an examination, evaluation of oral hygiene, scaling, root planing and supragingival plaque removal with abrasive pastes (1).

Treatment Goals

Prevent or minimize the recurrence and/or progression of periodontal disease by continual evaluation of the patient. Return the patient to active therapy if their diseases status warrants it.

Methodology

1. Examination (refer to examination section).
2. Determine disease status.
3. Determine oral hygiene status.
4. Remove local factors (as needed).
5. Review oral hygiene (as needed).
6. Determine if the patient must return to active therapy status or may remain under SPT.
7. If the patient must return to active treatment status, modify the treatment as needed.
8. If the patient remains under SPT, an appropriate time interval must be established between appointments.

Outcomes Assessment

1. Periodontal health is maintained.
2. SPT may be unsuccessful if patient oral hygiene is inadequate, compliance is poor or recurrence of disease is observed. These conditions may alter the patient treatment plan.

CROWN LENGTHENING

Periodontal surgical procedures involving the soft and/or hard tissues to permit tooth restoration.

Some or all of the following may be indications:

- tooth fracture (crown and/or root)
- extensive primary caries
- extensive secondary caries
- endodontic perforation

2. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.

3. Oral hygiene education, demonstration and evaluation.

4. Removal of microbial plaque, calculus and stain (supragingivally and subgingivally). Typically performed by hand and/or ultrasonic instrumentation (scaling and root planning).

5. Local delivery of antimicrobials may be utilized secondarily.

6. Systemic delivery of antibiotics may be utilized secondarily.

7. Correction of secondary restorative factors such as:

- Overhanging Margins
- Open Margins
- Improperly Contoured Restorations
- Primary Caries
- Secondary Caries
- Open Contacts
- Fractured Restorations

8. Correction of other secondary factors such as:

- Poor Prosthetic Appliances
- Trauma from Occlusion
- Tooth Malposition

9. An appropriate time interval should be observed to allow for inflammation resolution and repair. A thorough periodontal reexamination should be performed including gingival characteristics, probing, and bleeding points. Evaluation of the patient should be performed and their disease status determined.

10. If periodontal therapy has resolved the periodontal disease, supportive periodontal treatment (SPT) should be initiated.

11. If periodontal therapy has not resolved the periodontal disease, further nonsurgical or surgical therapy should be performed as deemed appropriate.

- inadequate crown length for adequate preparation
- iatrogenic dentistry
- post-orthodontic extrusion

Treatment Goals

Provide adequate crown length, and maintain proper crown to root ratio while preserving the biologic width.

Methodology

1. Determination of need will be made by the periodontal and restorative faculty in conjunction with the periodontal resident and dental student.
2. Resective soft and/or hard tissue surgery.
3. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
4. Determine patient oral hygiene.

Outcomes Assessment

1. Post-operative crown length adequate for required post-surgical procedures.
2. Adequate patient oral hygiene.
3. Unfavorable results can be evidenced due to inadequate tissue resection, poor oral hygiene, inadequate crown to root ratio, and fractures requiring tooth extraction.

ENDOSSEOUS IMPLANTS

Replacement of (a) teeth (tooth) with (a) machined root form shaped titanium alloy to improve function and/or esthetics. The following may be indications for placement:

1. Tooth and/or root fracture
2. Missing teeth due to trauma
3. Previous extraction sites
4. Spaces created by orthodontic movement
5. Endodontic failures
6. Restorative failures
7. Extractions due to periodontal disease

8. Non-restorable teeth due to caries (following extraction)
9. To avoid preparation of virgin teeth for bridge abutments
10. Anchorage for orthodontic tooth movement

Treatment Goals

Provide the patient with 1) replacement function and/or esthetics in edentulous areas of the mandible and/or maxilla or 2) anchorage for orthodontic tooth movement.

Methodology

1. The determination of the appropriate treatment will be determined by clinical faculty in the appropriate disciplines which would generally be periodontics, restorative dentistry, prosthodontics, and orthodontics. The Implant Consent and Treatment Planning Form (5D) and financial arrangements must be completed before treatment begins.

2. The supervising periodontal resident and the dental student will be involved in the treatment plan.

3. Appropriate faculty, the periodontal resident, and the dental student will explain the treatment plan to the patient.

4. Existing periodontal disease in the dentition must be resolved prior to implant placement.

5. A plaque score of 25% must be achieved prior to implant placement.

6. Implant placement will be performed by the periodontal resident who will be assisted by the dental student assigned to the patient. The procedure will be performed in the periodontal graduate clinic under the supervision of the periodontal faculty.

Outcomes Assessment

1. The implant will be evaluated radiographically for adequate placement (See Radiographic Guidelines for Implant Patients in the Clinic Manual).
2. Following healing (3-6 months) the implant will be evaluated for mobility and probing depth.
3. Patient oral hygiene will be evaluated and corrected as required.
4. Radiolucencies, implant mobility, and increased probing depths are indications that an implant is ailing, failing or has failed and further treatment is required.

References

1. Glossary of Periodontal Terms. The American Academy of Periodontology, 1992.

PEDIATRIC DENTISTRY

Pediatric Dentistry is an age specific dental specialty that encompasses all aspects of dentistry. Since children are unique in their stages of development, oral diseases, and oral health treatment needs, this section will focus on comprehensive preventive and therapeutic oral health care of children. One goal is to provide a basic philosophical and technical foundation for diagnosis, treatment planning, and providing treatment procedures in children. Another goal is to provide practical experience in managing the behaviors of children. The former goal is scientifically more definitive, while the latter goal is less clearly defined. Regarding the practical experience gained through behavior management; it is only expected that the student should clearly document the child's initial behavior and describe uncooperative or inappropriate behaviors. Once strategies for managing the behaviors are implemented it is then expected that the student document effectiveness of the techniques. The goal is to have the management techniques positively affect the child's emotional development. Further, the student should understand that behavior management methods employed are to allow the opportunity for communicating, educating, coping, and cooperating during treatment procedures. In addition to words, it is desired that the student appreciate the impact of voice tone, facial expression and gestures. The more definitive pediatric dentistry treatments follow:

CLINICAL EXAMINATION

This consists of a health history review and a physical assessment.

Indications

1. All patients of record should receive a thorough examination of the intra- and extra-oral soft tissues, and intraoral hard tissue examination, and a review of the health history.

Contraindications

There are no contraindications for the clinical examination.

Outcomes Assessment

1. Health history should be reviewed and summarized:

a. Medical history summarized and ASA status determined and marked on t he medical history questionnaire. Allergies should be clearly identified with red highlighting. Need for SBE prophylaxis should be documented. Medications the child is taking should also be documented.

b. Dental history should be reviewed so that the reason for seeking care is documented. Previous dental treatment with comments about the child's behavior during that treatment should be documented. Oral habits and previous dental injuries should be reviewed and documented.

c. Home Dental Care: An assessment of the child's fluoride status, oral hygiene habits, and dietary practices should be recorded. The need for fluoride supplementation should be established.

d. Behavior History: A prediction of how the child will behave should be made. Information regarding how the child behaved on previous dental appointments or for medical appointments should be ascertained.

2. The physical assessment should survey the following:

a. General appraisal of the face, neck, lips, gingivae, buccal mucosa, palate, tongue, and tonsillar area should be documented if not within normal limits.

17 b. The presence of teeth should be circled clearly on the pediatric evaluation form. Occlusion should be recorded, with data reflecting the anterior-posterior, traverse, and vertical planes of space.

c. Anomalies in number, size, shape, texture, eruption, exfoliation, and tooth position should be documented. All dental restorations and carious lesions should be charted by tooth number and surface.

d. History of traumatic injuries and oral habits should be documented to identify teeth affected, description of how injured, duration of habit, and date of injury.

RADIOGRAPHIC EXAMINATION

Indications

All patients of record should receive an assessment of dental caries, periodontal status, developmental status, pathologic disturbances, swelling and pain or dysfunction.

All radiographs will be ordered based on the guidelines set forth by the American Academy of Pediatric Dentistry (AAPD) and as published reference manual indicates in the "Pediatric Dentistry Journal." (FDA publication #88-8273)

Contraindications

Patients in the first trimester of pregnancy seeking elective care. Radiographs will only be ordered according to the guidelines of the AAPD.

Outcomes Assessment

1. All radiographs are of diagnostic quality to permit assessment of health and development of the dentition and oral structures. They are to supplement the clinical examination findings.
2. Pathologic interpretations should also be documented on the pediatric evaluation form and/or in the progress notes. This includes eruption interferences, abscesses, and congenitally missing teeth.
3. A radiographic record should document films ordered and the number of exposures made.

ORAL PROPHYLAXIS

Traditionally this has been the polishing of teeth with a rubber cup; however, the toothbrush is an acceptable instrument for completing this procedure. Dental floss is also an adjunct for intraproximal portion of the prophylaxis. Scaling is done if calculus is present.

Indications

1. Removal of plaque, calculus, and/or extrinsic stains from the teeth.
2. Polishing the teeth.
3. Education of the child and/or caregiver.

Contraindications

1. Patients who are susceptible to subacute bacterial endocarditis need to be managed with the appropriate antibiotic therapy according to current AHA guidelines.
2. Patients who suffer with a bleeding disorder need to be managed with the appropriate precautions if bleeding is likely for this procedure.

Outcomes Assessment

1. All plaque should be removed from the crowns of all tooth surfaces.
2. Extrinsic stains and calculus should be removed and the teeth should be polished.

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3. Child should be given instructions on plaque removal and should minimally demonstrate with a toothbrush. As coordination improves, flossing instructions should be implemented.
4. A recall plan should be established and documented.

TOPICAL FLUORIDES

Indications

Caries susceptible children as demonstrated by enamel decalcifications or clinically diagnosed caries. Systemic fluoride supplementation schedule is attached.

Contraindications

1. Children who do not understand or who are unable to prevent swallowing the fluoride products.
2. Children who are a low caries risk (caries free, excellent oral hygiene, and open contacts).

Outcomes Assessment

1. Fluoride application is retained in child's mouth for one to four minutes.
2. Child does not eat or drink for the next 30 minutes.

SEALANT APPLICATION

Indications

1. Deep, retentive pits and fissures that may cause wedging or catching of an explorer.
2. History of previous occlusal caries.
3. Tooth erupted within the last 4-5 years.
4. Can be placed on primary or permanent molars, premolars, and the cingula of maxillary incisors with deep pits and/or fissures.

Contraindications

1. Well coalesced, self cleaning pits and fissures.
2. Patients with interproximal lesions on a tooth that is planned for a sealant or occlusal caries.
3. Inability to keep tooth contained with dry isolation.

Outcomes Assessment

1. Sealant is intact and covers all susceptible pits and fissures.
2. Occlusion is evenly distributed as before placement of the sealant.
3. No evidence of caries development.

PREVENTIVE RESIN RESTORATION

Indications

1. Deep pits and fissures in primary and permanent teeth that contain questionable caries areas.
2. Implicit carious lesions.
3. Well confined carious lesions.
4. Enamel defects.

Contraindications

1. Interproximal caries on suspect tooth.
2. Need to extend preparation beyond the suspect pit and/or fissure.

Outcomes Assessment

1. Restoration is intact and covering all involved and/or susceptible pits and fissures.
2. Normal occlusal relationship is maintained.
3. No evidence of caries development beneath or around the margins of the restoration.

RUBBER DAM APPLICATION

Indications

1. Restorative or endodontic procedures for primary or permanent teeth.
2. Protect soft tissues and improve patient management.
3. Prevent dental instruments and other materials from entering the oropharynx.

Contraindications

1. Orthodontic bands on teeth.
2. Patients with poor nasal exchange.
3. Patients with allergy to latex.
4. Clamp cannot be retained due to state of eruption of the tooth.

Outcomes Assessment

1. Rubber dam does not block the nose for air exchange.
2. Rubber dam barrier remains intact through procedures, does not become dislodged, and isolates teeth to be treated.
3. All stabilizing ligatures and rubber dam material is removed upon completion of restorative procedures.

AMALGAM RESTORATION

Indications

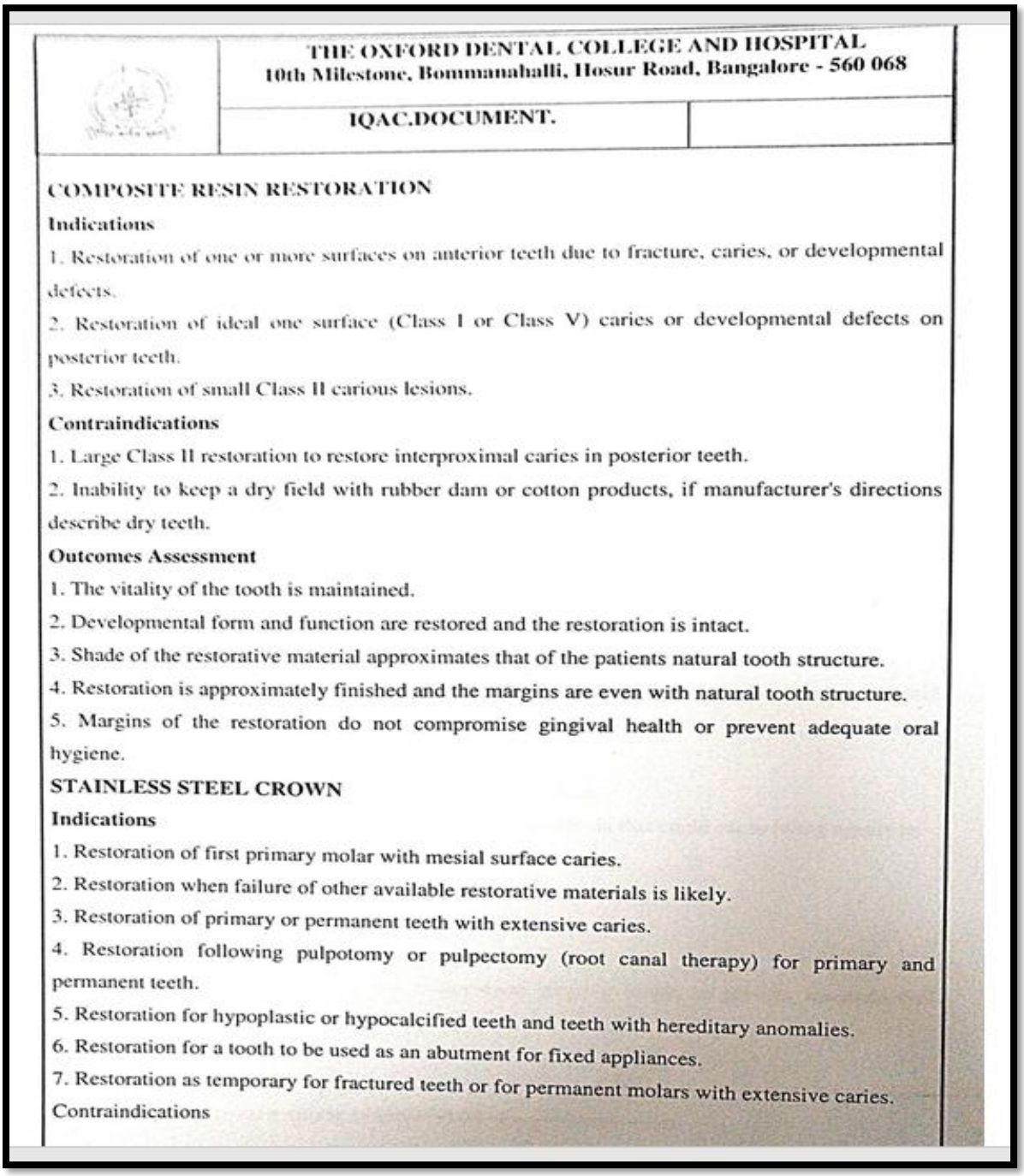
1. The restoration of dental caries.
2. The restoration of developmental defects.

Contraindications

1. First primary molar with mesial caries.
2. Interproximal caries that goes beyond the buccalline angle.
3. Caries greater than 1/3 the isthmus of the occlusal portion of the amalgam preparation in primary molars.

Outcomes Assessment

1. Vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration remains intact.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.



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COMPOSITE RESIN RESTORATION

Indications

1. Restoration of one or more surfaces on anterior teeth due to fracture, caries, or developmental defects.
2. Restoration of ideal one surface (Class I or Class V) caries or developmental defects on posterior teeth.
3. Restoration of small Class II carious lesions.

Contraindications

1. Large Class II restoration to restore interproximal caries in posterior teeth.
2. Inability to keep a dry field with rubber dam or cotton products, if manufacturer's directions describe dry teeth.

Outcomes Assessment

1. The vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration is intact.
3. Shade of the restorative material approximates that of the patients natural tooth structure.
4. Restoration is approximately finished and the margins are even with natural tooth structure.
5. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

STAINLESS STEEL CROWN

Indications

1. Restoration of first primary molar with mesial surface caries.
2. Restoration when failure of other available restorative materials is likely.
3. Restoration of primary or permanent teeth with extensive caries.
4. Restoration following pulpotomy or pulpectomy (root canal therapy) for primary and permanent teeth.
5. Restoration for hypoplastic or hypocalcified teeth and teeth with hereditary anomalies.
6. Restoration for a tooth to be used as an abutment for fixed appliances.
7. Restoration as temporary for fractured teeth or for permanent molars with extensive caries.

Contraindications

Not enough space to place an adequately fitting crown.

Outcomes Assessment

1. Adequate caries removal and/or pulp treatment is completed and tooth is reduced for the crown.
2. Crown is appropriately trimmed, adapted, smoothed, and polished.
3. Appropriate sized crown that maintains arch length.
4. Adequate marginal adaptation for gingival health and excess cement is removed.
5. Functional occlusion is restored.
6. Tooth vitality is maintained when possible.
7. Restoration enables patient to maintain oral hygiene.
8. Restoration does not interfere with tooth eruption.

LABIAL VENEER (PLASTIC/PORCELAIN)

Indications

1. Esthetic restoration for anterior teeth that need to be restored or are deeply stained or discolored.
2. Conservative restoration for preventing full coverage restorations of fractured permanent incisors.

Contraindications

1. Occlusal disharmonies that could cause restoration failure.
2. Patients with disorders such as esophageal reflux or bulimia that could cause luting agents to fail.

Outcomes Assessment

1. Restore form and esthetics.
2. Maintain vitality of the tooth restored.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

DIRECT PULP THERAPY

Indications

1. Minimal pulp exposure during caries removal

2. Therapy for permanent tooth that sustains a mechanical exposure during preparation or that has a traumatic exposure such as in the case of a fracture.

Contraindications

1. Primary teeth.
2. Greater than minimal pulp exposure (gross exposure).
3. Radiographic periapical radiolucency; signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. Hemorrhage is controlled and calcium hydroxide is placed over the exposed pulp.
2. Preparation is sealed with an appropriate restorative material.
3. Vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident (pain, swelling).
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification.

INDIRECT PULP THERAPY

Indications

A tooth that has caries approaching the pulp. Placing a protective dressing over a layer of remaining dentin protects against pulpal injury and stimulates healing.

Contraindications

1. Radiographic periapical radiolucency indicating a pathologic condition.
2. Signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. An appropriate base is placed over the remaining carious dentin.
2. The preparation is sealed with an appropriate restorative material.
3. The vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident.
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.

PULPOTOMY

Indications

1. Carious or mechanical exposures in primary molars with vital pulps.
2. Permanent teeth when the pulp is exposed and is vital.
3. Permanent teeth as urgent treatment in preparation for conventional root canal therapy.

Contraindications

1. Inability to control hemorrhage upon removing infected or affected canal pulp tissues.
2. Periapical radiolucency in suspect primary molar.
3. Clinical signs and symptoms of irreversible pulpitis or abscess for primary molar.

Outcomes Assessment

1. Appropriate selection and use of pulp therapy medicament.
2. Radicular pulp vitality is maintained and no prolonged adverse clinical signs and symptoms are evident.
3. No pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.
4. Normal root apical closure and root length occurs.

PULPECTOMY (PRIMARY TOOTH ROOT CANAL THERAPY)

Indications

1. Primary incisors traumatized with consequent pathology.
2. Non vital permanent teeth with immature roots.
3. Non vital primary molars.
4. Primary molars that sustain hemorrhage upon attempting pulpotomy procedures.

Contraindications

1. Facial swelling associated with non vital primary molar.
2. Tooth is not restorable.
3. Pathology extends to developing permanent teeth.
4. Internal or external resorption in crown and root.
5. Less than 2/3 of the primary tooth root structure remains.
6. Treatment could cause untoward sequela for medically compromised patient.

Outcomes Assessment

1. Evidence of a successful root canal filling with the appropriate material (no gross overextension or underfilling of canal).
2. Radiographic observation reveals root end closure (apexification).
3. No prolonged adverse clinical signs and symptoms.
4. No radiographic evidence of internal/external resorption.
5. No exacerbation of previous periradicular radiolucency or development of periradicular radiolucency where none existed.

PRIMARY TOOTH EXTRACTION

Indications

1. Acute or chronic pathology associated with primary teeth.
2. Over-retained teeth.
3. Cariously involved, non-restorable tooth.
4. Natal/neonatal teeth that are mobile and subject to aspiration, are a source of ulceration, or interferes with feeding.
5. Supernumerary teeth.
6. Fractured or traumatized non-restorable teeth.

Contraindications

1. Acute oral infection such as herpetic stomatitis or necrotizing ulcerative gingivitis.
2. Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Appropriate anesthesia is obtained and the correct tooth is extracted.
2. Alveolus remains intact.
3. Hemorrhage is managed.
4. Post extraction instructions (written and oral) are reviewed with the child and/or child's caregiver.
5. Antibiotic therapy is initiated when appropriate.
6. Hospital care is sought when appropriate.

ECTOPIC ERUPTION CORRECTION THERAPY

Indications

1. Radiograph reveals that delayed eruption is due to atypical direction of tooth eruption.
2. Delayed eruption is due to impingement by previously placed restoration in an adjacent tooth.

Contraindications

Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Restoration is replaced and allows proper eruption of the ectopically erupting tooth.
2. Appropriate mechanical therapy repositions the ectopically erupting tooth (create enough space) to reascertain the arch length and/or preserve as much space as possible for the developing permanent dentition.

SPACE MAINTAINER THERAPY

Indications

Premature loss of teeth where it is necessary to prevent migration of adjacent teeth.

Contraindications

1. Procedure could cause untoward sequela for patients who are medically compromised.
2. Patients who are high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design is chosen to maintain the space and alignment of teeth.
2. The space present when the appliance is placed continues to be preserved until eruption of the succedaneous tooth.
3. Appliance does not prevent the normal eruption of succedaneous teeth.

HABIT APPLIANCE THERAPY

Indications

Management of a habit that is causing or may cause unfavorable consequences in the permanent dentition and orofacial development.

Contraindications

1. Child cannot understand instructions and the function of the appliance.
2. Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Eliminate or decrease the intensity of the habit.
2. Eliminate or decrease the effect of the habit on permanent dentition and orofacial development.

CROSSBITE CORRECTION THERAPY

Indications

1. Anterior and/or posterior non-skeletal crossbites.
2. End to end dental occlusion that demonstrates potential for severe attrition.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design to achieve correction of crossbite and/or improved inter arch relationships.
2. The desired occlusion is maintained.

PROSTHETIC APPLIANCE THERAPY

Indications

1. Caries causing multiple tooth extraction.
2. Trauma resulting in tooth loss.
3. Missing teeth due to congenital/genetic defects.
4. Congenital or genetic disturbances as in dentinogenesis/amelogenesis imperfecta or cleft palate.
5. Facilitation of establishing esthetics, occlusal function, speech development, and/or feeding.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Facial profile, function, and esthetics are improved.
2. Ability to adequately remove plaque from the natural teeth is facilitated.

3. Appliance has adequate retention.
4. Appliance does not interfere with normal speech development.
5. Appliance allows normal eruption of teeth and does not prevent normal orofacial growth and development.

TREATMENT PLANNING

Indications

All pediatric patients' care must be treatment planned with a CD-12 signed by a faculty member in the section of Pediatric Dentistry.

Contraindications

None

Outcomes Assessment

1. Accurate diagnosis of clinical findings.
2. Appropriate prevention plan is established.
3. Appropriate treatment procedures are planned for each tooth to be treated.
4. Radiographic interpretation confirms the presence of suspected disease/pathology.
5. Informed consent is gained by parent or guardian.

ENDODONTICS

DEFINITION OF ENDODONTICS

Endodontics is the dental specialty concerned with the morphology, physiology, and pathology of the human dental pulp and periradicular tissues. Its study and practice encompass the basic clinical sciences including normal pulp biology; the etiology, diagnosis, prevention, and treatment of diseases and injuries of the pulp; and associated periradicular conditions.

The scope of endodontics is defined by the educational requirements for the training of a specialist in this discipline. Its scope of endodontics includes but is not limited to the differential diagnosis and treatment of oral pain of pulpal or periradicular origin; vital pulp therapy such as pulp capping and pulpotomy; root canal therapy such as pulpectomy, nonsurgical treatment of root canal systems with or without periradicular pathosis of pulpal origin, and the obturation of these root canal systems; selective surgical removal of pathological tissues resulting from pulpal

pathosis; replantation of avulsed teeth; surgical removal of tooth structure such as in apicoectomy, hemisection, and root amputation; endodontic implants; bleaching of discolored dentin and enamel; retreatment of teeth previously treated endodontically; and treatment procedures related to coronal restoration by means of post or cores involving the root canal space.

Dental practitioners must perform endodontic therapy consistent with their educational training and clinical experience. Keeping in mind that dentistry's main goal is for the public to maintain a healthy, natural dentition, every dental practitioner must be able to recognize and effectively treat pulpal injuries and diseases that are common and comply with the skills acquired by graduates of dental schools in the United States. Endodontic cases that are beyond the training, experience, and expertise of individual practitioners should be referred to practitioners who can appropriately provide treatment. All endodontic treatment should be of such quality that predictable and favorable results will routinely occur.

ENDODONTIC EXAMINATION AND DIAGNOSIS

Many features of endodontic evaluation are common to all dental practice.

An adequate medical and dental history with accompanying visual and radiographic examination provides basic information. Appropriate pulpal and periapical tests such as thermal, electrical, percussion, palpation, and mobility should be performed. Additional periodontal examination, transillumination, and bacteriologic testing may be indicated. Pre-operative radiographs may be taken from more than one angle to gain a better perspective of the morphology of the tooth or teeth in question. Bitewing radiographs, occlusal plane films, and radiographs of the contralateral and opposing teeth may also be necessary.

It may be necessary to recall some patients at periodic intervals to compare the examination data from one time interval to another for an accurate diagnosis. At times it is advisable to secure radiographs from previous practitioners or the existing dental record to gain a better understanding of the evolution of the current situation.

ENDODONTIC TREATMENT PLANNING, RECORDS AND RECALLS

Appropriate treatment is predicated on an accurate analysis of all diagnostic data. Treatment planning should include determining the strategic importance of the tooth or teeth considered for treatment, the expectations of the patient, the endodontic prognosis, and other factors such as excessively curved canals, periodontal disease, occlusion tooth fractures, calcified or occluded canals, and teeth with unusual or abnormal canal morphology.

27 Treatment records should include the chief complaints or patient comments, clinical impression, results of diagnostic tests and clinical examination. Also included are the pulpal and periapical diagnosis, treatment rendered, and required pre-operative, intra-operative, post-operative, and recall radiographs. Records should also include patient commentaries or complaints before and during treatment, or at any subsequent post-operative examination.

Endodontic care also includes the evaluation of the patient's post-operative response to treatment. Endodontic providers should encourage patients to return at intervals appropriate for the procedures undertaken to allow continued clinical evaluation.

VITAL PULP TREATMENT PROCEDURES

Vital pulp treatments attempt to preserve the integrity and function of the pulpal tissue in whole or in part as dictated by the degree of pulpal injury. Materials used in vital pulp therapy, such as calcium hydroxide, should meet the guideline of the ADA Council on Dental Therapeutics. The permanent restoration should be placed as soon as possible.

PROTECTIVE BASE

A protective filling material is placed at the base of a deep preparation to act as a barrier to minimize further injury and permit possible pulp healing and repair.

Indications

1. Deep dentin preparations in teeth with vital pulp without pulp exposure.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Location of a radiopaque base between the permanent restoration and the dentin.
3. Appropriate responsiveness to electrical and thermal pulp tests.
4. No breakdown of the periradicular supporting tissues.

INDIRECT PULP CAPPING

In a tooth which has a carious lesion near the pulp, a protective dressing or cement is placed over a layer of remaining dentin which, if removed, might expose the pulp. The purpose is to protect the pulp against possible injury and to stimulate healing and repair.

Indications

1. Carious lesions in teeth with vital pulp, which, if removed, might expose the pulp.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to but not in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal vitality tests.
4. No breakdown of the periradicular supporting tissues.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

DIRECT PULP CAPPING

In a tooth with a carious lesion near or into the pulp, a protective calcium hydroxide dressing or cement is placed directly over the vital pulp at the site of the exposure to protect the pulp against further injury and to stimulate healing or repair.

Indications

1. Aseptic small mechanical or iatrogenic pulpal exposures.
2. Small pulp exposures in teeth with incompletely formed apices.

3. Socioeconomic reasons.
4. Vital pulp without history of irreversible pulpitis.

Contraindications

1. Irreversibly inflamed or necrotic pulp.
2. Tooth is to serve as an abutment for a fixed or removable prosthesis or the restoration of choice is a crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to, and in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal pulp vitality tests.
4. No breakdown of the periradicular supporting tissue.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

PULPOTOMY

Pulpotomy is the surgical amputation of the coronal portion of vital pulp. It is used to preserve the vitality and function of the remaining radicular portion of the pulp.

Indications

1. Small pulp exposures in tooth with incompletely formed apices.
2. Socioeconomic reasons.
3. Vital pulp without history of irreversible pulpitis.
4. An emergency procedure until root canal treatment can be accomplished.

Contraindications

1. Irreversibly inflamed or totally necrotic pulp.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Radiographic evidence of canal and root apex closure occasionally accompanied by an increase in root length.
3. No breakdown of periradicular supporting tissues

4. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

NONSURGICAL ENDODONTIC PROCEDURES

ROOT CANAL TREATMENT

Endodontic therapy for permanent teeth involves a biologically based chemical and mechanical debridement of the root canal system to eliminate pulpal disease and to promote healing and repair of periradicular tissues. The debridement and shaping of the canal system is followed by obturation with a biologically acceptable nonabsorable semisolid or solid core root canal filling material.

All canals are shaped, cleansed, and disinfected using aseptic technique. Proper access is dictated by the size and shape of the pulp chamber as well as by the tooth position in the arch. In all cases, the entire roof of the chamber must be removed. Debridement, enlargement, and disinfection of all canals and obturation are accomplished under rubber dam isolation. When indicated, microbial culture and sensitivity determinations are used.

Obturation is the three-dimensional filling of the entire root canal system as close to the cemento-dentinal junction as possible. Minimal amounts of root canal sealers, which have been demonstrated to be biologically compatible, are used in conjunction with core filling material to establish an adequate seal.

It is recognized that root canal instruments will fail occasionally due to manufacturing deficiencies beyond the control of the practitioner. When instrument failure occurs in a root canal, the remainder of the root canal space should be sealed with a biologically acceptable non-restorable semi-solid or solid core root canal filling material. The patient must be informed of the complication.

Indications

1. Carious pulp exposure on a permanent tooth.
2. Vital, irreversibly inflamed pulp.
3. Tooth with necrotic pulp.
4. Extensive loss of tooth structure where restorative considerations exist.

Contraindication

Pulp is vital, but with reversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e., without gross overextension or underfilling in the presence of a patent canal; no ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, within 4 years the recall radiographs should demonstrate return to an intact lamina dura and a normal periodontal ligament space around the entire root or roots under observation.
4. If a tooth had a normal periodontal ligament space and an intact lamina dura around the root or roots at the time of obturation, recall radiographs taken 6 months or later postobturation should demonstrate a similar appearance.

ENDODONTIC RETREATMENT

Retreatment is preferred to surgical retrofilling in teeth where the root system is accessible and amenable to reinstrumentation and obturation. Retreatment involves removal of the previously placed obturation materials in addition to the procedures normally used in orthograde endodontic treatment. Post removal may also be necessary. Further efforts may be required to correct radicular defects, ledges, calcifications, and separated instruments.

Retreatment cases vary greatly in complexity, requiring greater effort, time, and skill, and should be undertaken with due regard to practitioner ability and expertise. Retreatment may need to be augmented by other procedures such as apexification or transmucosal intervention.

Indications

1. An incompletely debrided or filled root canal system with a radiographically observable unfilled root canal space.
2. Cases of unresolved periradicular pathosis and radiographic evidence of a deficiency in the quality of root canal filling.

3. Cases where removal of existing obturation materials as dictated by anticipated restorative or prosthetic procedures.
4. Cases where persistent symptoms are associated with a previously treated tooth and there is reason to question the adequacy of previous endodontic debridement and/or obturation.
5. Evidence of prolonged coronal leakage into the root canal system.

Contraindications

1. Persistent apical inflammation despite evidence of adequate debridement and obturation and in the presence of an adequate cast restoration.
2. Presence of a vertical root fracture.
3. Calcification, separated instrument, and/or other errors precluding access to apical canal system.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e. without gross overextension or underfilling in the presence of a patient canal. No ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, then the recall radiographs should demonstrate a return to an intact lamina dura and normal periodontal ligament space around the entire root or roots under observation. If a tooth had a normal periodontal ligament space and intact lamina dura around the root or roots at the time of obturation, the subsequent postoperative radiographic appearance should remain the same.

APEXIFICATION

Apexification is a method of inducing apical closure or apical development of the root or roots of an incompletely formed permanent tooth with a pulp. It may involve several treatments over an extended period of time. Calcium hydroxide compounds are commonly used for this purpose. When root closure is complete, endodontic therapy must be performed.

Indications

1. Root pulp necrotic, with or without apical periodontitis.

Contraindications

1. Pulp vital.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic evidence of apical closure without supporting tissue breakdown.
3. No lateral root surface pathosis.
4. Healing of periradicular pathosis.

SURGICAL ENDODONTIC PROCEDURES

INCISION AND DRAINAGE - SOFT TISSUE

Incision and drainage is a surgical procedure designed to release accumulated byproducts of tissue breakdown, collect samples for bacteriologic analysis, and provide a more favorable gradient and pathway for drainage.

Indications

Acute swelling with localized fluctuance.

Contraindications

1. No abscess localized or fluctuating.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of accurate symptoms.
3. Reduction of acute cellulites with localized fluctuance.
4. Return to normal soft tissue architecture.

INCISION AND DRAINAGE - SOFT AND HARD TISSUE

Incision and drainage through both the soft and hard tissues is a surgical procedure performed to liberate accumulated byproducts of tissue breakdown by surgical reflection of the soft tissue and penetration of the cortical plate in the periradicular area.

Indications

1. For the relief of pain caused by a buildup of fluid within the bony tissue.

Contraindications

1. Fluctuating abscess that can be localized and drained.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of acute symptoms.
3. No damage to root structure because of the procedure.
4. Soft tissue closure over the surgical site without fenestration.
5. No damage to the alveolar bone, roots of adjacent teeth, or other anatomical structures.

PERIRADICULAR CURETTAGE

Periradicular curettage consists of the removal of soft tissue and/or foreign material around the root apex without root end removal.

Indications

1. A marked apical over extension into the periradicular tissue of filling materials, that acts as an irritant.
2. A periradicular lesion that is enlarging after acceptable root carnal treatment, as noted on follow-up radiographs.
3. A persistent periradicular lesion that has not decreased in size one or two years after the completion of root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases when a biopsy or surgical exploration of the area is deemed necessary.

Contraindications

1. As the sole procedure for treatment of endodontic failures without addressing the cause.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the apex of the treated root(s) has a normal appearance with reestablishment of a normal periodontal ligament space.
3. No damage to adjacent teeth or anatomical structures.
4. No sinus tract present.

APICOECTOMY

Apicoectomy is a surgical procedure in which part of the tooth root apex is removed to evaluate or improve the apical seal of the root canal filling; to facilitate access for creation of a root end preparation for a retrofilling; to allow for curettage behind the root; or to remove a portion of the root that cannot be obturated because of severe curvature of the root, calcification of the root canal space, etc. This procedure may include curettage of the apical tissue.

Indications

1. A marked apical or lateral over extension of filling materials into the periradicular tissues.
2. A periradicular lesion that is enlarging as noted on follow-up radiographs.
3. A periradicular lesion that has not decreased in size one or two years after root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases where apical curettage reveal an inadequate seal of a previously filled root.
6. An unfilled apical portion of the root canal system not accessible from a coronal approach.
7. Roots that cannot be retreated nonsurgically because of an obstruction such as a post or a separated **instrument.**

Contraindications

When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.

2. Alveolar bone at the apex of the surgically altered root(s) should have normal appearance with reestablishment of the normal periodontal ligament space.
3. Sinus tract, if previously present, has healed.
4. No damage to adjacent teeth or anatomical structures.

RETROFILLING

Retrofilling is an additional procedure following apicoectomy by which a cavity is prepared in the root end or lateral aspect of the root and a biologically acceptable filling material is placed into that prepared cavity.

Indications

1. Correction of respective defects of the root.
2. Cases where the dentist is unable to negotiate a canal in a routine manner because of iatrogenic problems or anatomic complications of the canal system.
3. Previously treated teeth where an inadequate apical seal is indicated by a periradicular lesion which is enlarging or has not decreased in size over a two year period after completion of root canal filling.
4. A tooth that has periradicular symptoms or pathosis and had a post crown which cannot be removed.
5. Treatment of root perforations.
6. Persistent or recurrent signs and/or symptoms of laterial or periapical pathosis which cannot be sealed by a nonsurgical approach.

Contraindications

1. When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the site of repair of the treated root(s) should have normal appearance with reestablishment of the periodontal ligament space.

3. Retrofilling material should be within the confines of the root and should seal the root canal(s) and isthmus areas if present.

4. Scatter of retrofilling material into the surrounding bone should be avoided.

5. No damage to adjacent teeth or anatomical structures.

BIOPSY

A biopsy involves the surgical removal of a hard or soft tissue specimen for microscopic examination.

Indications

1. Tissue or foreign material is removed at or near the surgical site.

2. Unusual tissues are noted on clinical or radiographic examination.

3. A medical history indicates the merits of biopsy of all tissues removed. (See Oral Pathology Tissue Management)

Contraindications

1. For apical periodontitis of obvious or probable endodontic origin which would be treated by root canal treatment or nonsurgical treatment. (See Oral Pathology Tissue Management)

Outcomes Assessment

1. To establish or confirm a diagnosis by microscopic examination of tissues or foreign materials.

HEMISECTION AND BISECTION

Hemisection and Bisection (Bicuspidization) are surgical procedures that are used to separate a portion of the crown and one or more of the roots of a multirooted tooth. Both procedures are most commonly performed on mandibular molars. Hemisections may, however, be performed on maxillary molars or maxillary bicuspids. The separated segments may be removed or restored. In certain instances it is feasible to section a mandibular molar into two distinct separate roots.

34 Subsequently, the separate roots are restored as though each root was a bicuspid root. This procedure is commonly called a bisection.

Hemisection requires root canal treatment on all remaining roots. Bisection requires root canal therapy on all canals of each root. In each case, it is preferable to complete the root canals

fillings before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Crown fracture extending into the furcation.
4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and apical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root which is to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, recurrent periradicular pathosis, or periradicular inflammation where nonsurgical treatment or periradicular surgery is not possible.
8. Inoperative or uncorrectable resorptive defects of the root.
9. Furcal perforation.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of a furcation and periodontal pockets; total amputation of the coronal portion of the tooth that is associated with the root to be removed.
3. Adequate structure supporting the remaining roots(s) to maintain tooth function.
4. Remaining root in satisfactory condition.
5. Adequate root canal fillings in the remaining root.

ROOT AMPUTATION

Root amputation is the removal of a root of a multirooted tooth without the corresponding portion

of the crown when insufficient periodontal supporting tissue warrants the removal of this section of the tooth.

Root amputation requires root canal treatment of all remaining roots, preferably before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Fractures extending into the furcation.

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4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and periapical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, periradicular inflammation, or periradicular pathosis where nonsurgical root canal therapy or periradicular surgery is not possible.
8. Inoperative or uncorrectable root resorptive defects.
9. Furcal or stripping perforations.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of the furcation and periodontal pockets.
3. Adequate supporting structure surrounding the remaining roots to maintain tooth function.
4. Adequate root canal fillings in remaining root(s).
5. Seal of all external openings into the pulp chamber.
6. Elimination of pre-operative signs and symptoms of pathosis.

REPLANTATION OF AVULSED TEETH

Replantation of the avulsed tooth involves the replacement of a tooth into its natural alveolus after it has been accidentally avulsed or luxated out of its alveolar socket. The goal is normal reattachment of the periodontal ligament and the return of normal tooth function. Success depends upon accomplishing the replantation as soon as possible after the accident and keeping the root moist during the extraoral period. The involved teeth should be stabilized for a period of time. Pulp tissues should be removed within two weeks following the injury. The intracanal treatment usually consists of placement of calcium hydroxide, which may need to be replaced periodically, followed by placement of an acceptable root canal filling material. These teeth should be periodically re-examined following replantation.

Indications

1. Tooth avulsed due to trauma.

Contraindications

1. Tooth with additional fractures compromising future root canal treatment.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic placement of tooth into the socket.
3. Minimal resorption of tooth root structure.
4. No ankylosis.
5. No breakdown of periradicular supporting tissues.
6. Maintenance of the tooth as a firm, functional member of the dentition.

INTENTIONAL REPLANTATION OR TRANSPLANTATION

Intentional replantation involves the removal of a tooth from its alveolar socket, the apical retrograde sealing of the canals or lateral root defect with an inert filling material, and the insertion of the tooth into its alveolar socket.

Intentional transplantation involves the same procedures as the replantation except the tooth is transplanted into the socket of another extracted tooth

These teeth should be periodically reexamined following replantation or transplantation.

Indications

1. Pulpectomy or root canal treatment is not possible, has not been successful, or when conventional surgery in situ is not advisable.

Contraindications

1. Conventional orthograde or retrograde endodontic therapy can be performed.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic orientation of tooth in its socket.
3. Elimination or absence of lateral root or periapical pathosis (some root resorption may occur).
4. No periodontal pathosis.
5. Root length minimally shortened.
6. Proper placement of the apical seal(s).
7. Maintenance of the tooth as a firm, functional member of the dentition.

BLEACHING PROCEDURES

Bleaching is the reduction of discoloration of a vital or pulpless tooth through the application of oxidizing agents to the available surfaces of the affected tooth. Success in restoration to normal tooth shade and translucency is dependent upon the cause, severity, and duration of the discoloration.

INTERNAL BLEACHING

Internal bleaching is indicated for discolored teeth that have previously received a root canal filling. Assuming that the canal seal is adequate, 30 to 35 percent hydrogen peroxide, along with other activating agents, is used to affect the oxidation process.

Indications

1. Discolored teeth which have previously received a root canal filling.

Contraindications

1. Tooth has root filling of poor quality.
2. Extensive restorations of crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. Improved translucency.
4. No cervical external root resorption.

37 EXTERNAL BLEACHING

External bleaching is indicated for treatment of discolored enamel. It can use acid conditioning procedures along with oxidizing agents to lighten affected teeth. These agents are applied to the external surface of the tooth. This procedure is commonly indicated for teeth that are discolored because of endemic fluorosis or tetracycline staining.

Indications

1. Discolored vital tooth with normal pulp.

Contraindications

1. Extensive dental restorations.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. No cervical external root resorption.

RESTORATIVE DENTISTRY

Definition of Restorative Dentistry

The discipline of Restorative Dentistry is that area of dental practice concerned with the diagnosis, prevention, interception, preservation and treatment of natural teeth defects by restorations and replacement with fixed partial dentures. These defects may include dental caries, erosion, abrasion, attrition, hypoplasia, developmental anomalies, hypocalcifications, discoloration, trauma, and missing teeth. Treatment goals are to restore the natural dentition to normal health and function. These goals can offer significant challenge and great satisfaction to both patient and clinician by transforming a poorly functioning masticatory system to an attractive, comfortable and healthy orofacial unit. Success requires meticulous attention to detail

from the initial patient interview through treatment planning and operative procedures into a planned schedule of follow-up care. Restorative treatment spans an age range from adolescence to geriatric patients. It also involves an array of clinical and laboratory procedures, thereby testing the depth of knowledge and experience of the clinician.

PIT AND FISSURE SEALANTS

Pit and Fissure Sealants protect caries-susceptible tooth surfaces least benefited by fluoride. Sealants can play a significant role in the prevention and control of dental caries in pits and fissures of primary and permanent teeth. Sealants should be placed as soon as possible after tooth eruption when isolation can be achieved without moisture contamination.

Indications

1. Non-carious or questionable carious primary or permanent, premolar and molar teeth with deep pits and/or fissures, and in the cingulum area of maxillary incisors with deep lingual pits and/or fissures.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Obvious dental caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the sealant.
2. Normal occlusal relationship maintained.
3. Sealant remains intact and covers susceptible pits and fissures.

PREVENTIVE RESIN RESTORATION

Preventive resin restorations are small, distinct composite resin restorations that are used to restore carious lesions followed by placement of occlusal sealants to protect susceptible, but uninvolved pits and/or fissures. Preventive resin restorations generally require minimal tooth preparation to remove caries from one or more susceptible sites in the pits and/or fissures.

Indications

1. Deep pits and fissures in primary and permanent teeth that are suspected of being carious or exhibit frank caries in isolated areas.

1. Inability to obtain isolation and moisture control.
2. Extensive caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the preventive resin restoration.
2. Normal occlusal relationships maintained.
3. Preventive resin restoration remains intact and covers involved and/or susceptible pits and fissures.

DENTAL AMALGAM

Dental amalgam is a direct placement, intermetallic compound, restorative material. It is used to restore tooth defects resulting from dental caries, tooth fracture, or to replace defective restorations. Dental amalgam requires sound tooth structure for support, retention and resistance form. The use of dental amalgam in restorations to replace cusps and large areas of tooth is not paradigmatic, and should be restricted where possible. When additional retentive designs are incorporated (pins, slots, posts) dental amalgam can be used as a core build-up material for subsequent crown restorations.

Indications

1. For restoration of tooth defects resulting from either dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. For use as a crown core/build-up restoration.
4. Patient economic resources.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Where esthetics is a primary consideration.
3. When there is not sufficient sound tooth structure to support and retain the restoration.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the amalgam restoration.

2. Normal occlusal relationships maintained.

3. The restoration remains intact and functions acceptably.

COMPOSITE RESIN (DIRECT PLACEMENT)

Composite resin is a polymer based resin matrix containing an inorganic filler particle phase. It is used to restore tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Composite resin is primarily used in anterior teeth where esthetics is a primary concern. However, it has also found use in posterior teeth where clinical conditions and patient preferences are appropriate.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, esthetic concerns, or replacement of defective restorations.
2. For use in Class I, III, IV, V or veneer anterior restorations.
3. For use in Class I, II, or V posterior restorations when:

- Esthetics is a primary patient concern.
- Appropriate isolation is attainable.
- Where there are some centric occlusal stops remaining in tooth enamel.
- Tooth reinforcement is required in situations where a cast restoration may not be an option.
- When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
- Restoration of the post-endodontically treated tooth in which minimal loss of tooth structure has occurred.
- Patient economic resources.
- Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.

3. When all occlusal centric stops would be restored with composite resin.

Treatment Goals/Expected Outcomes

1. No evidence of caries development beneath or adjacent to the composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

GLASS IONOMER

Glass ionomers are water-based cements consisting of alumnio-silicate glasses, interacted with a form of poly (alkenoic) acid, with or without a polymer based resin matrix. Glass ionomers are used to restore tooth defects from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Primary use for the glass ionomer is in clinical situations where adhesion to tooth is required and fluoride release is a clinical benefit.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I (not including the occlusal surface), III or V restorations.
3. Restoration of root surface carious lesions.
4. When fluoride release may be beneficial.
5. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restorative material to tooth is required.
6. When esthetics is a consideration.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.
3. When occlusal centric stops or proximal contact areas would be restored with glass ionomer.
4. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

Outcomes Assessment

1. No caries development beneath or adjacent to the glass ionomer restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

41 CAST GOLD INLAY

An indirect restorative procedure using cast gold dental alloy primarily in intracoronal restorations. The cast gold inlay is used to restore conservative tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. Where patient has an occlusal function or needs a proximal contour that exceeds the capacity of dental amalgam or composite resin as suitable restorative material options.
4. When specific tooth contours are required, i.e. axial contours necessary for fabrication of a clasp on a removable partial denture.
5. A retainer for an etched metal restoration.
6. Patient preference.

Contraindications

1. When there is insufficient sound tooth structure to support and retain the restoration.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. Where esthetics is a primary concern.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the cast gold restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. Pulp vitality maintained.

4. The restoration remains intact and functions acceptably.

INDIRECT COMPOSITE RESIN INLAY/ONLAY

An Indirect Composite Resin Inlay/Onlay is an indirect restorative procedure using composite resin. Usually the composite resin will have received an additional extra-oral cure to improve its clinical performance. This is a restoration that is bonded to the tooth with a composite resin luting material.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV, V or veneer restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. Tooth reinforcement is required when a cast restoration is not an option.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Esthetics.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When all occlusal centric stops would be restored with composite resin.
7. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

9. Patient preference.
10. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the indirect composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN INLAY/ONLAY

A Porcelain Inlay/Onlay is an indirect restorative procedure using dental porcelain as the restorative material. This is a restoration that is bonded to the tooth with a composite resin luting material and is primarily limited to use in the posterior teeth where esthetics and tooth reinforcement are indicated.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV or V restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. When tooth reinforcement is required in situations where a cast restoration is not an option.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When there is insufficient sound tooth structure to support and retain the restoration.

7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the porcelain inlay/onlay.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN VENEER

The porcelain veneer is primarily an esthetic restoration involving the incisor teeth and sometimes the maxillary premolars. A labial veneer is constructed in the dental laboratory and is bonded to the tooth with a composite resin luting material. These restorations are used to modify tooth color and contour.

Indications

1. For use on facial surfaces of incisor and maxillary premolar teeth.
2. When there is sufficient tooth enamel remaining (75% of the restored tooth surface).
3. Esthetic improvement of tooth color and/or contour.
4. Closure of anterior diastemas.
5. Normal occlusal function and posterior occlusal support.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. When proper isolation of the operating field is not possible.
4. When there is insufficient sound tooth structure, enamel, to support and retain the restoration.
5. Patient economic resources.
6. Unrealistic patient expectations.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal functions and tooth contours are maintained.

3. Desired, achievable, esthetic result obtained.
4. The restoration remains intact and functions acceptably.

PARTIAL CROWN COVERAGE-ALL METAL (Cast Onlay, 3/4 Crown, 7/8 Crown)

The Partial Crown Coverage-all metal restoration is an indirect restorative procedure which requires some cuspal coverage but less than full replacement or coverage of the enamel crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations involving a significant amount of the clinical crown.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (ALL METAL)

The Full Crown Coverage-all metal restoration is an indirect restorative procedure involving full replacement of the functional clinical crown.

Indications

1. For restoration of tooth defects from extensive dental caries, tooth fracture, or to replace defective restorations.
2. Short clinical crowns that would compromise retention of partial coverage restorations.
3. Restoration where definitive occlusal support is to be created and maintained.
4. Retainer for a fixed partial denture.
5. Retainer and rest seat for removable partial denture clasp.
6. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal or endodontic prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (Porcelain Fused to Metal)

THE OXFORD DENTAL COLLEGE AND HOSPITAL
10th Milestone, Bommanahalli, Hosur Road, Bangalore - 560 068

IQAC.DOCUMENT.

The Full Crown Coverage-(Porcelain Fused to Metal) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. A cast metal core is veneered with dental porcelain to provide an esthetic and functional outer surface.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or to replace defective restorations.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is not sufficient sound tooth structure to support and retain the restoration.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Normal occlusal relationships and crown contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (All Porcelain)

The Full Crown Coverage-(All Porcelain) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. The crown is fabricated from different porcelains without a metal substructure. These restorations are usually limited to single unit crowns and are indicated when maximum esthetics is desired for a full coverage crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or replacement of defective restorations.
2. When full coverage is required and the esthetic demand is paramount.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Excessive or abrasive occlusal function.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the Full Crown Coverage-(All Porcelain) restoration.
2. Normal occlusal functions and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

IMPLANT SUPPORTED CROWNS

An implant supported crown(s) is a treatment option for patient with partial edentulism. Prosthodontic evaluation is performed to determine the patient's suitability for an implant supported crown(s). Surgical assessment is performed to determine if contraindications exist for implant therapy.

Indications

2. Impaired speech.
3. Esthetics.
4. Partial edentulism.
5. Unsatisfactory existing prostheses.

Contraindications or Risk Factors Affecting Quality of Treatment

1. Bone factors (quantity and quality).
2. Pre-existing systemic conditions.
3. History of radiation therapy.
4. Insufficient interarch space.
5. Active periodontal disease.
6. Tobacco use.
7. Biomechanical loading factors.
8. Occlusal factors.
9. Current and past pharmaceutical therapies.

Outcomes Assessment (favorable)

1. Long-term preservation of supporting bone.
2. Improved function.
3. Improved speech.
4. Improved esthetics.
5. Reduced pain during function.
6. Preserve tooth structure.
7. Improved intra-arch and interact integrity and stability.

AMALGAM/COMPOSITE RESIN CORE BUILD-UP RESTORATION

A core restoration replaces tooth structure before crown fabrication. Without a core, there would not be enough remaining clinical crown for adequate crown retention and resistance form. Core restorations are fabricated from dental amalgam or composite resin and may or may not involve a post.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. A tooth with inadequate coronal structure to provide retention and resistance form for a crown restoration.
3. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal restoration.
4. There is enough tooth structure to provide support and retention for dental amalgam or composite resin.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient tooth structure remaining to adequately support and retain the core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. The restoration remains intact and continues to function acceptably.

POST RESTORATION

A Post is a restorative procedure in which part of a metallic post is placed into the prepared space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post can be either a prefabricated post or one which is custom made to adapt to the specific root canal space. The post provides a retentive base serving as a portion or all of the retentive form upon which a core build-up is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of coronal tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or extensive dental amalgam or composite resin restoration.

3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured form the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic apical seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

POST/CORE CAST METAL RESTORATION

A post is placed in an endodontically treated tooth to provide retention for the overlaying core of restorative material. The core serves as a foundation for the final tooth restoration. It is not intended for tooth reinforcement. When there is insufficient remaining tooth structure to adequately retain a direct placement post/core restoration, the cast metal post/core is a viable clinical alternative.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal crown.
3. There is insufficient tooth structure to provide retention for the core component of the restoration.
4. A prepared post space that permits 3-6 mm of undisturbed root canal filling material as measured from the tooth apex.
5. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately support a post and core restoration.
3. Inadequate crown to root ratio of the final restoration.
4. Tortuous canals or thin, ribbon shaped roots.
5. Poor periodontal prognosis for tooth retention.
6. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the case metal post/core restoration.
2. Absence of root fracture.
3. No compromise of endodontic apical seal.
4. The observed restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

NON-METALLIC POST RESTORATION

The non-metallic post restoration is a prefabricated post restoration that is either ceramic or fiber reinforced polymer material. The non-metallic post is placed into the prepared post space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post provides the retentive base serving as a portion or all of the retentive form upon which a core buildup is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal. The non-metallic post is cemented using a total-etch / bonded technique.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or composite resin restoration.
3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured from the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

5. In anterior esthetic situations where metallic posts which block light transmission in the cervical area of the tooth resulting in "graying" of the free marginal gingival.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the bonded post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

ETCHED METAL RETAINERS

An etched metal retainer is an indirect restoration that achieves its retentive form from micromechanical bonding between tooth enamel and microporosities in the metal retainer. The luting agent between the etched metal retainer and tooth enamel is a composite resin material and is, therefore, subject to all the clinical requirements of a polymer bonded restoration. These restorations rely on the availability of adequate tooth enamel for retentive form.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations.
2. For restoration of partial crown coverage of metal based crowns.
3. Abutments for short span (less than 2 pontics) etched metal fixed partial dentures.
4. Abutments for tooth splints.
5. Restorations to modify tooth contours facilitating design of a removable partial denture.

Inadequate periodontal support for abutment teeth, poor oral hygiene, inadequate clinical crown contours and/or strength of abutment teeth.

Outcomes Assessment

1. Partial dentures are retentive, stable; acrylic bases are adequately extended.
2. Patient is satisfied with esthetics, function, and comfort.
3. Remaining teeth and soft tissues are healthy.

INTERMEDIATE DENTURE

An intermediate or temporary denture for a patient who requests immediate replacement of teeth following extraction of remaining teeth. The intermediate denture is for esthetics more than function.

Indications

A patient who wants to maintain esthetics immediately after extractions.

Contraindications

Patients requiring extensive recontouring of alveolar bone or removal of tori.

Outcome Assessment

1. Dentures are retentive and stable.
2. Vertical dimension, centric occlusion, and esthetics are preserved.

PROSTHODONTIC RECALL EXAMINATION

A prosthodontic recall examination is regularly performed to evaluate the fit and performance of the complete or partial denture and the patient's oral health. Adjustments are made if needed; the denture or partial is polished, remaining teeth are examined and cleaned and prevention is reinforced.

Indications

A patient wearing removable partial or complete dentures.

Contraindications

None

Outcomes Assessment

1. Dentures and or partial dentures are stable and fit adequately.
2. Remaining teeth and soft tissue are healthy.
3. Any further treatment is explained to patient and treatment planned.
4. Preventive strategies have been reinforced to the patient.
5. Recall interval is agreed upon.

RELINE

A reline restores the tissue bearing surfaces of a denture base when base adaptation to the edentulous alveolar ridge is deficient. A reline can be performed on a complete or partial denture.

Indications

1. Lack of retention and/or stability of the maxillary or mandibular acrylic base due to resorption of the edentulous ridges or inadequate border extension.
2. Lack of retention and/or stability of the maxillary acrylic base due to an inadequate posterior palatal seal.

Contraindications

1. Retention and/or stability are affected by factors other than lack of tissue bearing surface adaptation.

Outcomes Assessment

1. Denture or partial is well extended, retentive, and esthetic.
2. Improved retention and stability result in patient satisfaction.

REBASE

Rebasing a denture replaces the original denture base to compensate for lost oral tissues while leaving teeth in their original position.

Indications

Denture teeth are positioned correctly and provide stable occlusion. The vertical dimension is correct and tissues are relatively healthy.

Contraindications

Dentures exhibit gross occlusal disharmony. Size, shade, and position of denture teeth are inappropriate or inadequate. The dentures have improperly extended [illegible]

Outcome Assessment

1. Dentures are retentive, stable, and esthetic.
2. Occlusion is preserved and functional.

ORTHODONTICS

CLINICAL EXAMINATION

All patients of record should receive an initial cursory examination noting facial form and occlusal relationships to detect possible malocclusion. All candidates for limited orthodontic treatment must subsequently receive a comprehensive evaluation. Limited treatment is defined as conditions that can be treated by tipping mechanics and that generally are correctable within six to nine months including the retention phase. This normally limits treatment to minor anterior alignment, uncomplicated molar uprighting, crown lengthening by means of forced eruption, space regaining, and non-skeletal crossbite corrections. The following data are recorded in the chart: medical and dental histories; extraoral facial evaluation and classification; occlusal relationships; functional problems related to mastication, speech and mandibular range of motion. Students are expected to obtain consultations related to pathology, periodontal problems and restorative treatment needs. Active disease must be detected and corrected prior to orthodontic

Treatment.

Indications

A cursory analysis of facial form and occlusal relationships is required for all patients of record. The in-depth exam described above is for patients with specific limited orthodontic treatment needs.

Contraindications

1. There are no contraindications for the cursory clinical examination.

2. The more in-depth analysis may be unwarranted if the patient has no interest in further treatment or desires referral for comprehensive orthodontic treatment.

Outcomes Assessment

1. Occlusal and facial relationships, functional problems and the morphologic basis of malocclusion are summarized in the orthogonal format.

2. All data and interpretations are recorded on the 4-D form.

3. The patient's chief complaint, collection of consults, determination of interacting factors, and supplement records to permit a thorough, comprehensive diagnosis for treatment planning are properly documented.

RADIOGRAPHIC PROCEDURES

All candidates for limited orthodontic treatment must have a panoramic radiograph and periapical and bitewing films sufficient to determine general health, root form and position, periodontal status and developmental status of the dentition. Lateral or posterior-anterior cephalometric, or other films will be ordered as necessary to assess skeletal relationships in the appropriate planes of space.

Indications

1. All developmental patients who are candidates for limited orthodontic treatment will have at minimum a panoramic film, anterior periapical radiographs and bitewing radiographs.
2. All information and interpretations are recorded on the 4-D form.
3. The health and morphologic variables of root form and position are properly determined.
4. Cephalometric films are accurately exposed with the patient in natural head posture. Landmarks and tracings should reveal that the morphologic basis of the patient's dentofacial relationships are accurately and comprehensively determined.

ANALYSIS OF DIAGNOSTIC, HAND-HELD, STUDY CASTS

Properly trimmed hand-held study casts are required for all patients receiving limited orthodontic treatment. The casts facilitate a more in-depth analysis of the patient's occlusion, arch form and symmetry, alignment problems and tooth size. These are indicated for assessing space requirements and tooth size discrepancies (Bolton analysis).

Indications

1. Patients receiving limited orthodontic treatment.

Contraindications

None

Outcomes Assessment

1. Impressions are accurate and undistorted, stored properly in 100% humidity with a wax occlusal registration in centric occlusion (maximum intercuspation) with additional wax registrations if there are occlusal discrepancies.

2. Impressions are poured as soon as possible, trimmed, and labeled to orthodontic specifications.

3. Casts are not distorted and accurate measurements are made. Analysis of casts produces a comprehensive data base for a thorough and accurate treatment plan.

4. All appropriate measures and interpretations will be included on the 4-D form.

TREATMENT PLANNING PROCEDURS

Treatment planning in ORT 841 is based on developing a prioritized problem list in three planes of space along with an assessment of significant interacting factors that may influence treatment decisions and outcomes. Students will develop the problem list with possible solutions, determine the appropriate goals (long term) and objectives (sequence of treatment procedures in the short term) to reach the treatment goals. A biomechanical plan that includes the patient's

chief complaint, consultations from other disciplines, anchorage requirements, force diagrams in all planes of space and a sequence of appointments to meet treatment objectives. Fees, limitations and risks, and retention requirements are also included for discussion during treatment planning. Treatment planning sessions are scheduled with an attending faculty member away from clinical activity to minimize distractions.

Indications

1. All limited treatment must be treatment planned with a signed 4-D form.

Contraindications

None

Outcomes Assessment

1. The treatment plans have goals and objectives stated along with a description of risks and limitations, fees, estimated time for active treatment, retention needs, appointment sequence with mechanical plan, description of the appliance and force diagrams, and faculty signature.
2. Patients are informed of their treatment needs and understand clearly the limitations and risks of orthodontic treatment.
3. Students have a clear understanding of the goals and objectives of the treatment plan and have an in-depth understanding of appliance design and management for each appointment.
4. Treatment occurs in a timely manner and effective retention strategies are implemented.
5. The patient is satisfied with the results.

TREATMENT PROCEDURES FOR LIMITED ORTHODONTIC THERAPY

Limited orthodontic treatment for ORT 841 typically refers to therapy that can be accomplished in 6- to 9-months. Force systems are usually restricted to tipping movements of the crown, but can occasionally involve some root movement with approval of the attending faculty. These requirements most commonly involve the correction of minor anterior alignment problems, uncomplicated molar uprighting, crown lengthening procedures, space regaining, and non-

skeletal crossbites. Treatments may use fixed or removable appliances as indicated by force analysis, anchorage requirements and sometimes patient request.

ANTERIOR ALIGNMENT

Indications

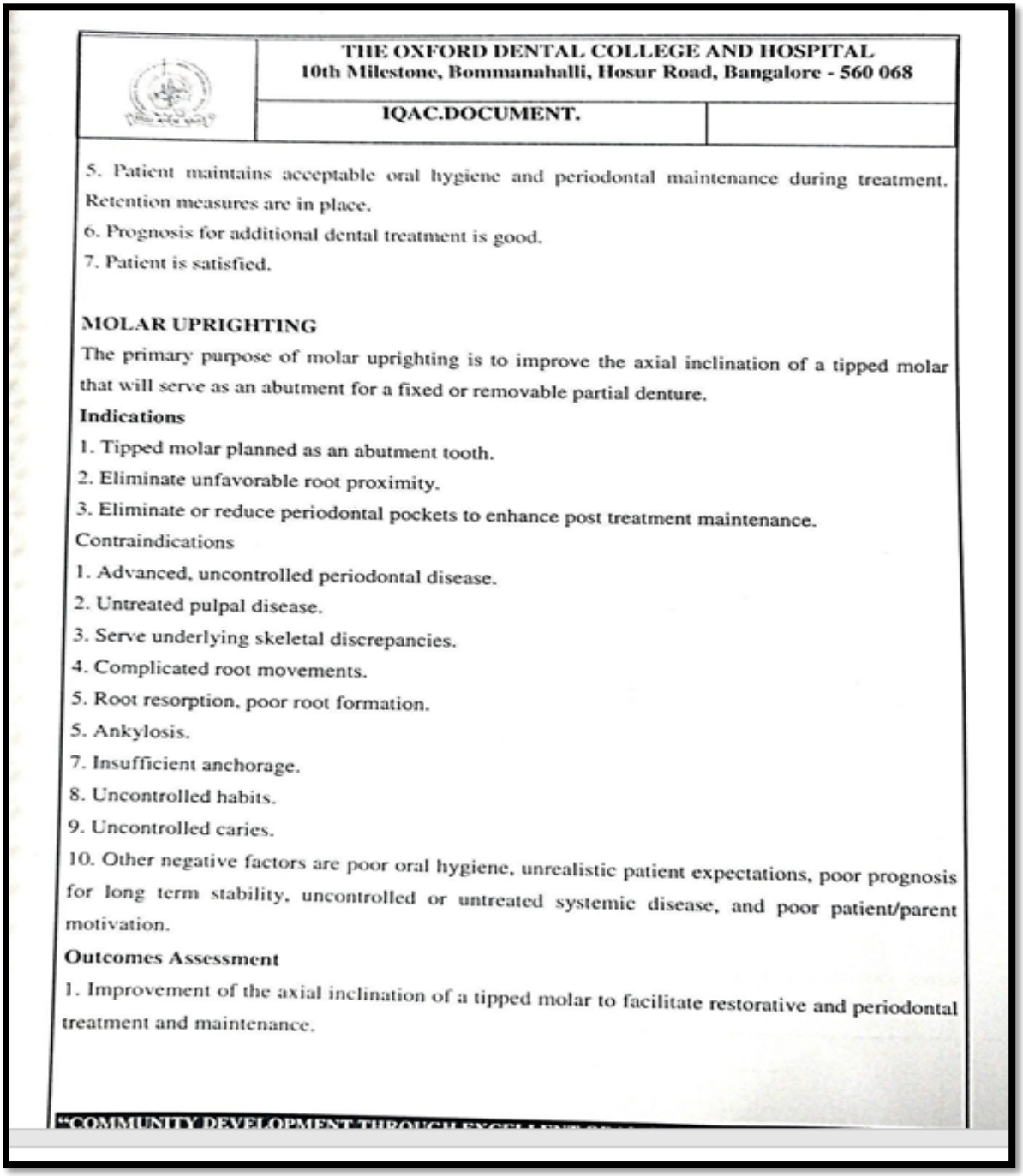
1. Misaligned anterior teeth with anterior crowding (no more than 2 to 3 mm), excess spacing (less than 3 mm), or minor rotations (less than 10 degrees) may be candidates for anterior alignment procedures. These may relate to repositioning teeth for esthetic purposes alone, or for correction of minor occlusal interferences, or for improvement of crown positions for esthetic crown restorations, or for abutment placement for fixed or removable prostheses.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Severe underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
6. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improved alignment of anterior teeth that meets esthetic, functional, and restorative or periodontal treatment objectives.
2. Alignment objectives are met within the estimated time.
3. Minimal trauma to teeth and supporting structures.
4. Anchorage units are stable with minimum displacement.



5. Patient maintains acceptable oral hygiene and periodontal maintenance during treatment. Retention measures are in place.
6. Prognosis for additional dental treatment is good.
7. Patient is satisfied.

MOLAR UPRIGHTING

The primary purpose of molar uprighting is to improve the axial inclination of a tipped molar that will serve as an abutment for a fixed or removable partial denture.

Indications

1. Tipped molar planned as an abutment tooth.
2. Eliminate unfavorable root proximity.
3. Eliminate or reduce periodontal pockets to enhance post treatment maintenance.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Serve underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
5. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improvement of the axial inclination of a tipped molar to facilitate restorative and periodontal treatment and maintenance.

2. Treatment did not cause excess occlusal stress or cause significant vertical bite opening. (Frequent checks and occlusal adjustments are expected.)
3. Anchor units show minimal change, unless specific changes were planned.
4. Molar is uprighted to the desired position with minimal trauma to roots and supporting structures and with minimal occlusal interferences.
5. Treatment should be completed within an appropriate time interval and the prognosis for prosthetic treatment should be good.
6. Following active treatment, the uprighted molar is properly stabilized for a minimum of 6 weeks prior to abutment preparations.

FORCED ERUPTION PROCEDURES FOR CROWN LENGTHENING

Forced tooth eruption is primarily an adjunctive procedure to create sufficient crown length to facilitate restorative and endodontic treatments. Additional gingival and alveolar bone recontouring may be required in order to establish level crestal bone and gingival margin height.

Indications

1. Fractured or carious tooth requiring additional crown height.

Contraindications

1. Unfavorable crown/root ration, uncontrolled periodontitis.
2. Untreatable pulpal disease.
3. Inadequate anchorage.
4. Poor root morphology.
5. Root resorption, root fracture.
6. Ankylosis.
7. Other negative factors are poor oral hygiene, active caries, poor patient compliance.
8. Unresolved systemic illness may also contraindicate orthodontic treatment.

Outcomes Assessment

1. Adequate extrusion of an unrestorable tooth to facilitate restorative and/or root canal treatment.
2. Minimal trauma to the tooth and supporting structures.
3. The tooth does not exhibit excessive mobility.

4. Minimal unwanted changes in the anchorage segments.
5. The tooth is stabilized for a minimum of 6 weeks prior to restorative treatment.

SPACE REGAINING

The most common indication is to regain space lost during the mixed dentition due to mesial drifting of the first permanent molar resulting from the premature loss of a second primary molar.

Indications

1. Mesial drifting of the first permanent molar.
2. Skeletal relationships should be Class I with a balanced soft tissue profile.

Contraindications

1. Underlying tooth size-arch size discrepancy.
2. Severe crowding and/or skeletal jaw discrepancies that require additional corrective measures.
3. Space loss greater than 3 mm.
4. Space loss associated with bodily tooth migration.
5. Poor patient compliance.
6. Poor oral hygiene.
7. Inadequate anchorage.

Outcomes Assessment

1. Normal molar occlusion with sufficient space for the erupting succedaneous tooth.
2. Adequate space maintenance to preserve tooth positions until gingival emergence occurs.

NON-SKELETAL CROSSBITE CORRECTION

Indications

1. Crossbites of dental origin that can be corrected by dental tipping forces.

Contraindications

1. Severe bilateral posterior crossbites and anterior crossbites in which there are dental compensations for Class III jaw relationships.
2. Poor patient compliance.
3. Poor oral hygiene.
4. Active disease states of the hard and soft oral tissues.

5. Unresolved oral habits.
6. Vertical malocclusions involving either an excessively deep bite or an anterior open bite tendency.

Outcomes Assessment

1. Correction of the crossbite within the estimated time with minimal tissue trauma.
2. Placement of appropriate retention for a minimum of 3 months.
3. Following retention the correction should exhibit some rebound but settle into a stable occlusion.
4. There should be no functional shifts.

ORAL AND MAXILLOFACIAL SURGERY

EXTRACTION OF AN ERUPTED TOOTH

Indications

1. Pulpitis or pulp necrosis.
2. Periodontal disease.
3. Periapical pathosis.
4. Nonrestorable tooth.
5. Infection/abscess.
6. Malpositioned tooth.
7. Extraction necessary for prosthetic treatment plan.
8. Extraction necessary for orthodontic treatment plan.
9. Tooth associated with pathologic lesion.
10. Supernumerary tooth.
11. Extraction related to or in conjunction with medical disease.
12. Patient refuses other therapy for financial or other reasons.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.

4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Adjacent tooth (teeth).
7. Degree to which caries is present.
8. Size and density of alveolar bone.
9. History of endodontic treatment.
10. Relationship of tooth to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Absence of pain.
2. Absence of infection.
3. Uncomplicated healing of surgical site.
4. Restored function.
5. Complete hemostasis.
6. Removal of pathosis, if present.
7. Limited period of disability.

TREATMENT OF ODONTOGENIC INFECTIONS, INCLUDING INCISION AND DRAINAGE

Indications

1. Symptoms: pain, swelling, trismus, chills, altered function, malaise, dysphagia.
2. Clinical findings: erythema, tissue induration, lymphadenopathy, purulence, fistula, fever.

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3. Other findings: caries, periodontal bone loss, periapical pathosis, osteolytic area, abnormal results of blood count, positive culture or Gram stain.

Factors affecting risk

1. Presence of major coexisting disease or systemic condition(s).

2. Presence of psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Extent of infection.
6. Direction and/or rate of infection extension.
7. Virulence of microorganism.
8. Susceptibility of microorganism to antibiotics.
9. Ability to gain access to affected areas.
10. Relationship of infection to vital structures.
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Eliminate acute and/or chronic infection.
2. Limit pain.
3. Restore function.
4. Preserve vital structures.
5. Prevent recurrence.
6. Limit period of disability.

MODIFICATIONS OF THE DENTOALVEOLAR PROCESS (EG. TORUS REMOVAL, ALVEOLOPLASTY, SOFT TISSUE MODIFICATION, TUBEROSITY REDUCTION)

Indications

1. Clinical findings of dentoalveolar soft tissue or bone abnormality.
2. Infection, ulceration, and/or pain.
3. Speech abnormality.
4. Masticatory dysfunction.
5. Dysphagia.
6. Interference with prosthetic treatment.

7. Periodontal disease.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Anatomical location, size, and extent of the abnormality.
7. Relationship of the abnormality to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
8. Quality of alveolar bone or soft tissue.
9. Ability to gain access to the surgical site.

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10. Lack of patient compliance.

Outcomes Assessment

1. Adequate soft and hard tissue base for prosthetic reconstruction or rehabilitation.
2. Improved physiological condition of dentoalveolar structures.
3. Restoration, retention, and function of previously diseased tooth or teeth.
4. Improved mastication, speech, and/or appearance.
5. Pain relief.
6. Absence of infection.
7. Limited period of disability.
8. No unanticipated loss of hard or soft tissues.

PRE-SURGICAL EVALUATION

Pre-surgical evaluation is performed to assess the patient's chief complaint and medical history, and review systems, physical examination, and laboratory studies.

Indications

1. Presentation of a patient to the oral and maxillofacial surgery clinic for evaluation, diagnosis, care, and/or treatment.

Factors affecting risk

1. Incomplete initial assessment.
2. Communication barriers (e.g. Language, cultural, communication disorders, altered mental status or level of consciousness).
3. Patient's guardian's/responsible party's failure to disclose.
4. Physical barriers (e.g. trismus, obesity).
5. Psychological barriers.
6. Degree of patient compliance.
7. Other factors that would reduce the clinician's ability to make a complete, accurate diagnosis.

Outcomes Assessment

Achieving assessment goals resulting in adequate knowledge upon which to base a diagnosis, treatment plan, and/or to safely render treatment using either no anesthetic, local anesthesia, or conscious sedation.

CONSCIOUS SEDATION, USING PARENTERAL AGENTS, NITROUS OXIDE, AND/OR ORAL MEDICATIONS

Indications

1. Need to minimally depress the level of consciousness, anxiety, and/or pain so that the patient can undergo a procedure.
2. Need to retain the patient's ability to independently and continuously maintain an airway and respond to physical stimulation and verbal commands.

Factors affecting risk

1. Degree to which the patient and/or family understand the etiology and course of disease or condition, therapy goals, and acceptance of proposed treatment.
2. Major coexisting disease or systemic conditions.
3. Psychological conditions or psychiatric diseases.
4. Patient age.

5. Infection or other pathology.
6. Noncompliance with NPO recommendation.
7. History of drug allergies or sensitivities.
8. Psychological aversion to intravenous or intramuscular injections.
9. History of substance abuse.
10. History of untoward reactions or complications with anesthetics.
11. Lack of patient compliance.

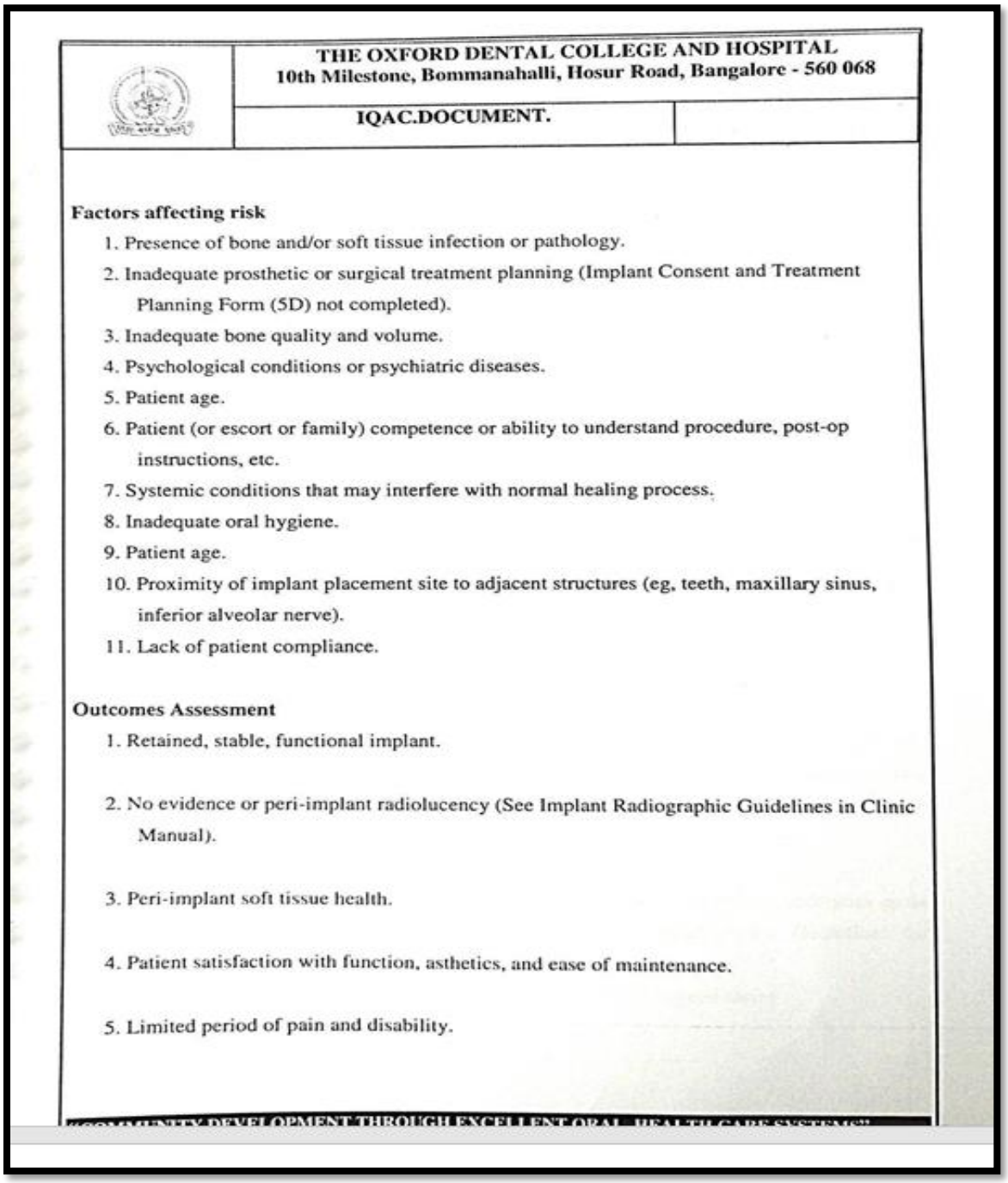
Outcomes Assessment

1. Diminution or elimination of anxiety during therapeutic procedure.
2. Procedure completed.
3. Lack of unintended change in patient's level of consciousness.
4. Return to preanesthetic physiological and psychological state within 12 hours following cessation of anesthetic agent administration.
5. Anesthetic experience deemed satisfactory by both patient and clinician.
6. Lack of other complications or sequelae requiring follow up care related specifically to the anesthetic (e.g. phlebitis).

ENDOSSEOUS IMPLANTS

Indications

11. tooth and/or root fracture
12. missing teeth due to trauma
13. previous extraction sites
14. spaces created by orthodontic movement
15. endodontic failures
16. restorative failures
17. extractions due to periodontal disease
18. non-restorable teeth due to caries (following extraction)
19. to avoid preparation of virgin teeth for bridge abutments
20. anchorage for orthodontic tooth movement

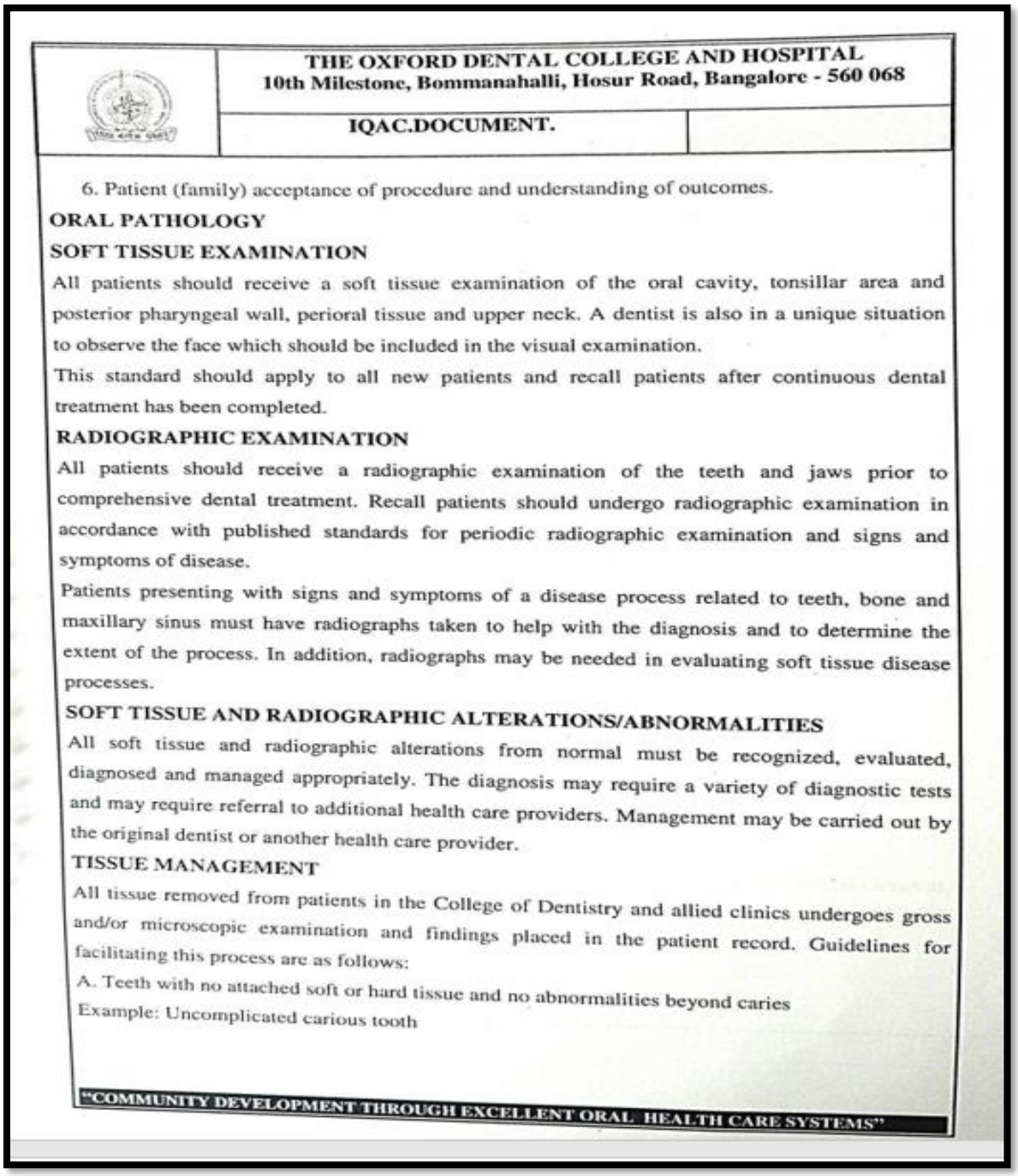


Factors affecting risk

1. Presence of bone and/or soft tissue infection or pathology.
2. Inadequate prosthetic or surgical treatment planning (Implant Consent and Treatment Planning Form (5D) not completed).
3. Inadequate bone quality and volume.
4. Psychological conditions or psychiatric diseases.
5. Patient age.
6. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
7. Systemic conditions that may interfere with normal healing process.
8. Inadequate oral hygiene.
9. Patient age.
10. Proximity of implant placement site to adjacent structures (eg, teeth, maxillary sinus, inferior alveolar nerve).
11. Lack of patient compliance.

Outcomes Assessment

1. Retained, stable, functional implant.
2. No evidence or peri-implant radiolucency (See Implant Radiographic Guidelines in Clinic Manual).
3. Peri-implant soft tissue health.
4. Patient satisfaction with function, asthetics, and ease of maintenance.
5. Limited period of pain and disability.



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6. Patient (family) acceptance of procedure and understanding of outcomes.

ORAL PATHOLOGY

SOFT TISSUE EXAMINATION

All patients should receive a soft tissue examination of the oral cavity, tonsillar area and posterior pharyngeal wall, perioral tissue and upper neck. A dentist is also in a unique situation to observe the face which should be included in the visual examination.

This standard should apply to all new patients and recall patients after continuous dental treatment has been completed.

RADIOGRAPHIC EXAMINATION

All patients should receive a radiographic examination of the teeth and jaws prior to comprehensive dental treatment. Recall patients should undergo radiographic examination in accordance with published standards for periodic radiographic examination and signs and symptoms of disease.

Patients presenting with signs and symptoms of a disease process related to teeth, bone and maxillary sinus must have radiographs taken to help with the diagnosis and to determine the extent of the process. In addition, radiographs may be needed in evaluating soft tissue disease processes.

SOFT TISSUE AND RADIOGRAPHIC ALTERATIONS/ABNORMALITIES

All soft tissue and radiographic alterations from normal must be recognized, evaluated, diagnosed and managed appropriately. The diagnosis may require a variety of diagnostic tests and may require referral to additional health care providers. Management may be carried out by the original dentist or another health care provider.

TISSUE MANAGEMENT

All tissue removed from patients in the College of Dentistry and allied clinics undergoes gross and/or microscopic examination and findings placed in the patient record. Guidelines for facilitating this process are as follows:

A. Teeth with no attached soft or hard tissue and no abnormalities beyond caries

Example: Uncomplicated carious tooth

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A gross description of the tooth and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of in compliance with human waste management standards.

B. Teeth with no attached soft or hard tissue and with variations or abnormalities excluding caries

Example: Dilaceration

Concrescence

A gross description of the tooth, a diagnosis and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of as in condition A.

C. Teeth with no attached soft and hard tissue and with abnormalities excluding caries in which a specific diagnosis of the condition is required

66 Example Dentinogenesis imperfecta

Dentinal dysplasia

The tooth is submitted to oral pathology for gross and microscopic examination.

D. Teeth with no attached soft and hard tissue and no abnormalities in patients with unexplained symptoms associated with the teeth

Example Premature exfoliation of teeth

The tooth is submitted to oral pathology for gross and microscopic examination.

E. Teeth with attached soft tissue

In general, soft tissue is sent to oral pathology for gross and microscopic examination. An acceptable exclusion is the situation of an impacted tooth with pericoronal tissue interpreted clinically as dental follicle.

Criteria for what represents normal follicular tissue and what is pathology may not be clear-cut, but submission to an oral pathology laboratory for microscopic diagnosis should occur if any of the following is present:

1. A radiolucency of more than .4 cm.
2. A radiolucency that exhibits a sclerotic border.
3. A radiolucency that extends along the tooth root surface.
4. A focal increase in the size of the radiolucency.

5. A radiolucency that is associated with resorption of adjacent teeth.
6. A radiolucency that contains radiopacities.
7. Soft tissue lining a distinct cavity.
8. A cavity with luminal contents.
9. Luminal surface vegetations and growths.
10. Thickened lining.

A tooth with tissue interpreted as follicle receives a gross description which is entered in the patient's progress notes by the attending dentist. The tissue is disposed of as in A. However, the submission of normal follicular tissue for microscopic confirmation is totally acceptable.

Tissue required for submission to oral pathology includes periocoronal, periodontal and radicular pathology.

F. Teeth with attached non-diseased bone

Example Traumatic extraction

A gross description of the tooth and bone, reason for removal and interpretation of the bone are included in the patient's progress notes by the attending dentist and the tissue is disposed of as in A.

G. Bone specimens

All diseased or abnormal bone is submitted for gross and microscopic examination. Acceptable exclusions include non-pathologic bone associated with tooth extraction and pre-prosthetic surgery.

H. Soft tissue

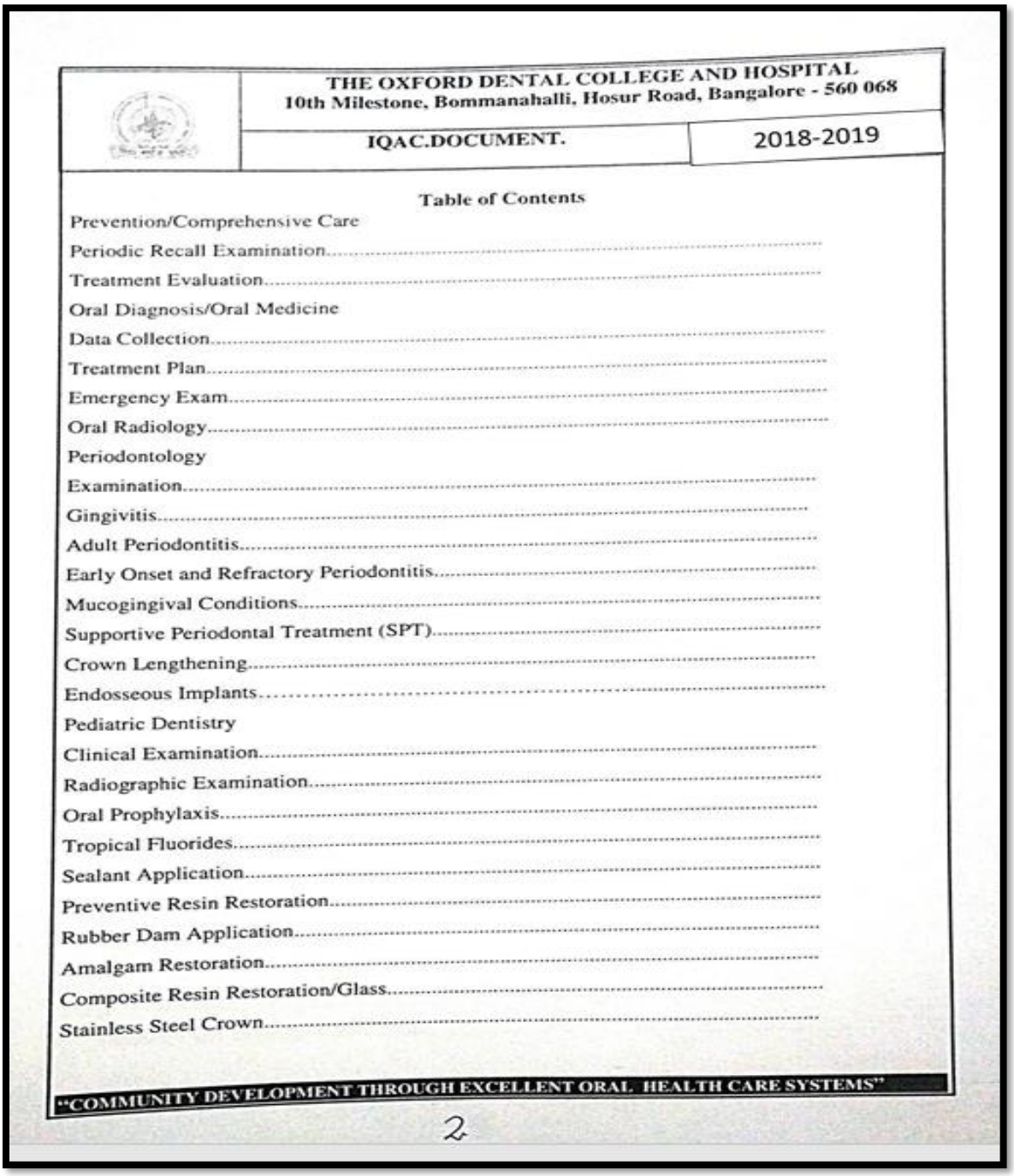
All altered or diseased soft tissue is submitted for gross and microscopic examination. Acceptable exclusions are inflamed pulp, dental follicle as described in E and essentially normal tissue such as mucosa that is removed for treatment of impacted teeth and typical inflammatory periodontal disease.

Tissue removed from routine periodontal procedures may not be submitted for microscopic examination if the clinical and radiographic presentation follows the typical pattern of periodontal disease. A description of the tissue and reason for removal should be entered in the

patient's progress notes by the attending dentist. The tissue should be disposed of as in A, but it is acceptable to submit this tissue for microscopic examination.

Tissue removed in the following situations must be submitted for microscopic examination:

1. Discrete enlargement of gingival soft tissue excluding routine gingivitis.
2. Gingivitis refractory to normal treatment.
3. Isolated alveolar bone defects.
4. Rapidly progressing alveolar bone loss.
5. Areas of exaggerated bone loss in chronic periodontitis.
6. Medical history indicating a systemic illness and/or cancer.
7. Signs and symptoms of a possible undiagnosed systemic illness.
8. Unexplained etiology.
9. Persistent active disease after appropriate therapy.



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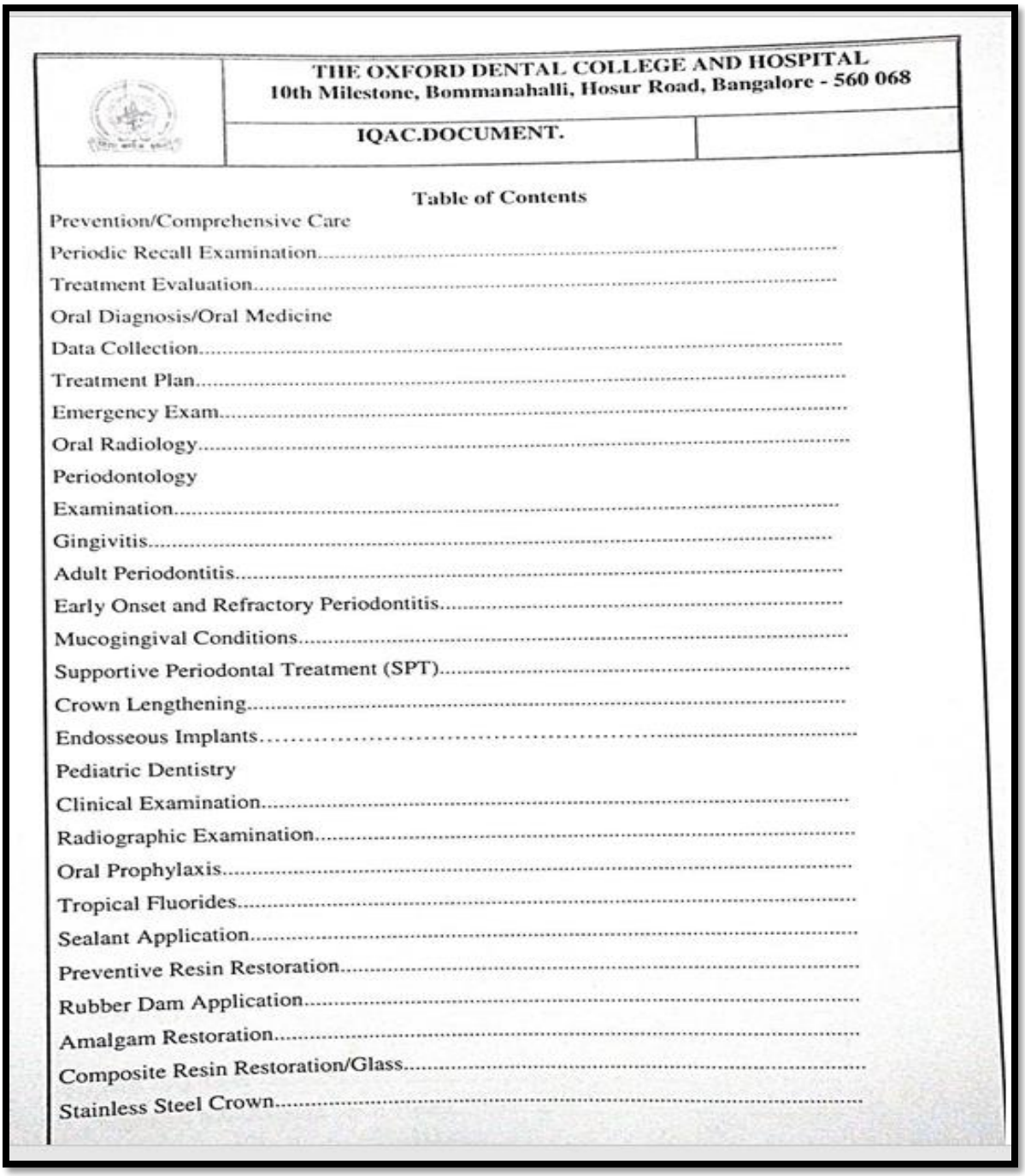

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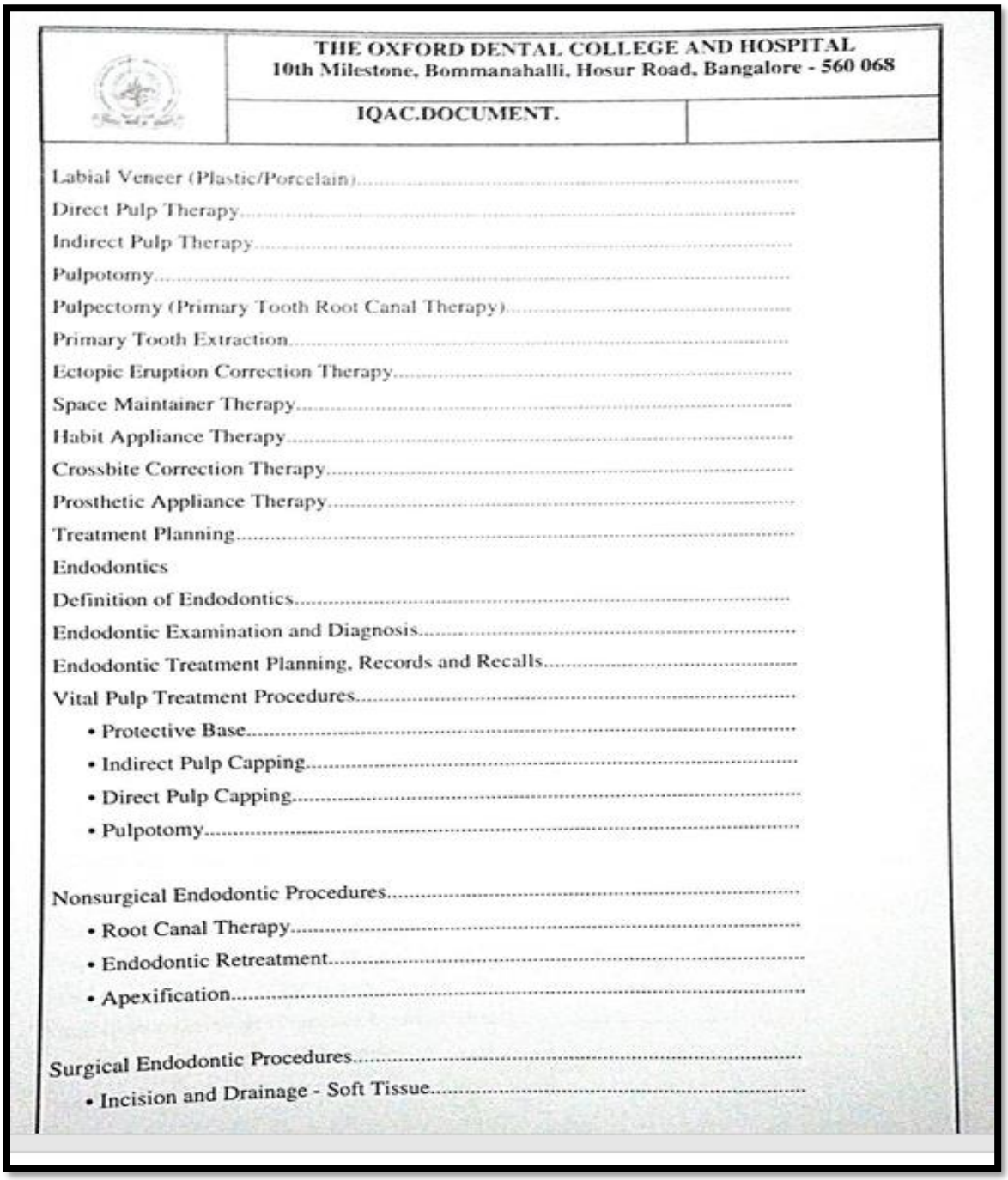

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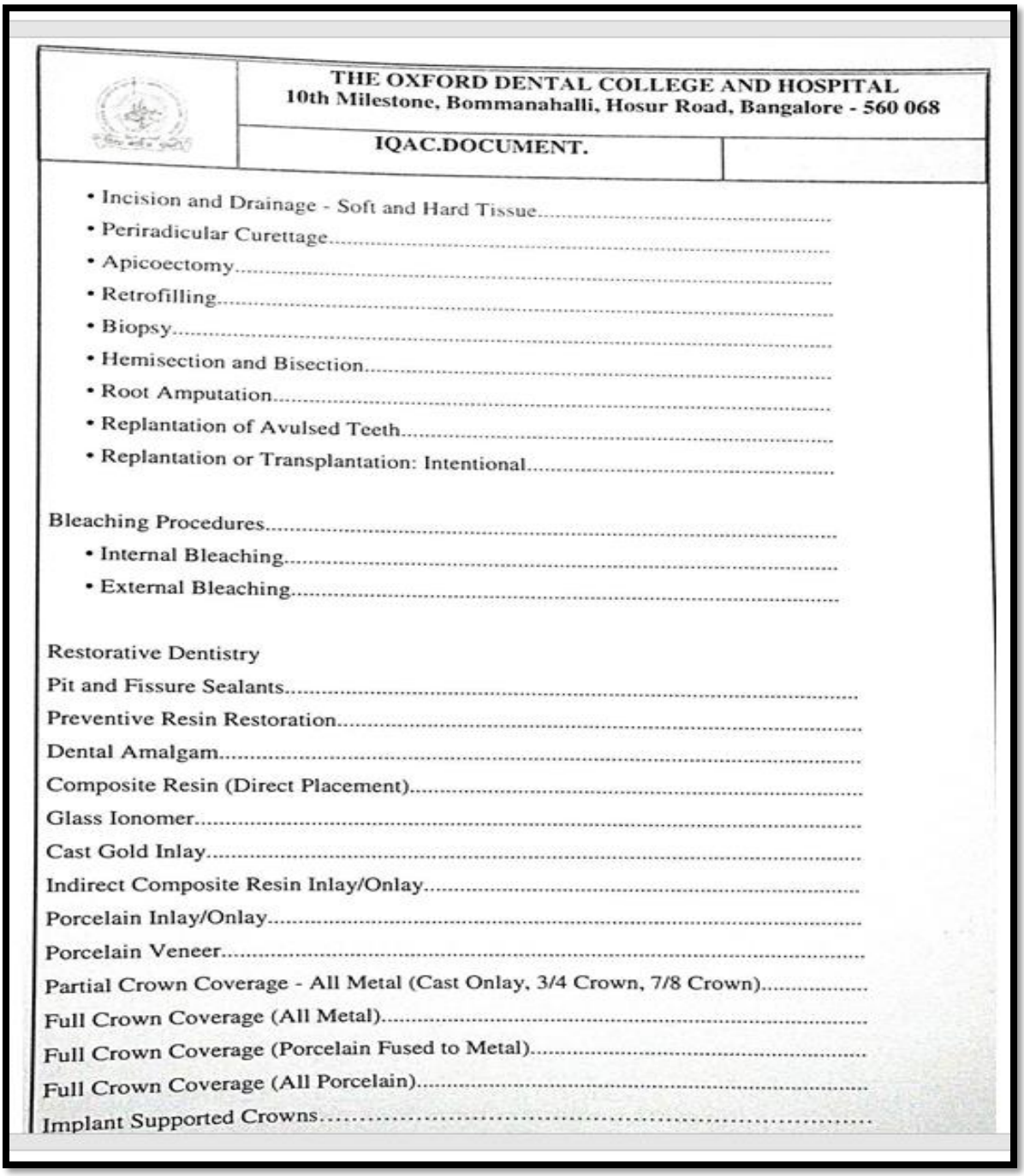
Labial Veneer (Plastic/Porcelain).....
Direct Pulp Therapy.....
Indirect Pulp Therapy.....
Pulpotomy.....
Pulpectomy (Primary Tooth Root Canal Therapy).....
Primary Tooth Extraction.....
Ectopic Eruption Correction Therapy.....
Space Maintainer Therapy.....
Habit Appliance Therapy.....
Crossbite Correction Therapy.....
Prosthetic Appliance Therapy.....
Treatment Planning.....
Endodontics
Definition of Endodontics.....
Endodontic Examination and Diagnosis.....
Endodontic Treatment Planning, Records and Recalls.....
Vital Pulp Treatment Procedures.....
- Protective Base.....
- Indirect Pulp Capping.....
- Direct Pulp Capping.....
- Pulpotomy.....

Nonsurgical Endodontic Procedures.....
- Root Canal Therapy.....
- Endodontic Retreatment.....
- Apexification.....

Surgical Endodontic Procedures.....
- Incision and Drainage - Soft Tissue.....



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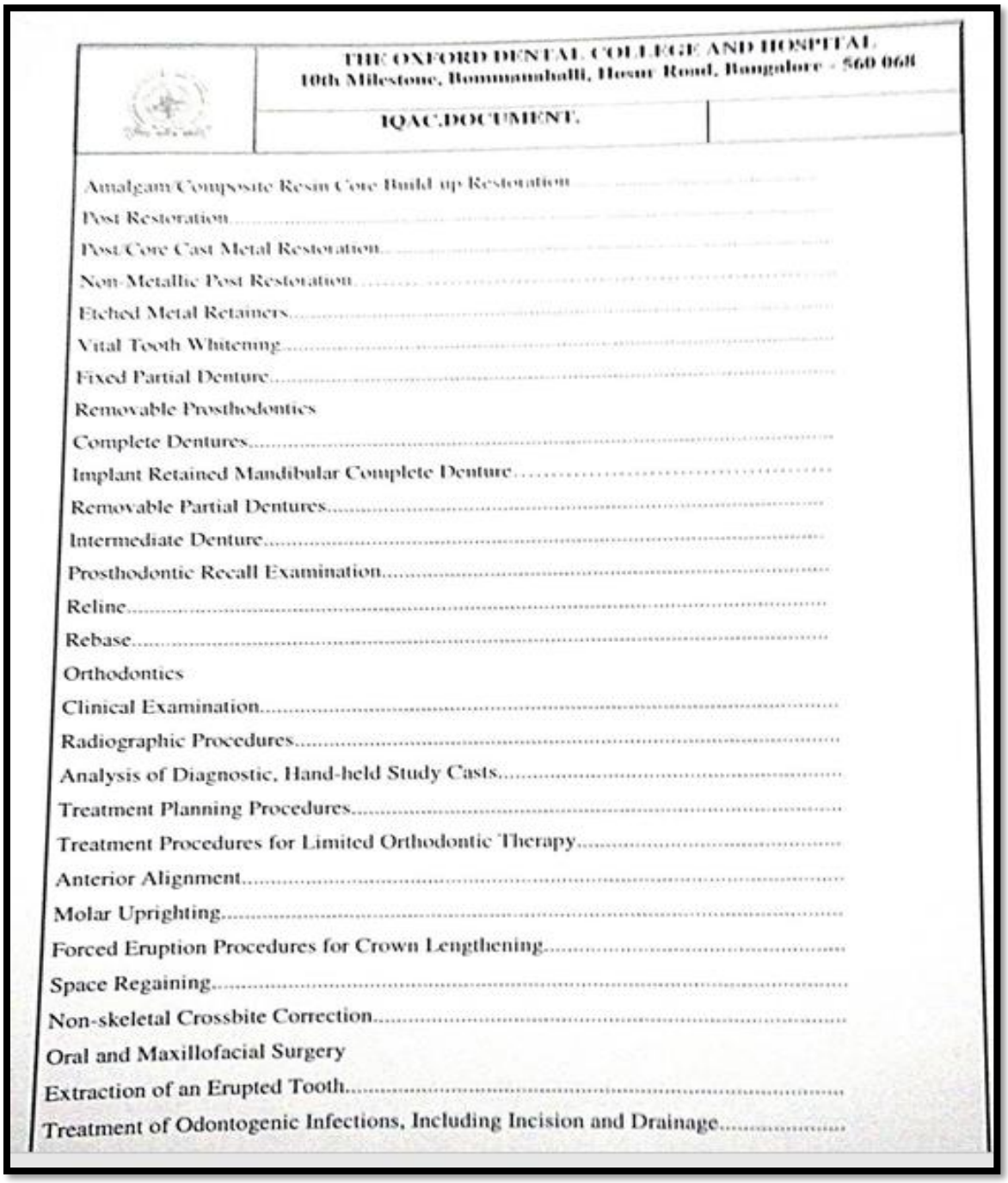
- Incision and Drainage - Soft and Hard Tissue.....
- Periradicular Curettage.....
- Apicoectomy.....
- Retrofilling.....
- Biopsy.....
- Hemisection and Bisection.....
- Root Amputation.....
- Replantation of Avulsed Teeth.....
- Replantation or Transplantation: Intentional.....

Bleaching Procedures.....

- Internal Bleaching.....
- External Bleaching.....

Restorative Dentistry

Pit and Fissure Sealants.....
Preventive Resin Restoration.....
Dental Amalgam.....
Composite Resin (Direct Placement).....
Glass Ionomer.....
Cast Gold Inlay.....
Indirect Composite Resin Inlay/Onlay.....
Porcelain Inlay/Onlay.....
Porcelain Veneer.....
Partial Crown Coverage - All Metal (Cast Onlay, 3/4 Crown, 7/8 Crown).....
Full Crown Coverage (All Metal).....
Full Crown Coverage (Porcelain Fused to Metal).....
Full Crown Coverage (All Porcelain).....
Implant Supported Crowns.....



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Amalgam/Composite Resin Core Build up Restoration
Post Restoration
Post/Core Cast Metal Restoration
Non-Metallic Post Restoration
Etched Metal Retainers
Vital Tooth Whitening
Fixed Partial Denture
Removable Prosthodontics
Complete Dentures
Implant Retained Mandibular Complete Denture
Removable Partial Dentures
Intermediate Denture
Prosthodontic Recall Examination
Reline
Rebase
Orthodontics
Clinical Examination
Radiographic Procedures
Analysis of Diagnostic, Hand-held Study Casts
Treatment Planning Procedures
Treatment Procedures for Limited Orthodontic Therapy
Anterior Alignment
Molar Uprighting
Forced Eruption Procedures for Crown Lengthening
Space Regaining
Non-skeletal Crossbite Correction
Oral and Maxillofacial Surgery
Extraction of an Erupted Tooth
Treatment of Odontogenic Infections, Including Incision and Drainage

Modifications of the Dentoalveolar Process.....

Presurgical Evaluation.....

Conscious Sedation, using Parenteral Agents, N_2O, and/or Oral Medications.....

Endosseous Implants.....

Oral Pathology

Soft Tissue Examination.....

Radiographic Examination.....

Soft Tissue and Radiographic Alterations and Abnormalities.....

Tissue Management.....

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PREVENTION/COMPREHENSIVE CARE

Preventive strategies are part of all patient care at the College of Dental Sciences. Formal prevention includes Oral Hygiene Instructions, Topical Fluoride (when indicated), and Debridement during the Initial Oral Examination. Instruction for proper home care is provided for patients when treatment is planned, during treatment, and at periodic recall examinations. Patients receiving orthodontic treatment, fixed partial dentures, removable prosthodontics, periodontal treatment, and any other dental treatment are provided instructions for cleaning and maintaining their oral health before, during and after treatment.

Periodic recall examinations are scheduled for patients to evaluate hard and soft tissue and reinforce home care. Treatment evaluation is performed at the end of active treatment to evaluate the dental care provided for the patient and work with patients who require additional instruction in prevention.

PERIODIC RECALL EXAMINATION

The periodic recall examination is provided at appropriate intervals to assist patients in maintaining their oral health. Hard and soft tissues are evaluated and recommendations for treatment are made.

Indications

All patients who request follow-up care.

Contraindications

None

Outcomes Assessment

1. All hard and soft tissues are examined and pathology is noted.
2. Home care and appropriate preventive techniques are reinforced or introduced.
3. Appropriate recall interval is established and completed.
4. Patient's oral hygiene is adequate; periodontium and dentition are healthy.

TREATMENT EVALUATION

The treatment evaluation is done at the completion of treatment to assess the care that has been provided and make improvements if needed. Prevention is evaluated and reinforced if necessary at this time.

Indications

All patients who have completed treatment.

Contraindications

None

Outcomes Assessment

1. All dental care provided for the patient is clinically acceptable.
2. Oral hygiene and periodontal condition are satisfactory.
3. Oral hygiene is reinforced, if needed, and appropriate recall interval is established.

ORAL DIAGNOSIS/ORAL MEDICINE

Oral Diagnosis is that aspect of dentistry that involves collection and interpretation of pertinent data essential to diagnosing oral disease. Oral Medicine is concerned with the oral health care of medically compromised patients and with the diagnosis and non-surgical management of medically-related diseases or conditions affecting the oral and maxillofacial region.

The predoctoral oral diagnosis/oral medicine curriculum is designed to educate the dental student to:

1. Gather and organize the necessary information to provide comprehensive and accurate oral health care for the patient;
2. be competent at collecting and recording a medical history;
3. be competent at eliciting and recording a complete dental history;
4. be competent at taking, recording and interpreting vital signs (blood pressure, temperature, pulse, respiration);
5. understand the clinical signs and symptoms of major diseases of each organ system;
6. understand the impact of diseases of various organ systems on the oral cavity and on the delivery of dental care;
7. be competent to perform a head and neck examination, including extraoral soft tissues and intraoral hard and soft tissue;
8. understand the anatomic and biologic bases of the head and neck examination;
9. understand the potential impact of dental therapy on systemic disease;
10. understand performance of a musculoskeletal examination including TMJ function;

11. be competent in the assessment of a functional relationship of the teeth and jaws;
12. diagnose and deliver appropriate care in urgent dental situations;
13. take and accurately interpret diagnostic radiographs;
14. be familiar with the procedures necessary to interact with physicians and other health care providers in total patient evaluation and care; and
15. work with the patient in understanding and supporting personal oral health care.

DATA COLLECTION

Comprehensive data is to be collected on all patients in the student clinic in order to secure an accurate diagnosis and to plan for appropriate oral health care for the patient.

Indications

All patients presenting for care in the student clinic.

Contraindications

None

Outcomes Assessment

1. Medical history is evaluated and all aspects of the patient's health that may impact on the delivery of oral health care are identified.
2. All dental disease is identified through a hard tissue and soft tissue examination.
3. Vital signs are accurately taken and recorded on all patients.
4. Appropriate radiographs are available that are diagnostic and current.
5. Consultants are contacted when appropriate and comments recorded in the dental record.
6. All data is recorded in the dental record in a logical sequence on appropriate forms.

TREATMENT PLAN

A treatment plan will be developed for each patient commensurate with their needs and desires.

Indications

All patients requesting care in the student clinic

Contraindications

None

Outcomes Assessment

1. Proposed treatment is based on documentable clinical and/or radiographic findings.

2. Treatment is sequenced in a logical manner including severity of disease, patient desire, difficulty of procedure, etc.

3. Treatment options are discussed with the patient, fees are explained, and informed consent for proposed treatment is obtained.

4. Treatment needs are sequenced according to: (1) preliminary needs (immediate care required); (2) phase I, elimination of disease; (3) phase II, elective treatment including fixed and/or removable prosthodontics, and (4) recall, maintenance therapy.

EMERGENCY EXAM

Patients presenting with urgent needs will receive an emergency exam and treatment necessary to stabilize their condition.

Indications

Patients of record reporting to the student clinic and patients of non-record reporting to the urgent care clinic.

Contraindications

Patients whose needs are determined to be a non-urgent nature by the attending dentist or are too complex for the student dentist.

Outcomes Assessment

1. Patients of record with urgent needs will be evaluated and treated by their student dentist under the supervision of the appropriate discipline.

2. Patients of non-record will be seen in the urgent care clinic, stabilized, and referred to the appropriate source for follow-up care.

3. Patients whose needs are determined to be of a non-urgent nature will be referred to the appropriate source for follow-up care.

ORAL RADIOLOGY

Oral radiology is the area of dental practice that deals with the use of radiation, including diagnostic, therapeutic, and nuclear aspects of clinical practice and research. It is based on physical principles and biologic phenomena and is linked with most branches of dental science. Radiographic examinations are based on the needs of the patient, not the amount of time elapsed

since the last exposure, not on a periodic basis, and not for administrative purposes. This is in accordance with the guidelines for prescribing dental radiographs (FDA publication #88-8273).

INTRAORAL FILMS

Indications

Patients requesting oral health care.

Contraindications

Diagnostic films taken recently and available, patient is pregnant seeking elective care during first trimester of pregnancy with no clinical evidence of oral disease, or patient is edentulous with a recent panoramic film.

Outcomes Assessment

1. Technical ability will be confirmed by a radiographic product that is diagnostic and appropriate to the patient's status.
2. Processing of the films will be performed by the clinician with any processing errors identified and remediated by that clinician.
3. Selection criteria for the radiographic examination are stated and logical.
4. Radiographs are analyzed under the supervision of qualified personnel.
5. Radiographic safety will be demonstrated through appropriate use of shielding devices, accurate exposure dosage, and radiographic records for each patient.

SUPPLEMENTAL FILMS (EXTRAORAL, PANORAMIC, ETC.)

Indications

Patients seeking care with specialized needs. Requests for additional radiographs to supplement intraoral films or to replace these films includes, but are not limited to panoramic films on edentulous patients, TMJ series, Water's view, and lateral skull.

Contraindications

Information available on intraoral films, diagnostic radiographs available from another source, pregnant individuals seeking elective care during the first trimester.

Outcomes Assessment

These films will be ordered, exposed and interpreted under the supervision of qualified personnel.

PERIODONTOLOGY

"That specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes; the maintenance of the health, function and esthetics of these structures and tissues; and the replacement of lost teeth and supporting structures by grafting or implantation of natural and synthetic devices and materials" (1).

KNOWLEDGE

While periodontal disease diagnosis and treatment requires special knowledge, practitioners must possess a working knowledge of other disciplines to provide optimum care. Some of these disciplines are:

- Physiology
- Anatomy
- Histology
- Microbiology
- Immunology
- Pathology
- Restorative Dentistry
- Oral Medicine
- Pharmacology
- Systemic Disease
- Dental Implants
- Biochemistry
- Prosthodontics
- Pediatric Dentistry
- Endodontics
- Biomaterials
- Laboratory Medicine
- Critical Thinking

- Oral And Maxillofacial Surgery
- Radiology
- Oral Biology

INTRODUCTION

The goal of periodontics is to maintain or restore health in the periodontium. Arresting or slowing down the disease process may be alternative goals if "health" cannot be achieved. Generally the diseases dealt with are inflammatory and are categorized as gingivitis or periodontitis. The principle causative agents are intraoral microflora which colonize the tooth surface both supragingivally and subgingivally as well as the subgingival pocket area.

Transition of gingivitis to periodontitis does not always occur, although periodontitis is always preceded by gingivitis. Since the structures and microflora involved in gingivitis and periodontitis are different, treatment methodologies and outcomes will vary depending on the disease. Elimination of the bacteria present in gingivitis can lead to a complete reversal of the disease. Treatment of periodontitis always requires elimination of microflora but the periodontium will not return to its pre-diseased state.

9 The general practitioner should be able to diagnose health and disease, treatment plan, remove plaque, treat gingivitis, and manage periodontitis. Management may include nonsurgical treatment of early disease and working with a periodontist on a referral basis for treatment of all forms of periodontitis. The general practitioner should be well versed in multiple methods of patient control of oral microflora.

EXAMINATION

1. A thorough medical history should be taken on each patient. Various systemic diseases, conditions, and habits such as diabetes, hypertension, smoking and pregnancy can influence periodontal conditions and treatment. A complete list of all patient medications should be recorded, and their actions and interactions with drugs to be prescribed should be evaluated. Consultations with other health care professions should be obtained as needed.

2. A dental history should be obtained and any previous records and radiographs should be added to the current file. Contacts with previous dental practitioners may provide valuable information.
3. A head and neck extraoral examination should be performed. Abnormalities should be noted and appropriate referrals performed if necessary.
4. An intraoral examination of oral mucosa, tongue, floor of mouth, lips, palate, oropharynx, glands, and alveolus should be performed. Palpation should be utilized as required. All abnormalities should be noted and consultations obtained as needed.
5. Individual teeth, replacements, occlusion, caries, tooth position, pulpal status (as needed), restorations, and mobility should be noted. Diagnostic casts should be obtained.
6. Appropriate radiographs should be taken. A panoramic film and bite-wing radiographs are sufficient for analysis of the periodontium of a patient with gingivitis. Full mouth radiographs are required for patients with periodontitis.
7. The presence of plaque and calculus should be recorded.
8. The gingival and alveolar mucosa should be examined. Consistency, color and frenum insertions, probing depths, bleeding points, recession and furcation involvement should be recorded. The quantity of attached gingival should be noted.
9. Laboratory tests and additional radiographs should be obtained if needed.
10. Data should be analyzed and a diagnosis, treatment plan and prognosis formulated.

GINGIVITIS

Gingivitis is inflammation of the gingival by oral microflora (plaque) without attachment loss. Some or all of the following clinical findings may be present:

- Erythema
- Bleeding On Probing
- Contour Alteration
- Consistency Alteration
- Presence of Calculus
- Presence of Plaque
- Edema

Tooth position and existing restorative dentistry can be secondary contributing disease factors.

Treatment Goals

Return the gingival tissue to health by eliminating plaque, calculus and secondary contributing factors.

Methodology

1. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
2. Oral hygiene education, demonstration and evaluation.
3. Removal of microbial plaque, calculus and stain. This is typically performed by hand and/or ultrasonic instrumentation (scaling) and application of abrasive pastes.
4. Correction of secondary restorative factors. Examples may include:

- Overhanging Margins
- Open Margins
- Improperly contoured restorations
- Primary caries
- Secondary Caries
- Open Contacts
- Fractured Restorations

5. Correction of tooth malposition if possible.
6. Reexamination.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema and bleeding on probing should be evidenced if satisfactory treatment was rendered and patient oral hygiene was satisfactory. Gingival health should be present if these conditions exist.
2. If treatment is unsuccessful, additional instrumentation may be required and/or a change in frequency of instrumentation. A review of plaque control procedures with the patient as well as alternative plaque control measures may be required.

ADULT PERIODONTITIS

"Periodontitis is inflammation of the supporting tissues of the teeth. It is usually a progressively destructive change leading to loss of bone and periodontal ligament or an extension of inflammation from gingival into the adjacent bone and ligament. Adult periodontitis usually has an onset beyond age 35. Bone resorption usually progresses slowly and predominantly in the horizontal direction. Well-known local environmental factors are prominent and abnormalities in host defense have not been found" (1). Clinical features may include some or all of the following:

- Edema
- Erythema
- Bleeding on Probing
- Suppuration
- Bone Loss (early to moderate up to 1/3, advanced > 6 mm)
- Furcation involvement (early to moderate-class i, advanced-class ii or iii)
- Tooth Mobility
- Radiographic Evidence Of Bone Loss
- Probing Depths (early to moderate up to 6 mm, advanced > 6 mm)
- Attachment Loss (early to moderate up to 5 mm, advanced > 5 mm)
- Localized or Generalized Presentation
- Early, Moderate And or Advanced Stages

Treatment Goals

Eliminate arrest or slow down the disease by the elimination and/or alteration of the oral microflora and secondary factors. Preservation of a healthy, comfortable, functional and esthetic dentition is the goal for each patient.

Methodology

1. Evaluate contributing factors such as smoking, diabetes, medications, and pregnancy. Eliminate as many contributing factors as possible.

12. Reexamination as deemed appropriate.

Surgery

1. The appropriate surgical modality will be determined by a periodontal faculty member, periodontal resident and the dental student.
2. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
3. Reexamination as deemed appropriate.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema, probing depths, and bleeding points if satisfactory treatment was rendered. Stabilization or gain of clinical attachment should also be evident during the clinical reexamination. Improvement may be seen in radiographic appearance.
2. Alteration of occlusal forces.
3. Effective patient oral hygiene.
4. Unresolved areas of periodontal disease may occur and be characterized by:
    - inflammation
    - increased probing depths
    - continued attachment loss
    - persistent bleeding on probing
    - persistent plaque deposition
5. Patient response is variable and treatment modalities may require modification or alteration as needed.

EARLY ONSET AND REFRACTORY PERIODONTITIS

These disease entities will receive treatment by periodontal residents and/or faculty.

MUCOGINGIVAL CONDITIONS

Mucogingival conditions are alterations of the normal relationship between the free gingival margin and the mucogingival junction. Alterations of morphology position and quantity of gingival may be present (1). Clinical features may include:

- Recession

- Lack of or reduction in keratinized tissue
- Lack or reduction in attached gingiva
- Probing depths which traverse the mucogingival junction
- Ridge defects

Treatment Goals

Decrease or eliminate root sensitivity, correct esthetic problems, eliminate pocketing and control or eliminate inflammation.

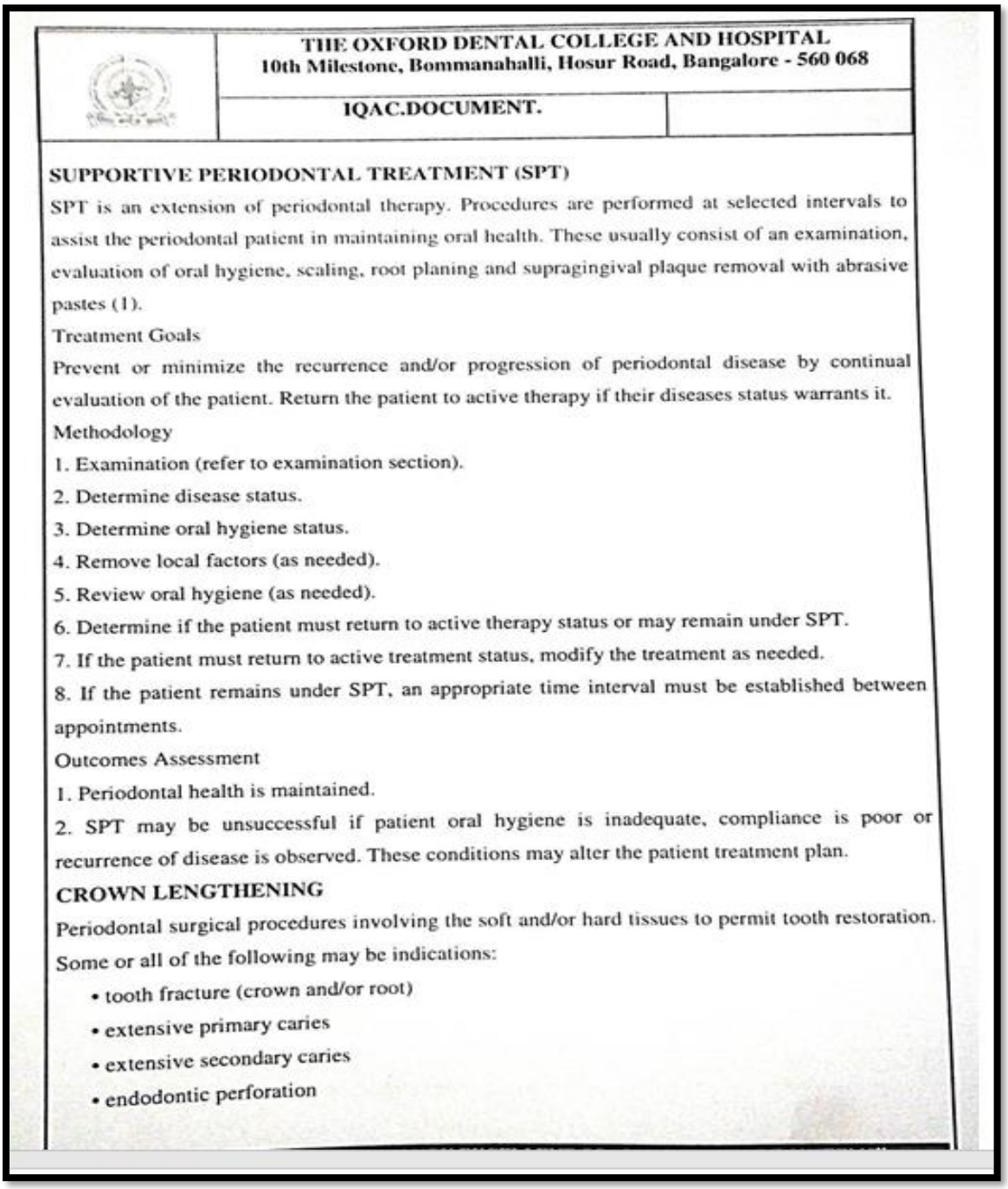
Methodology

Surgical procedures will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.

1. Eliminate or control inflammation through plaque control by improved oral hygiene and scaling and root planing.
2. Root desensitization.
3. Gingival grafting.
4. Root coverage (soft tissue).
5. Correction of trauma from occlusion.
6. Frenectomy or frenotomy.
7. Correction of tooth malposition.
8. Surgical procedures for probing depth reduction.
9. Surgical procedures for ridge augmentation.

Outcomes Assessment

1. Clinical signs of inflammation have been eliminated.
2. Esthetics are satisfactory.
3. Areas of recession may have been corrected.
4. Recession is not progressing.
5. Mucogingival defects have been corrected.
6. Successful treatment may not have occurred due to persistent inflammation or the persistence of mucogingival defects. Satisfactory results are not possible in all patients.



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SUPPORTIVE PERIODONTAL TREATMENT (SPT)

SPT is an extension of periodontal therapy. Procedures are performed at selected intervals to assist the periodontal patient in maintaining oral health. These usually consist of an examination, evaluation of oral hygiene, scaling, root planing and supragingival plaque removal with abrasive pastes (1).

Treatment Goals

Prevent or minimize the recurrence and/or progression of periodontal disease by continual evaluation of the patient. Return the patient to active therapy if their diseases status warrants it.

Methodology

1. Examination (refer to examination section).
2. Determine disease status.
3. Determine oral hygiene status.
4. Remove local factors (as needed).
5. Review oral hygiene (as needed).
6. Determine if the patient must return to active therapy status or may remain under SPT.
7. If the patient must return to active treatment status, modify the treatment as needed.
8. If the patient remains under SPT, an appropriate time interval must be established between appointments.

Outcomes Assessment

1. Periodontal health is maintained.
2. SPT may be unsuccessful if patient oral hygiene is inadequate, compliance is poor or recurrence of disease is observed. These conditions may alter the patient treatment plan.

CROWN LENGTHENING

Periodontal surgical procedures involving the soft and/or hard tissues to permit tooth restoration.

Some or all of the following may be indications:

- tooth fracture (crown and/or root)
- extensive primary caries
- extensive secondary caries
- endodontic perforation

2. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
3. Oral hygiene education, demonstration and evaluation.
4. Removal of microbial plaque, calculus and stain (supragingivally and subgingivally). Typically performed by hand and/or ultrasonic instrumentation (scaling and root planning).
5. Local delivery of antimicrobials may be utilized secondarily.
6. Systemic delivery of antibiotics may be utilized secondarily.
7. Correction of secondary restorative factors such as:
   - Overhanging Margins
   - Open Margins
   - Improperly Contoured Restorations
   - Primary Caries
   - Secondary Caries
   - Open Contacts
   - Fractured Restorations

8. Correction of other secondary factors such as:
   - Poor Prosthetic Appliances
   - Trauma from Occlusion
   - Tooth Malposition

9. An appropriate time interval should be observed to allow for inflammation resolution and repair. A thorough periodontal reexamination should be performed including gingival characteristics, probing, and bleeding points. Evaluation of the patient should be performed and their disease status determined.
10. If periodontal therapy has resolved the periodontal disease, supportive periodontal treatment (SPT) should be initiated.
11. If periodontal therapy has not resolved the periodontal disease, further nonsurgical or surgical therapy should be performed as deemed appropriate.

- inadequate crown length for adequate preparation
- iatrogenic dentistry
- post-orthodontic extrusion

Treatment Goals

Provide adequate crown length, and maintain proper crown to root ratio while preserving the biologic width.

Methodology

1. Determination of need will be made by the periodontal and restorative faculty in conjunction with the periodontal resident and dental student.
2. Resective soft and/or hard tissue surgery.
3. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
4. Determine patient oral hygiene.

Outcomes Assessment

1. Post-operative crown length adequate for required post-surgical procedures.
2. Adequate patient oral hygiene.
3. Unfavorable results can be evidenced due to inadequate tissue resection, poor oral hygiene, inadequate crown to root ratio, and fractures requiring tooth extraction.

ENDOSSEOUS IMPLANTS

Replacement of (a) teeth (tooth) with (a) machined root form shaped titanium alloy to improve function and/or esthetics. The following may be indications for placement:

1. Tooth and/or root fracture
2. Missing teeth due to trauma
3. Previous extraction sites
4. Spaces created by orthodontic movement
5. Endodontic failures
6. Restorative failures
7. Extractions due to periodontal disease

8. Non-restorable teeth due to caries (following extraction)
9. To avoid preparation of virgin teeth for bridge abutments
10. Anchorage for orthodontic tooth movement

Treatment Goals

Provide the patient with 1) replacement function and/or esthetics in edentulous areas of the mandible and/or maxilla or 2) anchorage for orthodontic tooth movement.

Methodology

1. The determination of the appropriate treatment will be determined by clinical faculty in the appropriate disciplines which would generally be periodontics, restorative dentistry, prosthodontics, and orthodontics. The Implant Consent and Treatment Planning Form (5D) and financial arrangements must be completed before treatment begins.

2. The supervising periodontal resident and the dental student will be involved in the treatment plan.

3. Appropriate faculty, the periodontal resident, and the dental student will explain the treatment plan to the patient.

4. Existing periodontal disease in the dentition must be resolved prior to implant placement.

5. A plaque score of 25% must be achieved prior to implant placement.

6. Implant placement will be performed by the periodontal resident who will be assisted by the dental student assigned to the patient. The procedure will be performed in the periodontal graduate clinic under the supervision of the periodontal faculty.

Outcomes Assessment

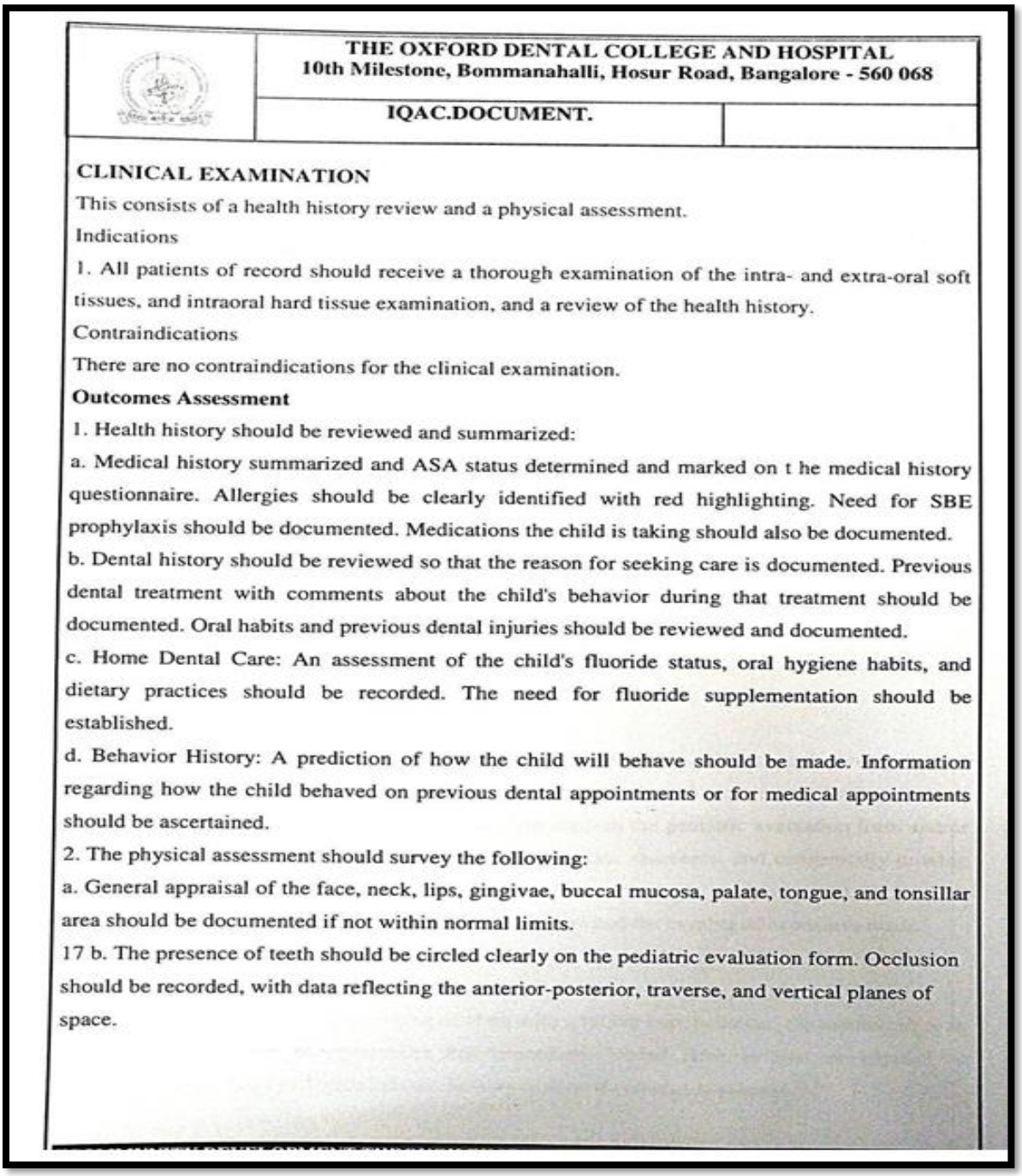
1. The implant will be evaluated radiographically for adequate placement (See Radiographic Guidelines for Implant Patients in the Clinic Manual).
2. Following healing (3-6 months) the implant will be evaluated for mobility and probing depth.
3. Patient oral hygiene will be evaluated and corrected as required.
4. Radiolucencies, implant mobility, and increased probing depths are indications that an implant is ailing, failing or has failed and further treatment is required.

References

1. Glossary of Periodontal Terms. The American Academy of Periodontology, 1992.

PEDIATRIC DENTISTRY

Pediatric Dentistry is an age specific dental specialty that encompasses all aspects of dentistry. Since children are unique in their stages of development, oral diseases, and oral health treatment needs, this section will focus on comprehensive preventive and therapeutic oral health care of children. One goal is to provide a basic philosophical and technical foundation for diagnosis, treatment planning, and providing treatment procedures in children. Another goal is to provide practical experience in managing the behaviors of children. The former goal is scientifically more definitive, while the latter goal is less clearly defined. Regarding the practical experience gained through behavior management; it is only expected that the student should clearly document the child's initial behavior and describe uncooperative or inappropriate behaviors. Once strategies for managing the behaviors are implemented it is then expected that the student document effectiveness of the techniques. The goal is to have the management techniques positively affect the child's emotional development. Further, the student should understand that behavior management methods employed are to allow the opportunity for communicating, educating, coping, and cooperating during treatment procedures. In addition to words, it is desired that the student appreciate the impact of voice tone, facial expression and gestures. The more definitive pediatric dentistry treatments follow:



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CLINICAL EXAMINATION

This consists of a health history review and a physical assessment.

Indications

1. All patients of record should receive a thorough examination of the intra- and extra-oral soft tissues, and intraoral hard tissue examination, and a review of the health history.

Contraindications

There are no contraindications for the clinical examination.

Outcomes Assessment

1. Health history should be reviewed and summarized:

a. Medical history summarized and ASA status determined and marked on t he medical history questionnaire. Allergies should be clearly identified with red highlighting. Need for SBE prophylaxis should be documented. Medications the child is taking should also be documented.

b. Dental history should be reviewed so that the reason for seeking care is documented. Previous dental treatment with comments about the child's behavior during that treatment should be documented. Oral habits and previous dental injuries should be reviewed and documented.

c. Home Dental Care: An assessment of the child's fluoride status, oral hygiene habits, and dietary practices should be recorded. The need for fluoride supplementation should be established.

d. Behavior History: A prediction of how the child will behave should be made. Information regarding how the child behaved on previous dental appointments or for medical appointments should be ascertained.

2. The physical assessment should survey the following:

a. General appraisal of the face, neck, lips, gingivae, buccal mucosa, palate, tongue, and tonsillar area should be documented if not within normal limits.

17 b. The presence of teeth should be circled clearly on the pediatric evaluation form. Occlusion should be recorded, with data reflecting the anterior-posterior, traverse, and vertical planes of space.

c. Anomalies in number, size, shape, texture, eruption, exfoliation, and tooth position should be documented. All dental restorations and carious lesions should be charted by tooth number and surface.

d. History of traumatic injuries and oral habits should be documented to identify teeth affected, description of how injured, duration of habit, and date of injury.

RADIOGRAPHIC EXAMINATION

Indications

All patients of record should receive an assessment of dental caries, periodontal status, developmental status, pathologic disturbances, swelling and pain or dysfunction.

All radiographs will be ordered based on the guidelines set forth by the American Academy of Pediatric Dentistry (AAPD) and as published reference manual indicates in the "Pediatric Dentistry Journal." (FDA publication #88-8273)

Contraindications

Patients in the first trimester of pregnancy seeking elective care. Radiographs will only be ordered according to the guidelines of the AAPD.

Outcomes Assessment

1. All radiographs are of diagnostic quality to permit assessment of health and development of the dentition and oral structures. They are to supplement the clinical examination findings.
2. Pathologic interpretations should also be documented on the pediatric evaluation form and/or in the progress notes. This includes eruption interferences, abscesses, and congenitally missing teeth.
3. A radiographic record should document films ordered and the number of exposures made.

ORAL PROPHYLAXIS

Traditionally this has been the polishing of teeth with a rubber cup; however, the toothbrush is an acceptable instrument for completing this procedure. Dental floss is also an adjunct for intraproximal portion of the prophylaxis. Scaling is done if calculus is present.

Indications

1. Removal of plaque, calculus, and/or extrinsic stains from the teeth.
2. Polishing the teeth.
3. Education of the child and/or caregiver.

Contraindications

1. Patients who are susceptible to subacute bacterial endocarditis need to be managed with the appropriate antibiotic therapy according to current AHA guidelines.
2. Patients who suffer with a bleeding disorder need to be managed with the appropriate precautions if bleeding is likely for this procedure.

Outcomes Assessment

1. All plaque should be removed from the crowns of all tooth surfaces.
2. Extrinsic stains and calculus should be removed and the teeth should be polished.

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3. Child should be given instructions on plaque removal and should minimally demonstrate with a toothbrush. As coordination improves, flossing instructions should be implemented.
4. A recall plan should be established and documented.

TOPICAL FLUORIDES

Indications

Caries susceptible children as demonstrated by enamel decalcifications or clinically diagnosed caries. Systemic fluoride supplementation schedule is attached.

Contraindications

1. Children who do not understand or who are unable to prevent swallowing the fluoride products.
2. Children who are a low caries risk (caries free, excellent oral hygiene, and open contacts).

Outcomes Assessment

1. Fluoride application is retained in child's mouth for one to four minutes.
2. Child does not eat or drink for the next 30 minutes.

SEALANT APPLICATION

Indications

1. Deep, retentive pits and fissures that may cause wedging or catching of an explorer.
2. History of previous occlusal caries.
3. Tooth erupted within the last 4-5 years.
4. Can be placed on primary or permanent molars, premolars, and the cingula of maxillary incisors with deep pits and/or fissures.

Contraindications

1. Well coalesced, self cleaning pits and fissures.
2. Patients with interproximal lesions on a tooth that is planned for a sealant or occlusal caries.
3. Inability to keep tooth contained with dry isolation.

Outcomes Assessment

1. Sealant is intact and covers all susceptible pits and fissures.
2. Occlusion is evenly distributed as before placement of the sealant.
3. No evidence of caries development.

PREVENTIVE RESIN RESTORATION

Indications

1. Deep pits and fissures in primary and permanent teeth that contain questionable caries areas.
2. Implicit carious lesions.
3. Well confined carious lesions.
4. Enamel defects.

Contraindications

1. Interproximal caries on suspect tooth.
2. Need to extend preparation beyond the suspect pit and/or fissure.

Outcomes Assessment

1. Restoration is intact and covering all involved and/or susceptible pits and fissures.
2. Normal occlusal relationship is maintained.
3. No evidence of caries development beneath or around the margins of the restoration.

RUBBER DAM APPLICATION

Indications

1. Restorative or endodontic procedures for primary or permanent teeth.
2. Protect soft tissues and improve patient management.
3. Prevent dental instruments and other materials from entering the oropharynx.

Contraindications

1. Orthodontic bands on teeth.
2. Patients with poor nasal exchange.
3. Patients with allergy to latex.
4. Clamp cannot be retained due to state of eruption of the tooth.

Outcomes Assessment

1. Rubber dam does not block the nose for air exchange.
2. Rubber dam barrier remains intact through procedures, does not become dislodged, and isolates teeth to be treated.
3. All stabilizing ligatures and rubber dam material is removed upon completion of restorative procedures.

AMALGAM RESTORATION

Indications

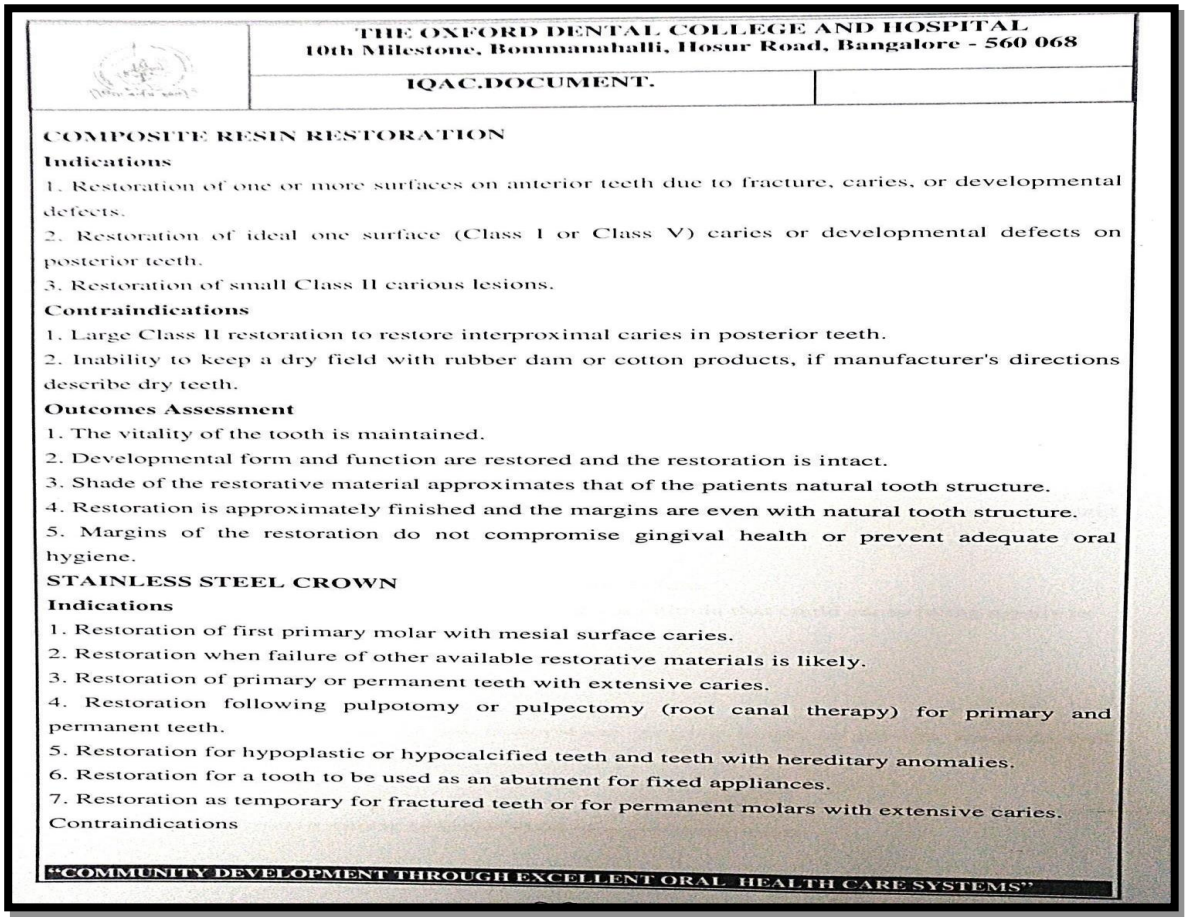
1. The restoration of dental caries.
2. The restoration of developmental defects.

Contraindications

1. First primary molar with mesial caries.
2. Interproximal caries that goes beyond the buccalline angle.
3. Caries greater than 1/3 the isthmus of the occlusal portion of the amalgam preparation in primary molars.

Outcomes Assessment

1. Vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration remains intact.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.



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COMPOSITE RESIN RESTORATION

Indications

1. Restoration of one or more surfaces on anterior teeth due to fracture, caries, or developmental defects.
2. Restoration of ideal one surface (Class I or Class V) caries or developmental defects on posterior teeth.
3. Restoration of small Class II carious lesions.

Contraindications

1. Large Class II restoration to restore interproximal caries in posterior teeth.
2. Inability to keep a dry field with rubber dam or cotton products, if manufacturer's directions describe dry teeth.

Outcomes Assessment

1. The vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration is intact.
3. Shade of the restorative material approximates that of the patients natural tooth structure.
4. Restoration is approximately finished and the margins are even with natural tooth structure.
5. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

STAINLESS STEEL CROWN

Indications

1. Restoration of first primary molar with mesial surface caries.
2. Restoration when failure of other available restorative materials is likely.
3. Restoration of primary or permanent teeth with extensive caries.
4. Restoration following pulpotomy or pulpectomy (root canal therapy) for primary and permanent teeth.
5. Restoration for hypoplastic or hypocalcified teeth and teeth with hereditary anomalies.
6. Restoration for a tooth to be used as an abutment for fixed appliances.
7. Restoration as temporary for fractured teeth or for permanent molars with extensive caries.

Contraindications

"COMMUNITY DEVELOPMENT THROUGH EXCELLENT ORAL HEALTH CARE SYSTEMS"

Not enough space to place an adequately fitting crown.

Outcomes Assessment

1. Adequate caries removal and/or pulp treatment is completed and tooth is reduced for the crown.
2. Crown is appropriately trimmed, adapted, smoothed, and polished.
3. Appropriate sized crown that maintains arch length.
4. Adequate marginal adaptation for gingival health and excess cement is removed.
5. Functional occlusion is restored.
6. Tooth vitality is maintained when possible.
7. Restoration enables patient to maintain oral hygiene.
8. Restoration does not interfere with tooth eruption.

LABIAL VENEER (PLASTIC/PORCELAIN)

Indications

1. Esthetic restoration for anterior teeth that need to be restored or are deeply stained or discolored.
2. Conservative restoration for preventing full coverage restorations of fractured permanent incisors.

Contraindications

1. Occlusal disharmonies that could cause restoration failure.
2. Patients with disorders such as esophageal reflux or bulimia that could cause luting agents to fail.

Outcomes Assessment

1. Restore form and esthetics.
2. Maintain vitality of the tooth restored.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

DIRECT PULP THERAPY

Indications

1. Minimal pulp exposure during caries removal on a permanent tooth.

2. Therapy for permanent tooth that sustains a mechanical exposure during preparation or that has a traumatic exposure such as in the case of a fracture.

Contraindications

1. Primary teeth.
2. Greater than minimal pulp exposure (gross exposure).
3. Radiographic periapical radiolucency; signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. Hemorrhage is controlled and calcium hydroxide is placed over the exposed pulp.
2. Preparation is sealed with an appropriate restorative material.
3. Vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident (pain, swelling).
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification.

INDIRECT PULP THERAPY

Indications

A tooth that has caries approaching the pulp. Placing a protective dressing over a layer of remaining dentin protects against pulpal injury and stimulates healing.

Contraindications

1. Radiographic periapical radiolucency indicating a pathologic condition.
2. Signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. An appropriate base is placed over the remaining carious dentin.
2. The preparation is sealed with an appropriate restorative material.
3. The vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident.
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.

PULPOTOMY

Indications

1. Carious or mechanical exposures in primary molars with vital pulps.
2. Permanent teeth when the pulp is exposed and is vital.
3. Permanent teeth as urgent treatment in preparation for conventional root canal therapy.

Contraindications

1. Inability to control hemorrhage upon removing infected or affected canal pulp tissues.
2. Periapical radiolucency in suspect primary molar.
3. Clinical signs and symptoms of irreversible pulpitis or abscess for primary molar.

Outcomes Assessment

1. Appropriate selection and use of pulp therapy medicament.
2. Radicular pulp vitality is maintained and no prolonged adverse clinical signs and symptoms are evident.
3. No pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.
4. Normal root apical closure and root length occurs.

PULPECTOMY (PRIMARY TOOTH ROOT CANAL THERAPY)

Indications

1. Primary incisors traumatized with consequent pathology.
2. Non vital permanent teeth with immature roots.
3. Non vital primary molars.
4. Primary molars that sustain hemorrhage upon attempting pulpotomy procedures.

Contraindications

1. Facial swelling associated with non vital primary molar.
2. Tooth is not restorable.
3. Pathology extends to developing permanent teeth.
4. Internal or external resorption in crown and root.
5. Less than 2/3 of the primary tooth root structure remains.
6. Treatment could cause untoward sequela for medically compromised patient.

Outcomes Assessment

1. Evidence of a successful root canal filling with the appropriate material (no gross overextension or underfilling of canal).
2. Radiographic observation reveals root end closure (apexification).
3. No prolonged adverse clinical signs and symptoms.
4. No radiographic evidence of internal/external resorption.
5. No exacerbation of previous periradicular radiolucency or development of periradicular radiolucency where none existed.

PRIMARY TOOTH EXTRACTION

Indications

1. Acute or chronic pathology associated with primary teeth.
2. Over-retained teeth.
3. Cariously involved, non-restorable tooth.
4. Natal/neonatal teeth that are mobile and subject to aspiration, are a source of ulceration, or interferes with feeding.
5. Supernumerary teeth.
6. Fractured or traumatized non-restorable teeth.

Contraindications

1. Acute oral infection such as herpetic stomatitis or necrotizing ulcerative gingivitis.
2. Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Appropriate anesthesia is obtained and the correct tooth is extracted.
2. Alveolus remains intact.
3. Hemorrhage is managed.
4. Post extraction instructions (written and oral) are reviewed with the child and/or child's caregiver.
5. Antibiotic therapy is initiated when appropriate.
6. Hospital care is sought when appropriate.

ECTOPIC ERUPTION CORRECTION THERAPY

Indications

1. Radiograph reveals that delayed eruption is due to atypical direction of tooth eruption.
2. Delayed eruption is due to impingement by previously placed restoration in an adjacent tooth.

Contraindications

Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Restoration is replaced and allows proper eruption of the ectopically erupting tooth.
2. Appropriate mechanical therapy repositions the ectopically erupting tooth (create enough space) to reascertain the arch length and/or preserve as much space as possible for the developing permanent dentition.

SPACE MAINTAINER THERAPY

Indications

Premature loss of teeth where it is necessary to prevent migration of adjacent teeth.

Contraindications

1. Procedure could cause untoward sequela for patients who are medically compromised.
2. Patients who are high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design is chosen to maintain the space and alignment of teeth.
2. The space present when the appliance is placed continues to be preserved until eruption of the succedaneous tooth.
3. Appliance does not prevent the normal eruption of succedaneous teeth.

HABIT APPLIANCE THERAPY

Indications

Management of a habit that is causing or may cause unfavorable consequences in the permanent dentition and orofacial development.

Contraindications

1. Child cannot understand instructions and the function of the appliance.
2. Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Eliminate or decrease the intensity of the habit.
2. Eliminate or decrease the effect of the habit on permanent dentition and orofacial development.

CROSSBITE CORRECTION THERAPY

Indications

1. Anterior and/or posterior non-skeletal crossbites.
2. End to end dental occlusion that demonstrates potential for severe attrition.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design to achieve correction of crossbite and/or improved inter arch relationships.
2. The desired occlusion is maintained.

PROSTHETIC APPLIANCE THERAPY

Indications

1. Caries causing multiple tooth extraction.
2. Trauma resulting in tooth loss.
3. Missing teeth due to congenital/genetic defects.
4. Congenital or genetic disturbances as in dentinogenesis/amelogenesis imperfecta or cleft palate.
5. Facilitation of establishing esthetics, occlusal function, speech development, and/or feeding.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Facial profile, function, and esthetics are improved.
2. Ability to adequately remove plaque from the natural teeth is facilitated.

pathosis; replantation of avulsed teeth; surgical removal of tooth structure such as in apicoectomy, hemisection, and root amputation; endodontic implants; bleaching of discolored dentin and enamel; retreatment of teeth previously treated endodontically; and treatment procedures related to coronal restoration by means of post or cores involving the root canal space.

Dental practitioners must perform endodontic therapy consistent with their educational training and clinical experience. Keeping in mind that dentistry's main goal is for the public to maintain a healthy, natural dentition, every dental practitioner must be able to recognize and effectively treat pulpal injuries and diseases that are common and comply with the skills acquired by graduates of dental schools in the United States. Endodontic cases that are beyond the training, experience, and expertise of individual practitioners should be referred to practitioners who can appropriately provide treatment. All endodontic treatment should be of such quality that predictable and favorable results will routinely occur.

ENDODONTIC EXAMINATION AND DIAGNOSIS

Many features of endodontic evaluation are common to all dental practice.

An adequate medical and dental history with accompanying visual and radiographic examination provides basic information. Appropriate pulpal and periapical tests such as thermal, electrical, percussion, palpation, and mobility should be performed. Additional periodontal examination, transillumination, and bacteriologic testing may be indicated. Pre-operative radiographs may be taken from more than one angle to gain a better perspective of the morphology of the tooth or teeth in question. Bitewing radiographs, occlusal plane films, and radiographs of the contralateral and opposing teeth may also be necessary.

It may be necessary to recall some patients at periodic intervals to compare the examination data from one time interval to another for an accurate diagnosis. At times it is advisable to secure radiographs from previous practitioners or the existing dental record to gain a better understanding of the evolution of the current situation.

ENDODONTIC TREATMENT PLANNING, RECORDS AND RECALLS

Appropriate treatment is predicated on an accurate analysis of all diagnostic data. Treatment planning should include determining the strategic importance of the tooth or teeth considered for treatment, the expectations of the patient, the endodontic prognosis, and other factors such as excessively curved canals, periodontal disease, occlusion tooth fractures, calcified or occluded canals, and teeth with unusual or abnormal canal morphology.

27 Treatment records should include the chief complaints or patient comments, clinical impression, results of diagnostic tests and clinical examination. Also included are the pulpal and periapical diagnosis, treatment rendered, and required pre-operative, intra-operative, post-operative, and recall radiographs. Records should also include patient commentaries or complaints before and during treatment, or at any subsequent post-operative examination. Endodontic care also includes the evaluation of the patient's post-operative response to treatment. Endodontic providers should encourage patients to return at intervals appropriate for the procedures undertaken to allow continued clinical evaluation.

VITAL PULP TREATMENT PROCEDURES

Vital pulp treatments attempt to preserve the integrity and function of the pulpal tissue in whole or in part as dictated by the degree of pulpal injury. Materials used in vital pulp therapy, such as calcium hydroxide, should meet the guideline of the ADA Council on Dental Therapeutics. The permanent restoration should be placed as soon as possible.

PROTECTIVE BASE

A protective filling material is placed at the base of a deep preparation to act as a barrier to minimize further injury and permit possible pulp healing and repair.

Indications

1. Deep dentin preparations in teeth with vital pulp without pulp exposure.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Location of a radiopaque base between the permanent restoration and the dentin.
3. Appropriate responsiveness to electrical and thermal pulp tests.
4. No breakdown of the periradicular supporting tissues.

INDIRECT PULP CAPPING

In a tooth which has a carious lesion near the pulp, a protective dressing or cement is placed over a layer of remaining dentin which, if removed, might expose the pulp. The purpose is to protect the pulp against possible injury and to stimulate healing and repair.

Indications

1. Carious lesions in teeth with vital pulp, which, if removed, might expose the pulp.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to but not in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal vitality tests.
4. No breakdown of the periradicular supporting tissues.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

DIRECT PULP CAPPING

In a tooth with a carious lesion near or into the pulp, a protective calcium hydroxide dressing or cement is placed directly over the vital pulp at the site of the exposure to protect the pulp against further injury and to stimulate healing or repair.

Indications

1. Aseptic small mechanical or iatrogenic pulpal exposures.
2. Small pulp exposures in teeth with incompletely formed apices.

3. Socioeconomic reasons.
4. Vital pulp without history of irreversible pulpitis.

Contraindications

1. Irreversibly inflamed or necrotic pulp.
2. Tooth is to serve as an abutment for a fixed or removable prosthesis or the restoration of choice is a crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to, and in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal pulp vitality tests.
4. No breakdown of the periradicular supporting tissue.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

PULPOTOMY

Pulpotomy is the surgical amputation of the coronal portion of vital pulp. It is used to preserve the vitality and function of the remaining radicular portion of the pulp.

Indications

1. Small pulp exposures in tooth with incompletely formed apices.
2. Socioeconomic reasons.
3. Vital pulp without history of irreversible pulpitis.
4. An emergency procedure until root canal treatment can be accomplished.

Contraindications

1. Irreversibly inflamed or totally necrotic pulp.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Radiographic evidence of canal and root apex closure occasionally accompanied by an increase in root length.
3. No breakdown of periradicular supporting tissues

4. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

NONSURGICAL ENDODONTIC PROCEDURES

ROOT CANAL TREATMENT

Endodontic therapy for permanent teeth involves a biologically based chemical and mechanical debridement of the root canal system to eliminate pulpal disease and to promote healing and repair of periradicular tissues. The debridement and shaping of the canal system is followed by obturation with a biologically acceptable nonabsorable semisolid or solid core root canal filling material.

All canals are shaped, cleansed, and disinfected using aseptic technique. Proper access is dictated by the size and shape of the pulp chamber as well as by the tooth position in the arch. In all cases, the entire roof of the chamber must be removed. Debridement, enlargement, and disinfection of all canals and obturation are accomplished under rubber dam isolation. When indicated, microbial culture and sensitivity determinations are used.

Obturation is the three-dimensional filling of the entire root canal system as close to the cemento-dentinal junction as possible. Minimal amounts of root canal sealers, which have been demonstrated to be biologically compatible, are used in conjunction with core filling material to establish an adequate seal.

It is recognized that root canal instruments will fail occasionally due to manufacturing deficiencies beyond the control of the practitioner. When instrument failure occurs in a root canal, the remainder of the root canal space should be sealed with a biologically acceptable non-restorable semi-solid or solid core root canal filling material. The patient must be informed of the complication.

Indications

1. Carious pulp exposure on a permanent tooth.
2. Vital, irreversibly inflamed pulp.
3. Tooth with necrotic pulp.
4. Extensive loss of tooth structure where restorative considerations exist.

Contraindication

Pulp is vital, but with reversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e., without gross overextension or underfilling in the presence of a patent canal; no ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, within 4 years the recall radiographs should demonstrate return to an intact lamina dura and a normal periodontal ligament space around the entire root or roots under observation.
4. If a tooth had a normal periodontal ligament space and an intact lamina dura around the root or roots at the time of obturation, recall radiographs taken 6 months or later postobturation should demonstrate a similar appearance.

ENDODONTIC RETREATMENT

Retreatment is preferred to surgical retrofilling in teeth where the root system is accessible and amenable to reinstrumentation and obturation. Retreatment involves removal of the previously
30 placed obturation materials in addition to the procedures normally used in orthograde endodontic treatment. Post removal may also be necessary. Further efforts may be required to correct radicular defects, ledges, calcifications, and separated instruments.

Retreatment cases vary greatly in complexity, requiring greater effort, time, and skill, and should be undertaken with due regard to practitioner ability and expertise. Retreatment may need to be augmented by other procedures such as apexification or transmucosal intervention.

Indications

1. An incompletely debrided or filled root canal system with a radiographically observable unfilled root canal space.
2. Cases of unresolved periradicular pathosis and radiographic evidence of a deficiency in the quality of root canal filling.

3. Cases where removal of existing obturation materials as dictated by anticipated restorative or prosthetic procedures.
4. Cases where persistent symptoms are associated with a previously treated tooth and there is reason to question the adequacy of previous endodontic debridement and/or obturation.
5. Evidence of prolonged coronal leakage into the root canal system.

Contraindications

1. Persistent apical inflammation despite evidence of adequate debridement and obturation and in the presence of an adequate cast restoration.
2. Presence of a vertical root fracture.
3. Calcification, separated instrument, and/or other errors precluding access to apical canal system.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e. without gross overextension or underfilling in the presence of a patient canal. No ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, then the recall radiographs should demonstrate a return to an intact lamina dura and normal periodontal ligament space around the entire root or roots under observation. If a tooth had a normal periodontal ligament space and intact lamina dura around the root or roots at the time of obturation, the subsequent postoperative radiographic appearance should remain the same.

APEXIFICATION

Apexification is a method of inducing apical closure or apical development of the root or roots of an incompletely formed permanent tooth with a pulp. It may involve several treatments over an extended period of time. Calcium hydroxide compounds are commonly used for this purpose. When root closure is complete, endodontic therapy must be performed.

Indications

1. Root pulp necrotic, with or without apical periodontitis.

Contraindications

1. Pulp vital.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic evidence of apical closure without supporting tissue breakdown.
3. No lateral root surface pathosis.
4. Healing of periradicular pathosis.

SURGICAL ENDODONTIC PROCEDURES

INCISION AND DRAINAGE - SOFT TISSUE

Incision and drainage is a surgical procedure designed to release accumulated byproducts of tissue breakdown, collect samples for bacteriologic analysis, and provide a more favorable gradient and pathway for drainage.

Indications

Acute swelling with localized fluctuance.

Contraindications

1. No abscess localized or fluctuating.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of accurate symptoms.
3. Reduction of acute cellulites with localized fluctuance.
4. Return to normal soft tissue architecture.

INCISION AND DRAINAGE - SOFT AND HARD TISSUE

Incision and drainage through both the soft and hard tissues is a surgical procedure performed to liberate accumulated byproducts of tissue breakdown by surgical reflection of the soft tissue and penetration of the cortical plate in the periradicular area.

Indications

1. For the relief of pain caused by a buildup of fluid within the bony tissue.

Contraindications

1. Fluctuating abscess that can be localized and drained.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of acute symptoms.
3. No damage to root structure because of the procedure.
4. Soft tissue closure over the surgical site without fenestration.
5. No damage to the alveolar bone, roots of adjacent teeth, or other anatomical structures.

PERIRADICULAR CURETTAGE

Periradicular curettage consists of the removal of soft tissue and/or foreign material around the root apex without root end removal.

Indications

1. A marked apical over extension into the periradicular tissue of filling materials, that acts as an irritant.
2. A periradicular lesion that is enlarging after acceptable root carnal treatment, as noted on follow-up radiographs.
3. A persistent periradicular lesion that has not decreased in size one or two years after the completion of root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases when a biopsy or surgical exploration of the area is deemed necessary.

Contraindications

1. As the sole procedure for treatment of endodontic failures without addressing the cause.

Outcomes Assessment

45

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the apex of the treated root(s) has a normal appearance with reestablishment of a normal periodontal ligament space.
3. No damage to adjacent teeth or anatomical structures.
4. No sinus tract present.

APICOECTOMY

Apicoectomy is a surgical procedure in which part of the tooth root apex is removed to evaluate or improve the apical seal of the root canal filling; to facilitate access for creation of a root end preparation for a retrofilling; to allow for curettage behind the root; or to remove a portion of the root that cannot be obturated because of severe curvature of the root, calcification of the root canal space, etc. This procedure may include curettage of the apical tissue.

Indications

1. A marked apical or lateral over extension of filling materials into the periradicular tissues.
2. A periradicular lesion that is enlarging as noted on follow-up radiographs.
3. A periradicular lesion that has not decreased in size one or two years after root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases where apical curettage reveal an inadequate seal of a previously filled root.
6. An unfilled apical portion of the root canal system not accessible from a coronal approach.
7. Roots that cannot be retreated nonsurgically because of an obstruction such as a post or a separated **instrument.**

Contraindications

When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.

2. Alveolar bone at the apex of the surgically altered root(s) should have normal appearance with reestablishment of the normal periodontal ligament space.
3. Sinus tract, if previously present, has healed.
4. No damage to adjacent teeth or anatomical structures.

RETROFILLING

Retrofilling is an additional procedure following apicoectomy by which a cavity is prepared in the root end or lateral aspect of the root and a biologically acceptable filling material is placed into that prepared cavity.

Indications

1. Correction of respective defects of the root.
2. Cases where the dentist is unable to negotiate a canal in a routine manner because of iatrogenic problems or anatomic complications of the canal system.
3. Previously treated teeth where an inadequate apical seal is indicated by a periradicular lesion which is enlarging or has not decreased in size over a two year period after completion of root canal filling.
4. A tooth that has periradicular symptoms or pathosis and had a post crown which cannot be removed.
5. Treatment of root perforations.
6. Persistent or recurrent signs and/or symptoms of laterial or periapical pathosis which cannot be sealed by a nonsurgical approach.

Contraindications

1. When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the site of repair of the treated root(s) should have normal appearance with reestablishment of the periodontal ligament space.

3. Retrofilling material should be within the confines of the root and should seal the root canal(s) and isthmus areas if present.
4. Scatter of retrofilling material into the surrounding bone should be avoided.
5. No damage to adjacent teeth or anatomical structures.

BIOPSY

A biopsy involves the surgical removal of a hard or soft tissue specimen for microscopic examination.

Indications

1. Tissue or foreign material is removed at or near the surgical site.
2. Unusual tissues are noted on clinical or radiographic examination.
3. A medical history indicates the merits of biopsy of all tissues removed. (See Oral Pathology Tissue Management)

Contraindications

1. For apical periodontitis of obvious or probable endodontic origin which would be treated by root canal treatment or nonsurgical treatment. (See Oral Pathology Tissue Management)

Outcomes Assessment

1. To establish or confirm a diagnosis by microscopic examination of tissues or foreign materials.

HEMISECTION AND BISECTION

Hemisection and Bisection (Bicuspidization) are surgical procedures that are used to separate a portion of the crown and one or more of the roots of a multirooted tooth. Both procedures are most commonly performed on mandibular molars. Hemisections may, however, be performed on maxillary molars or maxillary bicuspids. The separated segments may be removed or restored. In certain instances it is feasible to section a mandibular molar into two distinct separate roots.
34 Subsequently, the separate roots are restored as though each root was a bicuspid root. This procedure is commonly called a bisection.
Hemisection requires root canal treatment on all remaining roots. Bisection requires root canal therapy on all canals of each root. In each case, it is preferable to complete the root canals

fillings before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Crown fracture extending into the furcation.
4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and apical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root which is to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, recurrent periradicular pathosis, or periradicular inflammation where nonsurgical treatment or periradicular surgery is not possible.
8. Inoperative or uncorrectable resorptive defects of the root.
9. Furcal perforation.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of a furcation and periodontal pockets; total amputation of the coronal portion of the tooth that is associated with the root to be removed.
3. Adequate structure supporting the remaining roots(s) to maintain tooth function.
4. Remaining root in satisfactory condition.
5. Adequate root canal fillings in the remaining root.

ROOT AMPUTATION

Root amputation is the removal of a root of a multirooted tooth without the corresponding portion

of the crown when insufficient periodontal supporting tissue warrants the removal of this section of the tooth.

Root amputation requires root canal treatment of all remaining roots, preferably before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Fractures extending into the furcation.

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4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and periapical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, periradicular inflammation, or periradicular pathosis where nonsurgical root canal therapy or periradicular surgery is not possible.
8. Inoperative or uncorrectable root resorptive defects.
9. Furcal or stripping perforations.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of the furcation and periodontal pockets.
3. Adequate supporting structure surrounding the remaining roots to maintain tooth function.
4. Adequate root canal fillings in remaining root(s).
5. Seal of all external openings into the pulp chamber.
6. Elimination of pre-operative signs and symptoms of pathosis.

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REPLANTATION OF AVULSED TEETH

Replantation of the avulsed tooth involves the replacement of a tooth into its natural alveolus after it has been accidentally avulsed or luxated out of its alveolar socket. The goal is normal reattachment of the periodontal ligament and the return of normal tooth function. Success depends upon accomplishing the replantation as soon as possible after the accident and keeping the root moist during the extraoral period. The involved teeth should be stabilized for a period of time. Pulp tissues should be removed within two weeks following the injury. The intracanal treatment usually consists of placement of calcium hydroxide, which may need to be replaced periodically, followed by placement of an acceptable root canal filling material. These teeth should be periodically re-examined following replantation.

Indications

1. Tooth avulsed due to trauma.

Contraindications

1. Tooth with additional fractures compromising future root canal treatment.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic placement of tooth into the socket.
3. Minimal resorption of tooth root structure.
4. No ankylosis.
5. No breakdown of periradicular supporting tissues.
6. Maintenance of the tooth as a firm, functional member of the dentition.

INTENTIONAL REPLANTATION OR TRANSPLANTATION

Intentional replantation involves the removal of a tooth from its alveolar socket, the apical retrograde sealing of the canals or lateral root defect with an inert filling material, and the insertion of the tooth into its alveolar socket.

Intentional transplantation involves the same procedures as the replantation except the tooth is transplanted into the socket of another extracted tooth.

These teeth should be periodically reexamined following replantation or transplantation.

Indications

1. Pulpectomy or root canal treatment is not possible, has not been successful, or when conventional surgery in situ is not advisable.

Contraindications

1. Conventional orthograde or retrograde endodontic therapy can be performed.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic orientation of tooth in its socket.
3. Elimination or absence of lateral root or periapical pathosis (some root resorption may occur).
4. No periodontal pathosis.
5. Root length minimally shortened.
6. Proper placement of the apical seal(s).
7. Maintenance of the tooth as a firm, functional member of the dentition.

BLEACHING PROCEDURES

Bleaching is the reduction of discoloration of a vital or pulpless tooth through the application of oxidizing agents to the available surfaces of the affected tooth. Success in restoration to normal tooth shade and translucency is dependent upon the cause, severity, and duration of the discoloration.

INTERNAL BLEACHING

Internal bleaching is indicated for discolored teeth that have previously received a root canal filling. Assuming that the canal seal is adequate, 30 to 35 percent hydrogen peroxide, along with other activating agents, is used to affect the oxidation process.

Indications

1. Discolored teeth which have previously received a root canal filling.

Contraindications

1. Tooth has root filling of poor quality.
2. Extensive restorations of crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. Improved translucency.
4. No cervical external root resorption.

37 EXTERNAL BLEACHING

External bleaching is indicated for treatment of discolored enamel. It can use acid conditioning procedures along with oxidizing agents to lighten affected teeth. These agents are applied to the external surface of the tooth. This procedure is commonly indicated for teeth that are discolored because of endemic fluorosis or tetracycline staining.

Indications

1. Discolored vital tooth with normal pulp.

Contraindications

1. Extensive dental restorations.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. No cervical external root resorption.

RESTORATIVE DENTISTRY

Definition of Restorative Dentistry

The discipline of Restorative Dentistry is that area of dental practice concerned with the diagnosis, prevention, interception, preservation and treatment of natural teeth defects by restorations and replacement with fixed partial dentures. These defects may include dental caries, erosion, abrasion, attrition, hypoplasia, developmental anomalies, hypocalcifications, discoloration, trauma, and missing teeth. Treatment goals are to restore the natural dentition to normal health and function. These goals can offer significant challenge and great satisfaction to both patient and clinician by transforming a poorly functioning masticatory system to an attractive, comfortable and healthy orofacial unit. Success requires meticulous attention to detail

from the initial patient interview through treatment planning and operative procedures into a planned schedule of follow-up care. Restorative treatment spans an age range from adolescence to geriatric patients. It also involves an array of clinical and laboratory procedures, thereby testing the depth of knowledge and experience of the clinician.

PIT AND FISSURE SEALANTS

Pit and Fissure Sealants protect caries-susceptible tooth surfaces least benefited by fluoride. Sealants can play a significant role in the prevention and control of dental caries in pits and fissures of primary and permanent teeth. Sealants should be placed as soon as possible after tooth eruption when isolation can be achieved without moisture contamination.

Indications

1. Non-carious or questionable carious primary or permanent, premolar and molar teeth with deep pits and/or fissures, and in the cingulum area of maxillary incisors with deep lingual pits and/or fissures.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Obvious dental caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the sealant.
2. Normal occlusal relationship maintained.
3. Sealant remains intact and covers susceptible pits and fissures.

PREVENTIVE RESIN RESTORATION

Preventive resin restorations are small, distinct composite resin restorations that are used to restore carious lesions followed by placement of occlusal sealants to protect susceptible, but uninvolved pits and/or fissures. Preventive resin restorations generally require minimal tooth preparation to remove caries from one or more susceptible sites in the pits and/or fissures.

Indications

1. Deep pits and fissures in primary and permanent teeth that are suspected of being carious or exhibit frank caries in isolated areas.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Extensive caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the preventive resin restoration.
2. Normal occlusal relationships maintained.
3. Preventive resin restoration remains intact and covers involved and/or susceptible pits and fissures.

DENTAL AMALGAM

Dental amalgam is a direct placement, intermetallic compound, restorative material. It is used to restore tooth defects resulting from dental caries, tooth fracture, or to replace defective restorations. Dental amalgam requires sound tooth structure for support, retention and resistance form. The use of dental amalgam in restorations to replace cusps and large areas of tooth is not paradigmatic, and should be restricted where possible. When additional retentive designs are incorporated (pins, slots, posts) dental amalgam can be used as a core build-up material for subsequent crown restorations.

Indications

1. For restoration of tooth defects resulting from either dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. For use as a crown core/build-up restoration.
4. Patient economic resources.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Where esthetics is a primary consideration.
3. When there is not sufficient sound tooth structure to support and retain the restoration.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the amalgam restoration.

2. Normal occlusal relationships maintained.
3. The restoration remains intact and functions acceptably.

COMPOSITE RESIN (DIRECT PLACEMENT)

Composite resin is a polymer based resin matrix containing an inorganic filler particle phase. It is used to restore tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Composite resin is primarily used in anterior teeth where esthetics is a primary concern. However, it has also found use in posterior teeth where clinical conditions and patient preferences are appropriate.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, esthetic concerns, or replacement of defective restorations.
2. For use in Class I, III, IV, V or veneer anterior restorations.
3. For use in Class I, II, or V posterior restorations when:

- Esthetics is a primary patient concern.
- Appropriate isolation is attainable.
- Where there are some centric occlusal stops remaining in tooth enamel.
- Tooth reinforcement is required in situations where a cast restoration may not be an option.
- When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
- Restoration of the post-endodontically treated tooth in which minimal loss of tooth structure has occurred.
- Patient economic resources.
- Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.

3. When all occlusal centric stops would be restored with composite resin.

Treatment Goals/Expected Outcomes

1. No evidence of caries development beneath or adjacent to the composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

GLASS IONOMER

Glass ionomers are water-based cements consisting of alumnio-silicate glasses, interacted with a form of poly (alkenoic) acid, with or without a polymer based resin matrix. Glass ionomers are used to restore tooth defects from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Primary use for the glass ionomer is in clinical situations where adhesion to tooth is required and fluoride release is a clinical benefit.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I (not including the occlusal surface), III or V restorations.
3. Restoration of root surface carious lesions.
4. When fluoride release may be beneficial.
5. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restorative material to tooth is required.
6. When esthetics is a consideration.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.
3. When occlusal centric stops or proximal contact areas would be restored with glass ionomer.
4. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

Outcomes Assessment

1. No caries development beneath or adjacent to the glass ionomer restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

41 CAST GOLD INLAY

An indirect restorative procedure using cast gold dental alloy primarily in intracoronal restorations. The cast gold inlay is used to restore conservative tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. Where patient has an occlusal function or needs a proximal contour that exceeds the capacity of dental amalgam or composite resin as suitable restorative material options.
4. When specific tooth contours are required, i.e. axial contours necessary for fabrication of a clasp on a removable partial denture.
5. A retainer for an etched metal restoration.
6. Patient preference.

Contraindications

1. When there is insufficient sound tooth structure to support and retain the restoration.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. Where esthetics is a primary concern.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the cast gold restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. Pulp vitality maintained.

4. The restoration remains intact and functions acceptably.

INDIRECT COMPOSITE RESIN INLAY/ONLAY

An Indirect Composite Resin Inlay/Onlay is an indirect restorative procedure using composite resin. Usually the composite resin will have received an additional extra-oral cure to improve its clinical performance. This is a restoration that is bonded to the tooth with a composite resin luting material.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV, V or veneer restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. Tooth reinforcement is required when a cast restoration is not an option.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Esthetics.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When all occlusal centric stops would be restored with composite resin.
7. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.
8. When there is insufficient sound tooth structure to support and retain the restoration.

9. Patient preference.
10. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the indirect composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN INLAY/ONLAY

A Porcelain Inlay/Onlay is an indirect restorative procedure using dental porcelain as the restorative material. This is a restoration that is bonded to the tooth with a composite resin luting material and is primarily limited to use in the posterior teeth where esthetics and tooth reinforcement are indicated.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV or V restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. When tooth reinforcement is required in situations where a cast restoration is not an option.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When there is insufficient sound tooth structure to support and retain the restoration.

7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the porcelain inlay/onlay.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN VENEER

The porcelain veneer is primarily an esthetic restoration involving the incisor teeth and sometimes the maxillary premolars. A labial veneer is constructed in the dental laboratory and is bonded to the tooth with a composite resin luting material. These restorations are used to modify tooth color and contour.

Indications

1. For use on facial surfaces of incisor and maxillary premolar teeth.
2. When there is sufficient tooth enamel remaining (75% of the restored tooth surface).
3. Esthetic improvement of tooth color and/or contour.
4. Closure of anterior diastemas.
5. Normal occlusal function and posterior occlusal support.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. When proper isolation of the operating field is not possible.
4. When there is insufficient sound tooth structure, enamel, to support and retain the restoration.
5. Patient economic resources.
6. Unrealistic patient expectations.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal functions and tooth contours are maintained.

3. Desired, achievable, esthetic result obtained.
4. The restoration remains intact and functions acceptably.

PARTIAL CROWN COVERAGE-ALL METAL (Cast Onlay, 3/4 Crown, 7/8 Crown)

The Partial Crown Coverage-all metal restoration is an indirect restorative procedure which requires some cuspal coverage but less than full replacement or coverage of the enamel crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations involving a significant amount of the clinical crown.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (ALL METAL)

The Full Crown Coverage-all metal restoration is an indirect restorative procedure involving full replacement of the functional clinical crown.

Indications

1. For restoration of tooth defects from extensive dental caries, tooth fracture, or to replace defective restorations.
2. Short clinical crowns that would compromise retention of partial coverage restorations.
3. Restoration where definitive occlusal support is to be created and maintained.
4. Retainer for a fixed partial denture.
5. Retainer and rest seat for removable partial denture clasp.
6. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal or endodontic prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (Porcelain Fused to Metal)

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The Full Crown Coverage-(Porcelain Fused to Metal) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. A cast metal core is veneered with dental porcelain to provide an esthetic and functional outer surface.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or to replace defective restorations.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is not sufficient sound tooth structure to support and retain the restoration.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Normal occlusal relationships and crown contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (All Porcelain)

The Full Crown Coverage-(All Porcelain) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. The crown is fabricated from different porcelains without a metal substructure. These restorations are usually limited to single unit crowns and are indicated when maximum esthetics is desired for a full coverage crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or replacement of defective restorations.
2. When full coverage is required and the esthetic demand is paramount.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Excessive or abrasive occlusal function.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the Full Crown Coverage-(All Porcelain) restoration.
2. Normal occlusal functions and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

IMPLANT SUPPORTED CROWNS

An implant supported crown(s) is a treatment option for patient with partial edentulism. Prosthodontic evaluation is performed to determine the patient's suitability for an implant supported crown(s). Surgical assessment is performed to determine if contraindications exist for implant therapy.

Indications

1. Lack of mastication.

2. Impaired speech.
3. Esthetics.
4. Partial edentulism.
5. Unsatisfactory existing prostheses.

Contraindications or Risk Factors Affecting Quality of Treatment

1. Bone factors (quantity and quality).
2. Pre-existing systemic conditions.
3. History of radiation therapy.
4. Insufficient interarch space.
5. Active periodontal disease.
6. Tobacco use.
7. Biomechanical loading factors.
8. Occlusal factors.
9. Current and past pharmaceutical therapies.

Outcomes Assessment (favorable)

1. Long-term preservation of supporting bone.
2. Improved function.
3. Improved speech.
4. Improved esthetics.
5. Reduced pain during function.
6. Preserve tooth structure.
7. Improved intra-arch and interact integrity and stability.

AMALGAM/COMPOSITE RESIN CORE BUILD-UP RESTORATION

A core restoration replaces tooth structure before crown fabrication. Without a core, there would not be enough remaining clinical crown for adequate crown retention and resistance form. Core restorations are fabricated from dental amalgam or composite resin and may or may not involve a post.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. A tooth with inadequate coronal structure to provide retention and resistance form for a crown restoration.
3. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal restoration.
4. There is enough tooth structure to provide support and retention for dental amalgam or composite resin.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient tooth structure remaining to adequately support and retain the core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. The restoration remains intact and continues to function acceptably.

POST RESTORATION

A Post is a restorative procedure in which part of a metallic post is placed into the prepared space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post can be either a prefabricated post or one which is custom made to adapt to the specific root canal space. The post provides a retentive base serving as a portion or all of the retentive form upon which a core build-up is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of coronal tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or extensive dental amalgam or composite resin restoration.

3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured form the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic apical seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

POST/CORE CAST METAL RESTORATION

A post is placed in an endodontically treated tooth to provide retention for the overlaying core of restorative material. The core serves as a foundation for the final tooth restoration. It is not intended for tooth reinforcement. When there is insufficient remaining tooth structure to adequately retain a direct placement post/core restoration, the cast metal post/core is a viable clinical alternative.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal crown.
3. There is insufficient tooth structure to provide retention for the core component of the restoration.
4. A prepared post space that permits 3-6 mm of undisturbed root canal filling material as measured from the tooth apex.
5. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately support a post and core restoration.
3. Inadequate crown to root ratio of the final restoration.
4. Tortuous canals or thin, ribbon shaped roots.
5. Poor periodontal prognosis for tooth retention.
6. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the case metal post/core restoration.
2. Absence of root fracture.
3. No compromise of endodontic apical seal.
4. The observed restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

NON-METALLIC POST RESTORATION

The non-metallic post restoration is a prefabricated post restoration that is either ceramic or fiber reinforced polymer material. The non-metallic post is placed into the prepared post space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post provides the retentive base serving as a portion or all of the retentive form upon which a core buildup is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal. The non-metallic post is cemented using a total-etch / bonded technique.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or composite resin restoration.
3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured from the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

5. In anterior esthetic situations where metallic posts which block light transmission in the cervical area of the tooth resulting in "graying" of the free marginal gingival.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the bonded post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

ETCHED METAL RETAINERS

An etched metal retainer is an indirect restoration that achieves its retentive form from micromechanical bonding between tooth enamel and microporosities in the metal retainer. The luting agent between the etched metal retainer and tooth enamel is a composite resin material and is, therefore, subject to all the clinical requirements of a polymer bonded restoration. These restorations rely on the availability of adequate tooth enamel for retentive form.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations.
2. For restoration of partial crown coverage of metal based crowns.
3. Abutments for short span (less than 2 pontics) etched metal fixed partial dentures.
4. Abutments for tooth splints.
5. Restorations to modify tooth contours facilitating design of a removable partial denture.

Inadequate periodontal support for abutment teeth, poor oral hygiene, inadequate clinical crown contours and/or strength of abutment teeth.

Outcomes Assessment

1. Partial dentures are retentive, stable; acrylic bases are adequately extended.
2. Patient is satisfied with esthetics, function, and comfort.
3. Remaining teeth and soft tissues are healthy.

INTERMEDIATE DENTURE

An intermediate or temporary denture for a patient who requests immediate replacement of teeth following extraction of remaining teeth. The intermediate denture is for esthetics more than function.

Indications

A patient who wants to maintain esthetics immediately after extractions.

Contraindications

Patients requiring extensive recontouring of alveolar bone or removal of tori.

Outcome Assessment

1. Dentures are retentive and stable.
2. Vertical dimension, centric occlusion, and esthetics are preserved.

PROSTHODONTIC RECALL EXAMINATION

A prosthodontic recall examination is regularly performed to evaluate the fit and performance of the complete or partial denture and the patient's oral health. Adjustments are made if needed; the denture or partial is polished, remaining teeth are examined and cleaned and prevention is reinforced.

Indications

A patient wearing removable partial or complete dentures.

Contraindications

None

Outcomes Assessment

1. Dentures and or partial dentures are stable and fit adequately.
2. Remaining teeth and soft tissue are healthy.
3. Any further treatment is explained to patient and treatment planned.
4. Preventive strategies have been reinforced to the patient.
5. Recall interval is agreed upon.

RELINE

A reline restores the tissue bearing surfaces of a denture base when base adaptation to the edentulous alveolar ridge is deficient. A reline can be performed on a complete or partial denture.

Indications

1. Lack of retention and/or stability of the maxillary or mandibular acrylic base due to resorption of the edentulous ridges or inadequate border extension.
2. Lack of retention and/or stability of the maxillary acrylic base due to an inadequate posterior palatal seal.

Contraindications

1. Retention and/or stability are affected by factors other than lack of tissue bearing surface adaptation.

Outcomes Assessment

1. Denture or partial is well extended, retentive, and esthetic.
2. Improved retention and stability result in patient satisfaction.

REBASE

Rebasing a denture replaces the original denture base to compensate for lost oral tissues while leaving teeth in their original position.

Indications

Denture teeth are positioned correctly and provide stable occlusion. The vertical dimension is correct and tissues are relatively healthy.

Contraindications

Dentures exhibit gross occlusal disharmony. Size, shade, and position of denture teeth are inappropriate or inadequate. The dentures have improperly extended borders.

Outcome Assessment

1. Dentures are retentive, stable, and esthetic.
2. Occlusion is preserved and functional.

ORTHODONTICS

CLINICAL EXAMINATION

All patients of record should receive an initial cursory examination noting facial form and occlusal relationships to detect possible malocclusion. All candidates for limited orthodontic treatment must subsequently receive a comprehensive evaluation. Limited treatment is defined as conditions that can be treated by tipping mechanics and that generally are correctable within six to nine months including the retention phase. This normally limits treatment to minor anterior alignment, uncomplicated molar uprighting, crown lengthening by means of forced eruption, space regaining, and non-skeletal crossbite corrections. The following data are recorded in the chart: medical and dental histories; extraoral facial evaluation and classification; occlusal relationships; functional problems related to mastication, speech and mandibular range of motion. Students are expected to obtain consultations related to pathology, periodontal problems and restorative treatment needs. Active disease must be detected and corrected prior to orthodontic

Treatment.

Indications

A cursory analysis of facial form and occlusal relationships is required for all patients of record. The in-depth exam described above is for patients with specific limited orthodontic treatment needs.

Contraindications

1. There are no contraindications for the cursory clinical examination.

2. The more in-depth analysis may be unwarranted if the patient has no interest in further treatment or desires referral for comprehensive orthodontic treatment.

Outcomes Assessment

1. Occlusal and facial relationships, functional problems and the morphologic basis of malocclusion are summarized in the orthogonal format.

2. All data and interpretations are recorded on the 4-D form.

3. The patient's chief complaint, collection of consults, determination of interacting factors, and supplement records to permit a thorough, comprehensive diagnosis for treatment planning are properly documented.

RADIOGRAPHIC PROCEDURES

All candidates for limited orthodontic treatment must have a panoramic radiograph and periapical and bitewing films sufficient to determine general health, root form and position, periodontal status and developmental status of the dentition. Lateral or posterior-anterior cephalometric, or other films will be ordered as necessary to assess skeletal relationships in the appropriate planes of space.

Indications

1. All developmental patients who are candidates for limited orthodontic treatment will have at minimum a panoramic film, anterior periapical radiographs and bitewing radiographs.
2. All information and interpretations are recorded on the 4-D form.
3. The health and morphologic variables of root form and position are properly determined.
4. Cephalometric films are accurately exposed with the patient in natural head posture. Landmarks and tracings should reveal that the morphologic basis of the patient's dentofacial relationships are accurately and comprehensively determined.

ANALYSIS OF DIAGNOSTIC, HAND-HELD, STUDY CASTS

Properly trimmed hand-held study casts are required for all patients receiving limited orthodontic treatment. The casts facilitate a more in-depth analysis of the patient's occlusion, arch form and symmetry, alignment problems and tooth size. These are indicated for assessing space requirements and tooth size discrepancies (Bolton analysis).

Indications

1. Patients receiving limited orthodontic treatment.

Contraindications

None

Outcomes Assessment

1. Impressions are accurate and undistorted, stored properly in 100% humidity with a wax occlusal registration in centric occlusion (maximum intercuspation) with additional wax registrations if there are occlusal discrepancies.

2. Impressions are poured as soon as possible, trimmed, and labeled to orthodontic specifications.

3. Casts are not distorted and accurate measurements are made. Analysis of casts produces a comprehensive data base for a thorough and accurate treatment plan.

4. All appropriate measures and interpretations will be included on the 4-D form.

TREATMENT PLANNING PROCEDURS

Treatment planning in ORT 841 is based on developing a prioritized problem list in three planes of space along with an assessment of significant interacting factors that may influence treatment decisions and outcomes. Students will develop the problem list with possible solutions, determine the appropriate goals (long term) and objectives (sequence of treatment procedures in the short term) to reach the treatment goals. A biomechanical plan that includes the patient's

chief complaint, consultations from other disciplines, anchorage requirements, force diagrams in all planes of space and a sequence of appointments to meet treatment objectives. Fees, limitations and risks, and retention requirements are also included for discussion during treatment planning. Treatment planning sessions are scheduled with an attending faculty member away from clinical activity to minimize distractions.

Indications

1. All limited treatment must be treatment planned with a signed 4-D form.

Contraindications

None

Outcomes Assessment

1. The treatment plans have goals and objectives stated along with a description of risks and limitations, fees, estimated time for active treatment, retention needs, appointment sequence with mechanical plan, description of the appliance and force diagrams, and faculty signature.
2. Patients are informed of their treatment needs and understand clearly the limitations and risks of orthodontic treatment.
3. Students have a clear understanding of the goals and objectives of the treatment plan and have an in-depth understanding of appliance design and management for each appointment.
4. Treatment occurs in a timely manner and effective retention strategies are implemented.
5. The patient is satisfied with the results.

TREATMENT PROCEDURES FOR LIMITED ORTHODONTIC THERAPY

Limited orthodontic treatment for ORT 841 typically refers to therapy that can be accomplished in 6- to 9-months. Force systems are usually restricted to tipping movements of the crown, but can occasionally involve some root movement with approval of the attending faculty. These requirements most commonly involve the correction of minor anterior alignment problems, uncomplicated molar uprighting, crown lengthening procedures, space regaining, and non-

skeletal crossbites. Treatments may use fixed or removable appliances as indicated by force analysis, anchorage requirements and sometimes patient request.

ANTERIOR ALIGNMENT

Indications

1. Misaligned anterior teeth with anterior crowding (no more than 2 to 3 mm), excess spacing (less than 3 mm), or minor rotations (less than 10 degrees) may be candidates for anterior alignment procedures. These may relate to repositioning teeth for esthetic purposes alone, or for correction of minor occlusal interferences, or for improvement of crown positions for esthetic crown restorations, or for abutment placement for fixed or removable prostheses.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Severe underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
6. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improved alignment of anterior teeth that meets esthetic, functional, and restorative or periodontal treatment objectives.
2. Alignment objectives are met within the estimated time.
3. Minimal trauma to teeth and supporting structures.
4. Anchorage units are stable with minimum displacement.

5. Patient maintains acceptable oral hygiene and periodontal maintenance during treatment. Retention measures are in place.
6. Prognosis for additional dental treatment is good.
7. Patient is satisfied.

MOLAR UPRIGHTING

The primary purpose of molar uprighting is to improve the axial inclination of a tipped molar that will serve as an abutment for a fixed or removable partial denture.

Indications

1. Tipped molar planned as an abutment tooth.
2. Eliminate unfavorable root proximity.
3. Eliminate or reduce periodontal pockets to enhance post treatment maintenance.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Serve underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
5. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improvement of the axial inclination of a tipped molar to facilitate restorative and periodontal treatment and maintenance.

2. Treatment did not cause excess occlusal stress or cause significant vertical bite opening. (Frequent checks and occlusal adjustments are expected.)
3. Anchor units show minimal change, unless specific changes were planned.
4. Molar is uprighted to the desired position with minimal trauma to roots and supporting structures and with minimal occlusal interferences.
5. Treatment should be completed within an appropriate time interval and the prognosis for prosthetic treatment should be good.
6. Following active treatment, the uprighted molar is properly stabilized for a minimum of 6 weeks prior to abutment preparations.

FORCED ERUPTION PROCEDURES FOR CROWN LENGTHENING

Forced tooth eruption is primarily an adjunctive procedure to create sufficient crown length to facilitate restorative and endodontic treatments. Additional gingival and alveolar bone recontouring may be required in order to establish level crestal bone and gingival margin height.

Indications

1. Fractured or carious tooth requiring additional crown height.

Contraindications

1. Unfavorable crown/root ration, uncontrolled periodontitis.
2. Untreatable pulpal disease.
3. Inadequate anchorage.
4. Poor root morphology.
5. Root resorption, root fracture.
6. Ankylosis.
7. Other negative factors are poor oral hygiene, active caries, poor patient compliance.
8. Unresolved systemic illness may also contraindicate orthodontic treatment.

Outcomes Assessment

1. Adequate extrusion of an unrestorable tooth to facilitate restorative and/or root canal treatment.
2. Minimal trauma to the tooth and supporting structures.
3. The tooth does not exhibit excessive mobility.

4. Minimal unwanted changes in the anchorage segments.
5. The tooth is stabilized for a minimum of 6 weeks prior to restorative treatment.

SPACE REGAINING

The most common indication is to regain space lost during the mixed dentition due to mesial drifting of the first permanent molar resulting from the premature loss of a second primary molar.

Indications

1. Mesial drifting of the first permanent molar.
2. Skeletal relationships should be Class I with a balanced soft tissue profile.

Contraindications

1. Underlying tooth size-arch size discrepancy.
2. Severe crowding and/or skeletal jaw discrepancies that require additional corrective measures.
3. Space loss greater than 3 mm.
4. Space loss associated with bodily tooth migration.
5. Poor patient compliance.
6. Poor oral hygiene.
7. Inadequate anchorage.

Outcomes Assessment

1. Normal molar occlusion with sufficient space for the erupting succedaneous tooth.
2. Adequate space maintenance to preserve tooth positions until gingival emergence occurs.

NON-SKELETAL CROSSBITE CORRECTION

Indications

1. Crossbites of dental origin that can be corrected by dental tipping forces.

Contraindications

1. Severe bilateral posterior crossbites and anterior crossbites in which there are dental compensations for Class III jaw relationships.
2. Poor patient compliance.
3. Poor oral hygiene.
4. Active disease states of the hard and soft oral tissues.

5. Unresolved oral habits.
6. Vertical malocclusions involving either an excessively deep bite or an anterior open bite tendency.

Outcomes Assessment

1. Correction of the crossbite within the estimated time with minimal tissue trauma.
2. Placement of appropriate retention for a minimum of 3 months.
3. Following retention the correction should exhibit some rebound but settle into a stable occlusion.
4. There should be no functional shifts.

ORAL AND MAXILLOFACIAL SURGERY

EXTRACTION OF AN ERUPTED TOOTH

Indications

1. Pulpitis or pulp necrosis.
2. Periodontal disease.
3. Periapical pathosis.
4. Nonrestorable tooth.
5. Infection/abscess.
6. Malpositioned tooth.
7. Extraction necessary for prosthetic treatment plan.
8. Extraction necessary for orthodontic treatment plan.
9. Tooth associated with pathologic lesion.
10. Supernumerary tooth.
11. Extraction related to or in conjunction with medical disease.
12. Patient refuses other therapy for financial or other reasons.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.

4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Adjacent tooth (teeth).
7. Degree to which caries is present.
8. Size and density of alveolar bone.
9. History of endodontic treatment.
10. Relationship of tooth to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Absence of pain.
2. Absence of infection.
3. Uncomplicated healing of surgical site.
4. Restored function.
5. Complete hemostasis.
6. Removal of pathosis, if present.
7. Limited period of disability.

TREATMENT OF ODONTOGENIC INFECTIONS, INCLUDING INCISION AND DRAINAGE

Indications

1. Symptoms: pain, swelling, trismus, chills, altered function, malaise, dysphagia.
2. Clinical findings: erythema, tissue induration, lymphadenopathy, purulence, fistula, fever.

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3. Other findings: caries, periodontal bone loss, periapical pathosis, osteolytic area, abnormal results of blood count, positive culture or Gram stain.

Factors affecting risk

1. Presence of major coexisting disease or systemic condition(s).

2. Presence of psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Extent of infection.
6. Direction and/or rate of infection extension.
7. Virulence of microorganism.
8. Susceptibility of microorganism to antibiotics.
9. Ability to gain access to affected areas.
10. Relationship of infection to vital structures.
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Eliminate acute and/or chronic infection.
2. Limit pain.
3. Restore function.
4. Preserve vital structures.
5. Prevent recurrence.
6. Limit period of disability.

MODIFICATIONS OF THE DENTOALVEOLAR PROCESS (EG. TORUS REMOVAL, ALVEOLOPLASTY, SOFT TISSUE MODIFICATION, TUBEROSITY REDUCTION)

Indications

1. Clinical findings of dentoalveolar soft tissue or bone abnormality.
2. Infection, ulceration, and/or pain.
3. Speech abnormality.
4. Masticatory dysfunction.
5. Dysphagia.
6. Interference with prosthetic treatment.

7. Periodontal disease.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Anatomical location, size, and extent of the abnormality.
7. Relationship of the abnormality to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
8. Quality of alveolar bone or soft tissue.
9. Ability to gain access to the surgical site.

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10. Lack of patient compliance.

Outcomes Assessment

1. Adequate soft and hard tissue base for prosthetic reconstruction or rehabilitation.
2. Improved physiological condition of dentoalveolar structures.
3. Restoration, retention, and function of previously diseased tooth or teeth.
4. Improved mastication, speech, and/or appearance.
5. Pain relief.
6. Absence of infection.
7. Limited period of disability.
8. No unanticipated loss of hard or soft tissues.

PRE-SURGICAL EVALUATION

Pre-surgical evaluation is performed to assess the patient's chief complaint and medical history, and review systems, physical examination, and laboratory studies.

Indications

1. Presentation of a patient to the oral and maxillofacial surgery clinic for evaluation, diagnosis, care, and/or treatment.

Factors affecting risk

1. Incomplete initial assessment.
2. Communication barriers (e.g. Language, cultural, communication disorders, altered mental status or level of consciousness).
3. Patient's guardian's/responsible party's failure to disclose.
4. Physical barriers (e.g. trismus, obesity).
5. Psychological barriers.
6. Degree of patient compliance.
7. Other factors that would reduce the clinician's ability to make a complete, accurate diagnosis.

Outcomes Assessment

Achieving assessment goals resulting in adequate knowledge upon which to base a diagnosis, treatment plan, and/or to safely render treatment using either no anesthetic, local anesthesia, or conscious sedation.

CONSCIOUS SEDATION, USING PARENTERAL AGENTS, NITROUS OXIDE, AND/OR ORAL MEDICATIONS

Indications

1. Need to minimally depress the level of consciousness, anxiety, and/or pain so that the patient can undergo a procedure.
2. Need to retain the patient's ability to independently and continuously maintain an airway and respond to physical stimulation and verbal commands.

Factors affecting risk

1. Degree to which the patient and/or family understand the etiology and course of disease or condition, therapy goals, and acceptance of proposed treatment.
2. Major coexisting disease or systemic conditions.
3. Psychological conditions or psychiatric diseases.
4. Patient age.

5. Infection or other pathology.
6. Noncompliance with NPO recommendation.
7. History of drug allergies or sensitivities.
8. Psychological aversion to intravenous or intramuscular injections.
9. History of substance abuse.
10. History of untoward reactions or complications with anesthetics.
11. Lack of patient compliance.

Outcomes Assessment

1. Diminution or elimination of anxiety during therapeutic procedure.
2. Procedure completed.
3. Lack of unintended change in patient's level of consciousness.
4. Return to preanesthetic physiological and psychological state within 12 hours following cessation of anesthetic agent administration.
5. Anesthetic experience deemed satisfactory by both patient and clinician.
6. Lack of other complications or sequelae requiring follow up care related specifically to the anesthetic (e.g. phlebitis).

ENDOSSEOUS IMPLANTS

Indications

11. tooth and/or root fracture
12. missing teeth due to trauma
13. previous extraction sites
14. spaces created by orthodontic movement
15. endodontic failures
16. restorative failures
17. extractions due to periodontal disease
18. non-restorable teeth due to caries (following extraction)
19. to avoid preparation of virgin teeth for bridge abutments
20. anchorage for orthodontic tooth movement

Factors affecting risk

1. Presence of bone and/or soft tissue infection or pathology.
2. Inadequate prosthetic or surgical treatment planning (Implant Consent and Treatment Planning Form (5D) not completed).
3. Inadequate bone quality and volume.
4. Psychological conditions or psychiatric diseases.
5. Patient age.
6. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
7. Systemic conditions that may interfere with normal healing process.
8. Inadequate oral hygiene.
9. Patient age.
10. Proximity of implant placement site to adjacent structures (eg, teeth, maxillary sinus, inferior alveolar nerve).
11. Lack of patient compliance.

Outcomes Assessment

1. Retained, stable, functional implant.
2. No evidence or peri-implant radiolucency (See Implant Radiographic Guidelines in Clinic Manual).
3. Peri-implant soft tissue health.
4. Patient satisfaction with function, asthetics, and ease of maintenance.
5. Limited period of pain and disability.

6. Patient (family) acceptance of procedure and understanding of outcomes.

ORAL PATHOLOGY

SOFT TISSUE EXAMINATION

All patients should receive a soft tissue examination of the oral cavity, tonsillar area and posterior pharyngeal wall, perioral tissue and upper neck. A dentist is also in a unique situation to observe the face which should be included in the visual examination.

This standard should apply to all new patients and recall patients after continuous dental treatment has been completed.

RADIOGRAPHIC EXAMINATION

All patients should receive a radiographic examination of the teeth and jaws prior to comprehensive dental treatment. Recall patients should undergo radiographic examination in accordance with published standards for periodic radiographic examination and signs and symptoms of disease.

Patients presenting with signs and symptoms of a disease process related to teeth, bone and maxillary sinus must have radiographs taken to help with the diagnosis and to determine the extent of the process. In addition, radiographs may be needed in evaluating soft tissue disease processes.

SOFT TISSUE AND RADIOGRAPHIC ALTERATIONS/ABNORMALITIES

All soft tissue and radiographic alterations from normal must be recognized, evaluated, diagnosed and managed appropriately. The diagnosis may require a variety of diagnostic tests and may require referral to additional health care providers. Management may be carried out by the original dentist or another health care provider.

TISSUE MANAGEMENT

All tissue removed from patients in the College of Dentistry and allied clinics undergoes gross and/or microscopic examination and findings placed in the patient record. Guidelines for facilitating this process are as follows:

A. Teeth with no attached soft or hard tissue and no abnormalities beyond caries

Example: Uncomplicated carious tooth

A gross description of the tooth and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of in compliance with human waste management standards.

B. Teeth with no attached soft or hard tissue and with variations or abnormalities excluding caries

Example: Dilaceration

Concrescence

A gross description of the tooth, a diagnosis and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of as in condition A.

C. Teeth with no attached soft and hard tissue and with abnormalities excluding caries in which a specific diagnosis of the condition is required

66 Example Dentinogenesis imperfecta

Dentinal dysplasia

The tooth is submitted to oral pathology for gross and microscopic examination.

D. Teeth with no attached soft and hard tissue and no abnormalities in patients with unexplained symptoms associated with the teeth

Example Premature exfoliation of teeth

The tooth is submitted to oral pathology for gross and microscopic examination.

E. Teeth with attached soft tissue

In general, soft tissue is sent to oral pathology for gross and microscopic examination. An acceptable exclusion is the situation of an impacted tooth with pericoronal tissue interpreted clinically as dental follicle.

Criteria for what represents normal follicular tissue and what is pathology may not be clear-cut, but submission to an oral pathology laboratory for microscopic diagnosis should occur if any of the following is present:

1. A radiolucency of more than .4 cm.
2. A radiolucency that exhibits a sclerotic border.
3. A radiolucency that extends along the tooth root surface.
4. A focal increase in the size of the radiolucency.

5. A radiolucency that is associated with resorption of adjacent teeth.
6. A radiolucency that contains radiopacities.
7. Soft tissue lining a distinct cavity.
8. A cavity with luminal contents.
9. Luminal surface vegetations and growths.
10. Thickened lining.

A tooth with tissue interpreted as follicle receives a gross description which is entered in the patient's progress notes by the attending dentist. The tissue is disposed of as in A. However, the submission of normal follicular tissue for microscopic confirmation is totally acceptable.

Tissue required for submission to oral pathology includes periocoronal, periodontal and radicular pathology.

F. Teeth with attached non-diseased bone

Example Traumatic extraction

A gross description of the tooth and bone, reason for removal and interpretation of the bone are included in the patient's progress notes by the attending dentist and the tissue is disposed of as in A.

G. Bone specimens

All diseased or abnormal bone is submitted for gross and microscopic examination. Acceptable exclusions include non-pathologic bone associated with tooth extraction and pre-prosthetic surgery.

H. Soft tissue

All altered or diseased soft tissue is submitted for gross and microscopic examination. Acceptable exclusions are inflamed pulp, dental follicle as described in E and essentially normal tissue such as mucosa that is removed for treatment of impacted teeth and typical inflammatory periodontal disease.

Tissue removed from routine periodontal procedures may not be submitted for microscopic examination if the clinical and radiographic presentation follows the typical pattern of periodontal disease. A description of the tissue and reason for removal should be entered in the

patient's progress notes by the attending dentist. The tissue should be disposed of as in A, but it is acceptable to submit this tissue for microscopic examination.

Tissue removed in the following situations must be submitted for microscopic examination:

1. Discrete enlargement of gingival soft tissue excluding routine gingivitis.
2. Gingivitis refractory to normal treatment.
3. Isolated alveolar bone defects.
4. Rapidly progressing alveolar bone loss.
5. Areas of exaggerated bone loss in chronic periodontitis.
6. Medical history indicating a systemic illness and/or cancer.
7. Signs and symptoms of a possible undiagnosed systemic illness.
8. Unexplained etiology.
9. Persistent active disease after appropriate therapy.

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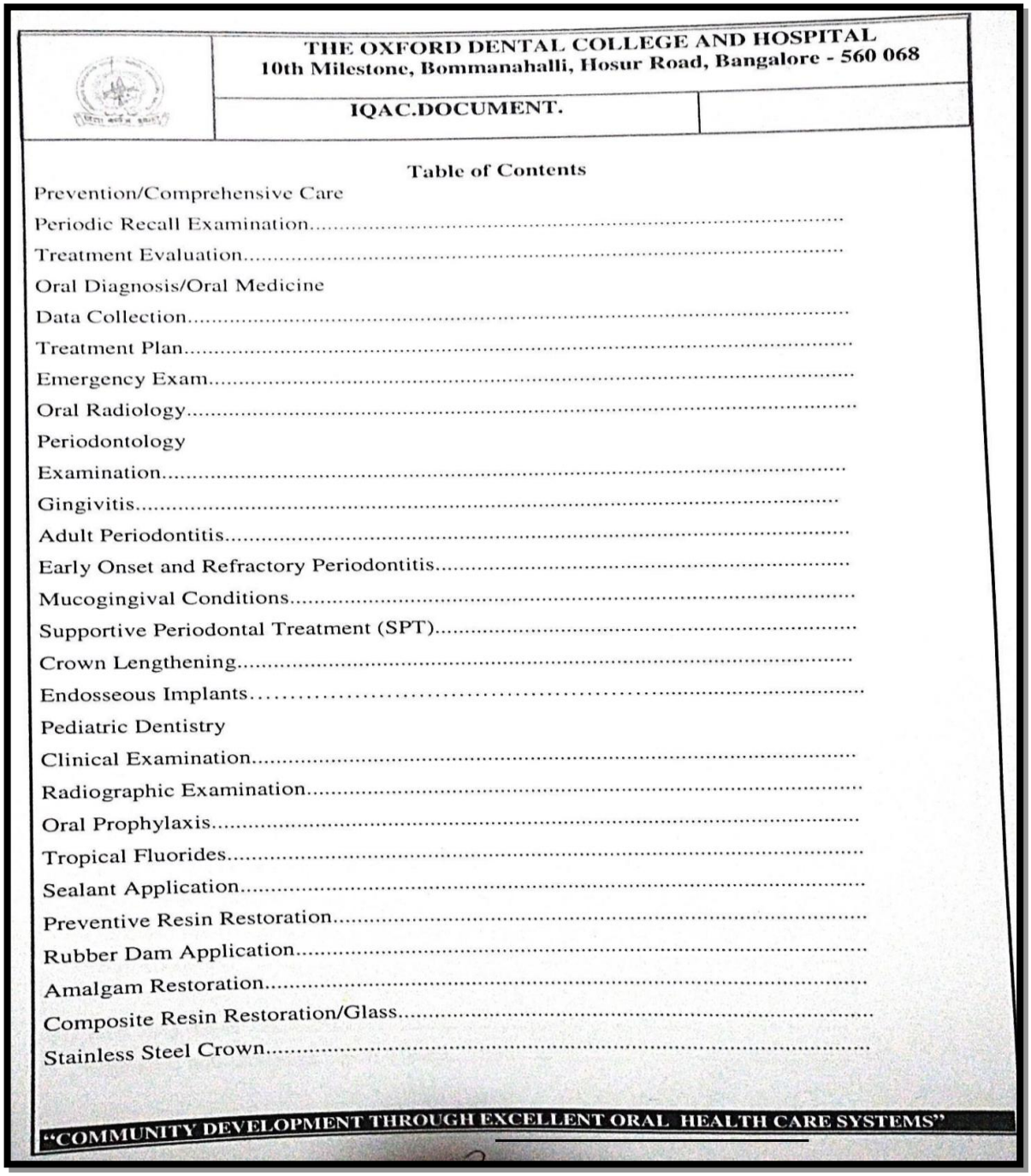

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CHILDREN'S EDUCATION SOCIETY (Regd.)
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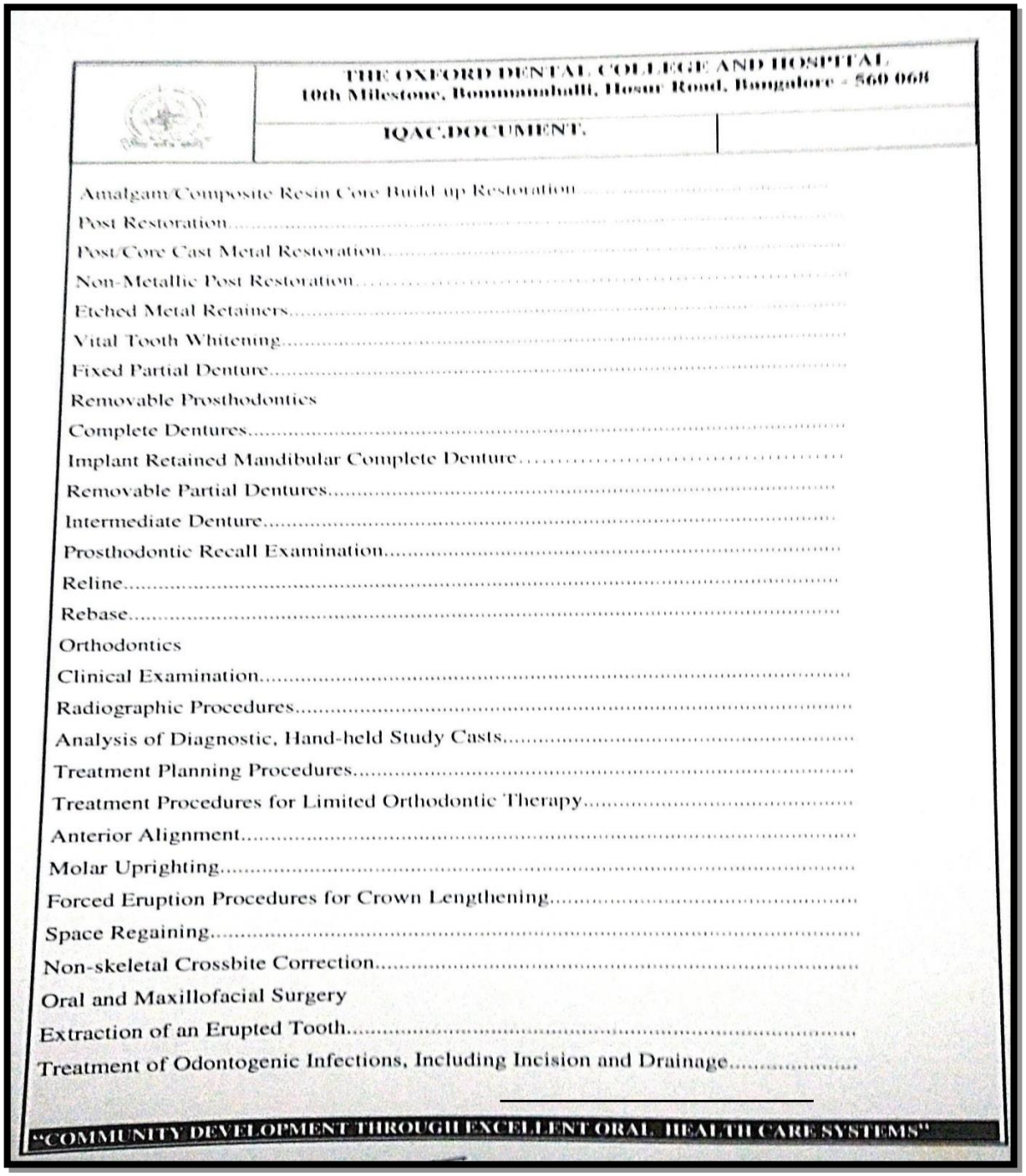

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PREVENTION/COMPREHENSIVE CARE

Preventive strategies are part of all patient care at the College of Dental Sciences. Formal prevention includes Oral Hygiene Instructions, Topical Fluoride (when indicated), and Debridement during the Initial Oral Examination. Instruction for proper home care is provided for patients when treatment is planned, during treatment, and at periodic recall examinations. Patients receiving orthodontic treatment, fixed partial dentures, removable prosthodontics, periodontal treatment, and any other dental treatment are provided instructions for cleaning and maintaining their oral health before, during and after treatment.

Periodic recall examinations are scheduled for patients to evaluate hard and soft tissue and reinforce home care. Treatment evaluation is performed at the end of active treatment to evaluate the dental care provided for the patient and work with patients who require additional instruction in prevention.

PERIODIC RECALL EXAMINATION

The periodic recall examination is provided at appropriate intervals to assist patients in maintaining their oral health. Hard and soft tissues are evaluated and recommendations for treatment are made.

Indications

All patients who request follow-up care.

Contraindications

None

Outcomes Assessment

1. All hard and soft tissues are examined and pathology is noted.
2. Home care and appropriate preventive techniques are reinforced or introduced.
3. Appropriate recall interval is established and completed.
4. Patient's oral hygiene is adequate; periodontium and dentition are healthy.

TREATMENT EVALUATION

The treatment evaluation is done at the completion of treatment to assess the care that has been provided and make improvements if needed. Prevention is evaluated and reinforced if necessary at this time.

Indications

All patients who have completed treatment.

Contraindications

None

Outcomes Assessment

1. All dental care provided for the patient is clinically acceptable.
2. Oral hygiene and periodontal condition are satisfactory.
3. Oral hygiene is reinforced, if needed, and appropriate recall interval is established.

ORAL DIAGNOSIS/ORAL MEDICINE

Oral Diagnosis is that aspect of dentistry that involves collection and interpretation of pertinent data essential to diagnosing oral disease. Oral Medicine is concerned with the oral health care of medically compromised patients and with the diagnosis and non-surgical management of medically-related diseases or conditions affecting the oral and maxillofacial region.

The predoctoral oral diagnosis/oral medicine curriculum is designed to educate the dental student to:

1. Gather and organize the necessary information to provide comprehensive and accurate oral health care for the patient;
2. be competent at collecting and recording a medical history;
3. be competent at eliciting and recording a complete dental history;
4. be competent at taking, recording and interpreting vital signs (blood pressure, temperature, pulse, respiration);
5. understand the clinical signs and symptoms of major diseases of each organ system;
6. understand the impact of diseases of various organ systems on the oral cavity and on the delivery of dental care;
7. be competent to perform a head and neck examination, including extraoral soft tissues and intraoral hard and soft tissue;
8. understand the anatomic and biologic bases of the head and neck examination;
9. understand the potential impact of dental therapy on systemic disease;
10. understand performance of a musculoskeletal examination including TMJ function;

11. be competent in the assessment of a functional relationship of the teeth and jaws;
12. diagnose and deliver appropriate care in urgent dental situations;
13. take and accurately interpret diagnostic radiographs;
14. be familiar with the procedures necessary to interact with physicians and other health care providers in total patient evaluation and care; and
15. work with the patient in understanding and supporting personal oral health care.

DATA COLLECTION

Comprehensive data is to be collected on all patients in the student clinic in order to secure an accurate diagnosis and to plan for appropriate oral health care for the patient.

Indications

All patients presenting for care in the student clinic.

Contraindications

None

Outcomes Assessment

1. Medical history is evaluated and all aspects of the patient's health that may impact on the delivery of oral health care are identified.
2. All dental disease is identified through a hard tissue and soft tissue examination.
3. Vital signs are accurately taken and recorded on all patients.
4. Appropriate radiographs are available that are diagnostic and current.
5. Consultants are contacted when appropriate and comments recorded in the dental record.
6. All data is recorded in the dental record in a logical sequence on appropriate forms.

TREATMENT PLAN

A treatment plan will be developed for each patient commensurate with their needs and desires.

Indications

All patients requesting care in the student clinic

Contraindications

None

Outcomes Assessment

1. Proposed treatment is based on documentable clinical and/or radiographic findings.

2. Treatment is sequenced in a logical manner including severity of disease, patient desire, difficulty of procedure, etc.

3. Treatment options are discussed with the patient, fees are explained, and informed consent for proposed treatment is obtained.

4. Treatment needs are sequenced according to: (1) preliminary needs (immediate care required); (2) phase I, elimination of disease; (3) phase II, elective treatment including fixed and/or removable prosthodontics, and (4) recall, maintenance therapy.

EMERGENCY EXAM

Patients presenting with urgent needs will receive an emergency exam and treatment necessary to stabilize their condition.

Indications

Patients of record reporting to the student clinic and patients of non-record reporting to the urgent care clinic.

Contraindications

Patients whose needs are determined to be a non-urgent nature by the attending dentist or are too complex for the student dentist.

Outcomes Assessment

1. Patients of record with urgent needs will be evaluated and treated by their student dentist under the supervision of the appropriate discipline.

2. Patients of non-record will be seen in the urgent care clinic, stabilized, and referred to the appropriate source for follow-up care.

3. Patients whose needs are determined to be of a non-urgent nature will be referred to the appropriate source for follow-up care.

ORAL RADIOLOGY

Oral radiology is the area of dental practice that deals with the use of radiation, including diagnostic, therapeutic, and nuclear aspects of clinical practice and research. It is based on physical principles and biologic phenomena and is linked with most branches of dental science. Radiographic examinations are based on the needs of the patient, not the amount of time elapsed

since the last exposure, not on a periodic basis, and not for administrative purposes. This is in accordance with the guidelines for prescribing dental radiographs (FDA publication #88-8273).

INTRAORAL FILMS

Indications

Patients requesting oral health care.

Contraindications

Diagnostic films taken recently and available, patient is pregnant seeking elective care during first trimester of pregnancy with no clinical evidence of oral disease, or patient is edentulous with a recent panoramic film.

Outcomes Assessment

1. Technical ability will be confirmed by a radiographic product that is diagnostic and appropriate to the patient's status.
2. Processing of the films will be performed by the clinician with any processing errors identified and remediated by that clinician.
3. Selection criteria for the radiographic examination are stated and logical.
4. Radiographs are analyzed under the supervision of qualified personnel.
5. Radiographic safety will be demonstrated through appropriate use of shielding devices, accurate exposure dosage, and radiographic records for each patient.

SUPPLEMENTAL FILMS (EXTRAORAL, PANORAMIC, ETC.)

Indications

Patients seeking care with specialized needs. Requests for additional radiographs to supplement intraoral films or to replace these films includes, but are not limited to panoramic films on edentulous patients, TMJ series, Water's view, and lateral skull.

Contraindications

Information available on intraoral films, diagnostic radiographs available from another source, pregnant individuals seeking elective care during the first trimester.

Outcomes Assessment

These films will be ordered, exposed and interpreted under the supervision of qualified personnel.

PERIODONTOLOGY

"That specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes; the maintenance of the health, function and esthetics of these structures and tissues; and the replacement of lost teeth and supporting structures by grafting or implantation of natural and synthetic devices and materials" (1).

KNOWLEDGE

While periodontal disease diagnosis and treatment requires special knowledge, practitioners must possess a working knowledge of other disciplines to provide optimum care. Some of these disciplines are:

- Physiology
- Anatomy
- Histology
- Microbiology
- Immunology
- Pathology
- Restorative Dentistry
- Oral Medicine
- Pharmacology
- Systemic Disease
- Dental Implants
- Biochemistry
- Prosthodontics
- Pediatric Dentistry
- Endodontics
- Biomaterials
- Laboratory Medicine
- Critical Thinking
- Literature Analysis

- Oral And Maxillofacial Surgery
- Radiology
- Oral Biology

INTRODUCTION

The goal of periodontics is to maintain or restore health in the periodontium. Arresting or slowing down the disease process may be alternative goals if "health" cannot be achieved. Generally the diseases dealt with are inflammatory and are categorized as gingivitis or periodontitis. The principle causative agents are intraoral microflora which colonize the tooth surface both supragingivally and subgingivally as well as the subgingival pocket area.

Transition of gingivitis to periodontitis does not always occur, although periodontitis is always preceded by gingivitis. Since the structures and microflora involved in gingivitis and periodontitis are different, treatment methodologies and outcomes will vary depending on the disease. Elimination of the bacteria present in gingivitis can lead to a complete reversal of the disease. Treatment of periodontitis always requires elimination of microflora but the periodontium will not return to its pre-diseased state.

9 The general practitioner should be able to diagnose health and disease, treatment plan, remove plaque, treat gingivitis, and manage periodontitis. Management may include nonsurgical treatment of early disease and working with a periodontist on a referral basis for treatment of all forms of periodontitis. The general practitioner should be well versed in multiple methods of patient control of oral microflora.

EXAMINATION

1. A thorough medical history should be taken on each patient. Various systemic diseases, conditions, and habits such as diabetes, hypertension, smoking and pregnancy can influence periodontal conditions and treatment. A complete list of all patient medications should be recorded, and their actions and interactions with drugs to be prescribed should be evaluated. Consultations with other health care professions should be obtained as needed.

2. A dental history should be obtained and any previous records and radiographs should be added to the current file. Contacts with previous dental practitioners may provide valuable information.
3. A head and neck extraoral examination should be performed. Abnormalities should be noted and appropriate referrals performed if necessary.
4. An intraoral examination of oral mucosa, tongue, floor of mouth, lips, palate, oropharynx, glands, and alveolus should be performed. Palpation should be utilized as required. All abnormalities should be noted and consultations obtained as needed.
5. Individual teeth, replacements, occlusion, caries, tooth position, pulpal status (as needed), restorations, and mobility should be noted. Diagnostic casts should be obtained.
6. Appropriate radiographs should be taken. A panoramic film and bite-wing radiographs are sufficient for analysis of the periodontium of a patient with gingivitis. Full mouth radiographs are required for patients with periodontitis.
7. The presence of plaque and calculus should be recorded.
8. The gingival and alveolar mucosa should be examined. Consistency, color and frenum insertions, probing depths, bleeding points, recession and furcation involvement should be recorded. The quantity of attached gingival should be noted.
9. Laboratory tests and additional radiographs should be obtained if needed.
10. Data should be analyzed and a diagnosis, treatment plan and prognosis formulated.

GINGIVITIS

Gingivitis is inflammation of the gingival by oral microflora (plaque) without attachment loss. Some or all of the following clinical findings may be present:

- Erythema
- Bleeding On Probing
- Contour Alteration
- Consistency Alteration
- Presence of Calculus
- Presence of Plaque
- Edema

Tooth position and existing restorative dentistry can be secondary contributing disease factors.

Treatment Goals

Return the gingival tissue to health by eliminating plaque, calculus and secondary contributing factors.

Methodology

1. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
2. Oral hygiene education, demonstration and evaluation.
3. Removal of microbial plaque, calculus and stain. This is typically performed by hand and/or ultrasonic instrumentation (scaling) and application of abrasive pastes.
4. Correction of secondary restorative factors. Examples may include:

- Overhanging Margins
- Open Margins
- Improperly contoured restorations
- Primary caries
- Secondary Caries
- Open Contacts
- Fractured Restorations

5. Correction of tooth malposition if possible.
6. Reexamination.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema and bleeding on probing should be evidenced if satisfactory treatment was rendered and patient oral hygiene was satisfactory. Gingival health should be present if these conditions exist.
2. If treatment is unsuccessful, additional instrumentation may be required and/or a change in frequency of instrumentation. A review of plaque control procedures with the patient as well as alternative plaque control measures may be required.

ADULT PERIODONTITIS

"Periodontitis is inflammation of the supporting tissues of the teeth. It is usually a progressively destructive change leading to loss of bone and periodontal ligament or an extension of inflammation from gingival into the adjacent bone and ligament. Adult periodontitis usually has an onset beyond age 35. Bone resorption usually progresses slowly and predominantly in the horizontal direction. Well-known local environmental factors are prominent and abnormalities in host defense have not been found" (1). Clinical features may include some or all of the following:

- Edema
- Erythema
- Bleeding on Probing
- Suppuration
- Bone Loss (early to moderate up to 1/3, advanced > 6 mm)
- Furcation involvement (early to moderate-class i, advanced-class ii or iii)
- Tooth Mobility
- Radiographic Evidence Of Bone Loss
- Probing Depths (early to moderate up to 6 mm, advanced > 6 mm)
- Attachment Loss (early to moderate up to 5 mm, advanced > 5 mm)
- Localized or Generalized Presentation
- Early, Moderate And or Advanced Stages

Treatment Goals

Eliminate arrest or slow down the disease by the elimination and/or alteration of the oral microflora and secondary factors. Preservation of a healthy, comfortable, functional and esthetic dentition is the goal for each patient.

Methodology

1. Evaluate contributing factors such as smoking, diabetes, medications, and pregnancy. Eliminate as many contributing factors as possible.

12. Reexamination as deemed appropriate.

Surgery

1. The appropriate surgical modality will be determined by a periodontal faculty member, periodontal resident and the dental student.
2. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
3. Reexamination as deemed appropriate.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema, probing depths, and bleeding points if satisfactory treatment was rendered. Stabilization or gain of clinical attachment should also be evident during the clinical reexamination. Improvement may be seen in radiographic appearance.
2. Alteration of occlusal forces.
3. Effective patient oral hygiene.
4. Unresolved areas of periodontal disease may occur and be characterized by:
    - inflammation
    - increased probing depths
    - continued attachment loss
    - persistent bleeding on probing
    - persistent plaque deposition
5. Patient response is variable and treatment modalities may require modification or alteration as needed.

EARLY ONSET AND REFRACTORY PERIODONTITIS

These disease entities will receive treatment by periodontal residents and/or faculty.

MUCOGINGIVAL CONDITIONS

Mucogingival conditions are alterations of the normal relationship between the free gingival margin and the mucogingival junction. Alterations of morphology position and quantity of gingival may be present (1). Clinical features may include:

- Recession

- Lack of or reduction in keratinized tissue
- Lack or reduction in attached gingiva
- Probing depths which traverse the mucogingival junction
- Ridge defects

Treatment Goals

Decrease or eliminate root sensitivity, correct esthetic problems, eliminate pocketing and control or eliminate inflammation.

Methodology

Surgical procedures will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.

1. Eliminate or control inflammation through plaque control by improved oral hygiene and scaling and root planing.
2. Root desensitization.
3. Gingival grafting.
4. Root coverage (soft tissue).
5. Correction of trauma from occlusion.
6. Frenectomy or frenotomy.
7. Correction of tooth malposition.
8. Surgical procedures for probing depth reduction.
9. Surgical procedures for ridge augmentation.

Outcomes Assessment

1. Clinical signs of inflammation have been eliminated.
2. Esthetics are satisfactory.
3. Areas of recession may have been corrected.
4. Recession is not progressing.
5. Mucogingival defects have been corrected.
6. Successful treatment may not have occurred due to persistent inflammation or the persistence of mucogingival defects. Satisfactory results are not possible in all patients.

SUPPORTIVE PERIODONTAL TREATMENT (SPT)

SPT is an extension of periodontal therapy. Procedures are performed at selected intervals to assist the periodontal patient in maintaining oral health. These usually consist of an examination, evaluation of oral hygiene, scaling, root planing and supragingival plaque removal with abrasive pastes (1).

Treatment Goals

Prevent or minimize the recurrence and/or progression of periodontal disease by continual evaluation of the patient. Return the patient to active therapy if their diseases status warrants it.

Methodology

1. Examination (refer to examination section).
2. Determine disease status.
3. Determine oral hygiene status.
4. Remove local factors (as needed).
5. Review oral hygiene (as needed).
6. Determine if the patient must return to active therapy status or may remain under SPT.
7. If the patient must return to active treatment status, modify the treatment as needed.
8. If the patient remains under SPT, an appropriate time interval must be established between appointments.

Outcomes Assessment

1. Periodontal health is maintained.
2. SPT may be unsuccessful if patient oral hygiene is inadequate, compliance is poor or recurrence of disease is observed. These conditions may alter the patient treatment plan.

CROWN LENGTHENING

Periodontal surgical procedures involving the soft and/or hard tissues to permit tooth restoration.

Some or all of the following may be indications:

- tooth fracture (crown and/or root)
- extensive primary caries
- extensive secondary caries
- endodontic perforation

2. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
3. Oral hygiene education, demonstration and evaluation.
4. Removal of microbial plaque, calculus and stain (supragingivally and subgingivally). Typically performed by hand and/or ultrasonic instrumentation (scaling and root planning).
5. Local delivery of antimicrobials may be utilized secondarily.
6. Systemic delivery of antibiotics may be utilized secondarily.
7. Correction of secondary restorative factors such as:
   - Overhanging Margins
   - Open Margins
   - Improperly Contoured Restorations
   - Primary Caries
   - Secondary Caries
   - Open Contacts
   - Fractured Restorations

8. Correction of other secondary factors such as:
   - Poor Prosthetic Appliances
   - Trauma from Occlusion
   - Tooth Malposition

9. An appropriate time interval should be observed to allow for inflammation resolution and repair. A thorough periodontal reexamination should be performed including gingival characteristics, probing, and bleeding points. Evaluation of the patient should be performed and their disease status determined.
10. If periodontal therapy has resolved the periodontal disease, supportive periodontal treatment (SPT) should be initiated.
11. If periodontal therapy has not resolved the periodontal disease, further nonsurgical or surgical therapy should be performed as deemed appropriate.

- inadequate crown length for adequate preparation
- iatrogenic dentistry
- post-orthodontic extrusion

Treatment Goals

Provide adequate crown length, and maintain proper crown to root ratio while preserving the biologic width.

Methodology

1. Determination of need will be made by the periodontal and restorative faculty in conjunction with the periodontal resident and dental student.
2. Resective soft and/or hard tissue surgery.
3. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
4. Determine patient oral hygiene.

Outcomes Assessment

1. Post-operative crown length adequate for required post-surgical procedures.
2. Adequate patient oral hygiene.
3. Unfavorable results can be evidenced due to inadequate tissue resection, poor oral hygiene, inadequate crown to root ratio, and fractures requiring tooth extraction.

ENDOSSEOUS IMPLANTS

Replacement of (a) teeth (tooth) with (a) machined root form shaped titanium alloy to improve function and/or esthetics. The following may be indications for placement:

1. Tooth and/or root fracture
2. Missing teeth due to trauma
3. Previous extraction sites
4. Spaces created by orthodontic movement
5. Endodontic failures
6. Restorative failures
7. Extractions due to periodontal disease

8. Non-restorable teeth due to caries (following extraction)
9. To avoid preparation of virgin teeth for bridge abutments
10. Anchorage for orthodontic tooth movement

Treatment Goals

Provide the patient with 1) replacement function and/or esthetics in edentulous areas of the mandible and/or maxilla or 2) anchorage for orthodontic tooth movement.

Methodology

1. The determination of the appropriate treatment will be determined by clinical faculty in the appropriate disciplines which would generally be periodontics, restorative dentistry, prosthodontics, and orthodontics. The Implant Consent and Treatment Planning Form (5D) and financial arrangements must be completed before treatment begins.

2. The supervising periodontal resident and the dental student will be involved in the treatment plan.

3. Appropriate faculty, the periodontal resident, and the dental student will explain the treatment plan to the patient.

4. Existing periodontal disease in the dentition must be resolved prior to implant placement.

5. A plaque score of 25% must be achieved prior to implant placement.

6. Implant placement will be performed by the periodontal resident who will be assisted by the dental student assigned to the patient. The procedure will be performed in the periodontal graduate clinic under the supervision of the periodontal faculty.

Outcomes Assessment

1. The implant will be evaluated radiographically for adequate placement (See Radiographic Guidelines for Implant Patients in the Clinic Manual).
2. Following healing (3-6 months) the implant will be evaluated for mobility and probing depth.
3. Patient oral hygiene will be evaluated and corrected as required.
4. Radiolucencies, implant mobility, and increased probing depths are indications that an implant is ailing, failing or has failed and further treatment is required.

References

1. Glossary of Periodontal Terms. The American Academy of Periodontology, 1992.

PEDIATRIC DENTISTRY

Pediatric Dentistry is an age specific dental specialty that encompasses all aspects of dentistry. Since children are unique in their stages of development, oral diseases, and oral health treatment needs, this section will focus on comprehensive preventive and therapeutic oral health care of children. One goal is to provide a basic philosophical and technical foundation for diagnosis, treatment planning, and providing treatment procedures in children. Another goal is to provide practical experience in managing the behaviors of children. The former goal is scientifically more definitive, while the latter goal is less clearly defined. Regarding the practical experience gained through behavior management; it is only expected that the student should clearly document the child's initial behavior and describe uncooperative or inappropriate behaviors. Once strategies for managing the behaviors are implemented it is then expected that the student document effectiveness of the techniques. The goal is to have the management techniques positively affect the child's emotional development. Further, the student should understand that behavior management methods employed are to allow the opportunity for communicating, educating, coping, and cooperating during treatment procedures. In addition to words, it is desired that the student appreciate the impact of voice tone, facial expression and gestures. The more definitive pediatric dentistry treatments follow:

CLINICAL EXAMINATION

This consists of a health history review and a physical assessment.

Indications

1. All patients of record should receive a thorough examination of the intra- and extra-oral soft tissues, and intraoral hard tissue examination, and a review of the health history.

Contraindications

There are no contraindications for the clinical examination.

Outcomes Assessment

1. Health history should be reviewed and summarized:

a. Medical history summarized and ASA status determined and marked on t he medical history questionnaire. Allergies should be clearly identified with red highlighting. Need for SBE prophylaxis should be documented. Medications the child is taking should also be documented.

b. Dental history should be reviewed so that the reason for seeking care is documented. Previous dental treatment with comments about the child's behavior during that treatment should be documented. Oral habits and previous dental injuries should be reviewed and documented.

c. Home Dental Care: An assessment of the child's fluoride status, oral hygiene habits, and dietary practices should be recorded. The need for fluoride supplementation should be established.

d. Behavior History: A prediction of how the child will behave should be made. Information regarding how the child behaved on previous dental appointments or for medical appointments should be ascertained.

2. The physical assessment should survey the following:

a. General appraisal of the face, neck, lips, gingivae, buccal mucosa, palate, tongue, and tonsillar area should be documented if not within normal limits.

17 b. The presence of teeth should be circled clearly on the pediatric evaluation form. Occlusion should be recorded, with data reflecting the anterior-posterior, traverse, and vertical planes of space.

c. Anomalies in number, size, shape, texture, eruption, exfoliation, and tooth position should be documented. All dental restorations and carious lesions should be charted by tooth number and surface.

d. History of traumatic injuries and oral habits should be documented to identify teeth affected, description of how injured, duration of habit, and date of injury.

RADIOGRAPHIC EXAMINATION

Indications

All patients of record should receive an assessment of dental caries, periodontal status, developmental status, pathologic disturbances, swelling and pain or dysfunction.

All radiographs will be ordered based on the guidelines set forth by the American Academy of Pediatric Dentistry (AAPD) and as published reference manual indicates in the "Pediatric Dentistry Journal." (FDA publication #88-8273)

Contraindications

Patients in the first trimester of pregnancy seeking elective care. Radiographs will only be ordered according to the guidelines of the AAPD.

Outcomes Assessment

1. All radiographs are of diagnostic quality to permit assessment of health and development of the dentition and oral structures. They are to supplement the clinical examination findings.
2. Pathologic interpretations should also be documented on the pediatric evaluation form and/or in the progress notes. This includes eruption interferences, abscesses, and congenitally missing teeth.
3. A radiographic record should document films ordered and the number of exposures made.

ORAL PROPHYLAXIS

Traditionally this has been the polishing of teeth with a rubber cup; however, the toothbrush is an acceptable instrument for completing this procedure. Dental floss is also an adjunct for intraproximal portion of the prophylaxis. Scaling is done if calculus is present.

Indications

1. Removal of plaque, calculus, and/or extrinsic stains from the teeth.
2. Polishing the teeth.
3. Education of the child and/or caregiver.

Contraindications

1. Patients who are susceptible to subacute bacterial endocarditis need to be managed with the appropriate antibiotic therapy according to current AHA guidelines.
2. Patients who suffer with a bleeding disorder need to be managed with the appropriate precautions if bleeding is likely for this procedure.

Outcomes Assessment

1. All plaque should be removed from the crowns of all tooth surfaces.
2. Extrinsic stains and calculus should be removed and the teeth should be polished.

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3. Child should be given instructions on plaque removal and should minimally demonstrate with a toothbrush. As coordination improves, flossing instructions should be implemented.
4. A recall plan should be established and documented.

TOPICAL FLUORIDES

Indications

Caries susceptible children as demonstrated by enamel decalcifications or clinically diagnosed caries. Systemic fluoride supplementation schedule is attached.

Contraindications

1. Children who do not understand or who are unable to prevent swallowing the fluoride products.
2. Children who are a low caries risk (caries free, excellent oral hygiene, and open contacts).

Outcomes Assessment

1. Fluoride application is retained in child's mouth for one to four minutes.
2. Child does not eat or drink for the next 30 minutes.

SEALANT APPLICATION

Indications

1. Deep, retentive pits and fissures that may cause wedging or catching of an explorer.
2. History of previous occlusal caries.
3. Tooth erupted within the last 4-5 years.
4. Can be placed on primary or permanent molars, premolars, and the cingula of maxillary incisors with deep pits and/or fissures.

Contraindications

1. Well coalesced, self cleaning pits and fissures.
2. Patients with interproximal lesions on a tooth that is planned for a sealant or occlusal caries.
3. Inability to keep tooth contained with dry isolation.

Outcomes Assessment

1. Sealant is intact and covers all susceptible pits and fissures.
2. Occlusion is evenly distributed as before placement of the sealant.
3. No evidence of caries development.

PREVENTIVE RESIN RESTORATION

Indications

1. Deep pits and fissures in primary and permanent teeth that contain questionable caries areas.
2. Implicit carious lesions.
3. Well confined carious lesions.
4. Enamel defects.

Contraindications

1. Interproximal caries on suspect tooth.
2. Need to extend preparation beyond the suspect pit and/or fissure.

Outcomes Assessment

1. Restoration is intact and covering all involved and/or susceptible pits and fissures.
2. Normal occlusal relationship is maintained.
3. No evidence of caries development beneath or around the margins of the restoration.

RUBBER DAM APPLICATION

Indications

1. Restorative or endodontic procedures for primary or permanent teeth.
2. Protect soft tissues and improve patient management.
3. Prevent dental instruments and other materials from entering the oropharynx.

Contraindications

1. Orthodontic bands on teeth.
2. Patients with poor nasal exchange.
3. Patients with allergy to latex.
4. Clamp cannot be retained due to state of eruption of the tooth.

Outcomes Assessment

1. Rubber dam does not block the nose for air exchange.
2. Rubber dam barrier remains intact through procedures, does not become dislodged, and isolates teeth to be treated.
3. All stabilizing ligatures and rubber dam material is removed upon completion of restorative procedures.

AMALGAM RESTORATION

Indications

1. The restoration of dental caries.
2. The restoration of developmental defects.

Contraindications

1. First primary molar with mesial caries.
2. Interproximal caries that goes beyond the buccalline angle.
3. Caries greater than 1/3 the isthmus of the occlusal portion of the amalgam preparation in primary molars.

Outcomes Assessment

1. Vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration remains intact.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

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COMPOSITE RESIN RESTORATION

Indications

1. Restoration of one or more surfaces on anterior teeth due to fracture, caries, or developmental defects.
2. Restoration of ideal one surface (Class I or Class V) caries or developmental defects on posterior teeth.
3. Restoration of small Class II carious lesions.

Contraindications

1. Large Class II restoration to restore interproximal caries in posterior teeth.
2. Inability to keep a dry field with rubber dam or cotton products, if manufacturer's directions describe dry teeth.

Outcomes Assessment

1. The vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration is intact.
3. Shade of the restorative material approximates that of the patients natural tooth structure.
4. Restoration is approximately finished and the margins are even with natural tooth structure.
5. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

STAINLESS STEEL CROWN

Indications

1. Restoration of first primary molar with mesial surface caries.
2. Restoration when failure of other available restorative materials is likely.
3. Restoration of primary or permanent teeth with extensive caries.
4. Restoration following pulpotomy or pulpectomy (root canal therapy) for primary and permanent teeth.
5. Restoration for hypoplastic or hypocalcified teeth and teeth with hereditary anomalies.
6. Restoration for a tooth to be used as an abutment for fixed appliances.
7. Restoration as temporary for fractured teeth or for permanent molars with extensive caries.

Contraindications

Not enough space to place an adequately fitting crown.

Outcomes Assessment

1. Adequate caries removal and/or pulp treatment is completed and tooth is reduced for the crown.
2. Crown is appropriately trimmed, adapted, smoothed, and polished.
3. Appropriate sized crown that maintains arch length.
4. Adequate marginal adaptation for gingival health and excess cement is removed.
5. Functional occlusion is restored.
6. Tooth vitality is maintained when possible.
7. Restoration enables patient to maintain oral hygiene.
8. Restoration does not interfere with tooth eruption.

LABIAL VENEER (PLASTIC/PORCELAIN)

Indications

1. Esthetic restoration for anterior teeth that need to be restored or are deeply stained or discolored.
2. Conservative restoration for preventing full coverage restorations of fractured permanent incisors.

Contraindications

1. Occlusal disharmonies that could cause restoration failure.
2. Patients with disorders such as esophageal reflux or bulimia that could cause luting agents to fail.

Outcomes Assessment

1. Restore form and esthetics.
2. Maintain vitality of the tooth restored.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

DIRECT PULP THERAPY

Indications

1. Minimal pulp exposure during caries removal on a permanent tooth.

2. Therapy for permanent tooth that sustains a mechanical exposure during preparation or that has a traumatic exposure such as in the case of a fracture.

Contraindications

1. Primary teeth.
2. Greater than minimal pulp exposure (gross exposure).
3. Radiographic periapical radiolucency; signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. Hemorrhage is controlled and calcium hydroxide is placed over the exposed pulp.
2. Preparation is sealed with an appropriate restorative material.
3. Vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident (pain, swelling).
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification.

INDIRECT PULP THERAPY

Indications

A tooth that has caries approaching the pulp. Placing a protective dressing over a layer of remaining dentin protects against pulpal injury and stimulates healing.

Contraindications

1. Radiographic periapical radiolucency indicating a pathologic condition.
2. Signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. An appropriate base is placed over the remaining carious dentin.
2. The preparation is sealed with an appropriate restorative material.
3. The vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident.
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.

PULPOTOMY

Indications

1. Carious or mechanical exposures in primary molars with vital pulps.
2. Permanent teeth when the pulp is exposed and is vital.
3. Permanent teeth as urgent treatment in preparation for conventional root canal therapy.

Contraindications

1. Inability to control hemorrhage upon removing infected or affected canal pulp tissues.
2. Periapical radiolucency in suspect primary molar.
3. Clinical signs and symptoms of irreversible pulpitis or abscess for primary molar.

Outcomes Assessment

1. Appropriate selection and use of pulp therapy medicament.
2. Radicular pulp vitality is maintained and no prolonged adverse clinical signs and symptoms are evident.
3. No pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.
4. Normal root apical closure and root length occurs.

PULPECTOMY (PRIMARY TOOTH ROOT CANAL THERAPY)

Indications

1. Primary incisors traumatized with consequent pathology.
2. Non vital permanent teeth with immature roots.
3. Non vital primary molars.
4. Primary molars that sustain hemorrhage upon attempting pulpotomy procedures.

Contraindications

1. Facial swelling associated with non vital primary molar.
2. Tooth is not restorable.
3. Pathology extends to developing permanent teeth.
4. Internal or external resorption in crown and root.
5. Less than 2/3 of the primary tooth root structure remains.
6. Treatment could cause untoward sequela for medically compromised patient.

Outcomes Assessment

1. Evidence of a successful root canal filling with the appropriate material (no gross overextension or underfilling of canal).
2. Radiographic observation reveals root end closure (apexification).
3. No prolonged adverse clinical signs and symptoms.
4. No radiographic evidence of internal/external resorption.
5. No exacerbation of previous periradicular radiolucency or development of periradicular radiolucency where none existed.

PRIMARY TOOTH EXTRACTION

Indications

1. Acute or chronic pathology associated with primary teeth.
2. Over-retained teeth.
3. Cariously involved, non-restorable tooth.
4. Natal/neonatal teeth that are mobile and subject to aspiration, are a source of ulceration, or interferes with feeding.
5. Supernumerary teeth.
6. Fractured or traumatized non-restorable teeth.

Contraindications

1. Acute oral infection such as herpetic stomatitis or necrotizing ulcerative gingivitis.
2. Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Appropriate anesthesia is obtained and the correct tooth is extracted.
2. Alveolus remains intact.
3. Hemorrhage is managed.
4. Post extraction instructions (written and oral) are reviewed with the child and/or child's caregiver.
5. Antibiotic therapy is initiated when appropriate.
6. Hospital care is sought when appropriate.

ECTOPIC ERUPTION CORRECTION THERAPY

Indications

1. Radiograph reveals that delayed eruption is due to atypical direction of tooth eruption.
2. Delayed eruption is due to impingement by previously placed restoration in an adjacent tooth.

Contraindications

Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Restoration is replaced and allows proper eruption of the ectopically erupting tooth.
2. Appropriate mechanical therapy repositions the ectopically erupting tooth (create enough space) to reascertain the arch length and/or preserve as much space as possible for the developing permanent dentition.

SPACE MAINTAINER THERAPY

Indications

Premature loss of teeth where it is necessary to prevent migration of adjacent teeth.

Contraindications

1. Procedure could cause untoward sequela for patients who are medically compromised.
2. Patients who are high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design is chosen to maintain the space and alignment of teeth.
2. The space present when the appliance is placed continues to be preserved until eruption of the succedaneous tooth.
3. Appliance does not prevent the normal eruption of succedaneous teeth.

HABIT APPLIANCE THERAPY

Indications

Management of a habit that is causing or may cause unfavorable consequences in the permanent dentition and orofacial development.

Contraindications

1. Child cannot understand instructions and the function of the appliance.
2. Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Eliminate or decrease the intensity of the habit.
2. Eliminate or decrease the effect of the habit on permanent dentition and orofacial development.

CROSSBITE CORRECTION THERAPY

Indications

1. Anterior and/or posterior non-skeletal crossbites.
2. End to end dental occlusion that demonstrates potential for severe attrition.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design to achieve correction of crossbite and/or improved inter arch relationships.
2. The desired occlusion is maintained.

PROSTHETIC APPLIANCE THERAPY

Indications

1. Caries causing multiple tooth extraction.
2. Trauma resulting in tooth loss.
3. Missing teeth due to congenital/genetic defects.
4. Congenital or genetic disturbances as in dentinogenesis/amelogenesis imperfecta or cleft palate.
5. Facilitation of establishing esthetics, occlusal function, speech development, and/or feeding.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Facial profile, function, and esthetics are improved.
2. Ability to adequately remove plaque from the natural teeth is facilitated.

3. Appliance has adequate retention.
4. Appliance does not interfere with normal speech development.
5. Appliance allows normal eruption of teeth and does not prevent normal orofacial growth and development.

TREATMENT PLANNING

Indications

All pediatric patients' care must be treatment planned with a CD-12 signed by a faculty member in the section of Pediatric Dentistry.

Contraindications

None

Outcomes Assessment

1. Accurate diagnosis of clinical findings.
2. Appropriate prevention plan is established.
3. Appropriate treatment procedures are planned for each tooth to be treated.
4. Radiographic interpretation confirms the presence of suspected disease/pathology.
5. Informed consent is gained by parent or guardian.

ENDODONTICS

DEFINITION OF ENDODONTICS

Endodontics is the dental specialty concerned with the morphology, physiology, and pathology of the human dental pulp and periradicular tissues. Its study and practice encompass the basic clinical sciences including normal pulp biology; the etiology, diagnosis, prevention, and treatment of diseases and injuries of the pulp; and associated periradicular conditions.

The scope of endodontics is defined by the educational requirements for the training of a specialist in this discipline. Its scope of endodontics includes but is not limited to the differential diagnosis and treatment of oral pain of pulpal or periradicular origin; vital pulp therapy such as pulp capping and pulpotomy; root canal therapy such as pulpectomy, nonsurgical treatment of root canal systems with or without periradicular pathosis of pulpal origin, and the obturation of these root canal systems; selective surgical removal of pathological tissues resulting from pulpal

pathosis; replantation of avulsed teeth; surgical removal of tooth structure such as in apicoectomy, hemisection, and root amputation; endodontic implants; bleaching of discolored dentin and enamel; retreatment of teeth previously treated endodontically; and treatment procedures related to coronal restoration by means of post or cores involving the root canal space.

Dental practitioners must perform endodontic therapy consistent with their educational training and clinical experience. Keeping in mind that dentistry's main goal is for the public to maintain a healthy, natural dentition, every dental practitioner must be able to recognize and effectively treat pulpal injuries and diseases that are common and comply with the skills acquired by graduates of dental schools in the United States. Endodontic cases that are beyond the training, experience, and expertise of individual practitioners should be referred to practitioners who can appropriately provide treatment. All endodontic treatment should be of such quality that predictable and favorable results will routinely occur.

ENDODONTIC EXAMINATION AND DIAGNOSIS

Many features of endodontic evaluation are common to all dental practice.

An adequate medical and dental history with accompanying visual and radiographic examination provides basic information. Appropriate pulpal and periapical tests such as thermal, electrical, percussion, palpation, and mobility should be performed. Additional periodontal examination, transillumination, and bacteriologic testing may be indicated. Pre-operative radiographs may be taken from more than one angle to gain a better perspective of the morphology of the tooth or teeth in question. Bitewing radiographs, occlusal plane films, and radiographs of the contralateral and opposing teeth may also be necessary.

It may be necessary to recall some patients at periodic intervals to compare the examination data from one time interval to another for an accurate diagnosis. At times it is advisable to secure radiographs from previous practitioners or the existing dental record to gain a better understanding of the evolution of the current situation.

ENDODONTIC TREATMENT PLANNING, RECORDS AND RECALLS

Appropriate treatment is predicated on an accurate analysis of all diagnostic data. Treatment planning should include determining the strategic importance of the tooth or teeth considered for treatment, the expectations of the patient, the endodontic prognosis, and other factors such as excessively curved canals, periodontal disease, occlusion tooth fractures, calcified or occluded canals, and teeth with unusual or abnormal canal morphology.

27 Treatment records should include the chief complaints or patient comments, clinical impression, results of diagnostic tests and clinical examination. Also included are the pulpal and periapical diagnosis, treatment rendered, and required pre-operative, intra-operative, post-operative, and recall radiographs. Records should also include patient commentaries or complaints before and during treatment, or at any subsequent post-operative examination.

Endodontic care also includes the evaluation of the patient's post-operative response to treatment. Endodontic providers should encourage patients to return at intervals appropriate for the procedures undertaken to allow continued clinical evaluation.

VITAL PULP TREATMENT PROCEDURES

Vital pulp treatments attempt to preserve the integrity and function of the pulpal tissue in whole or in part as dictated by the degree of pulpal injury. Materials used in vital pulp therapy, such as calcium hydroxide, should meet the guideline of the ADA Council on Dental Therapeutics. The permanent restoration should be placed as soon as possible.

PROTECTIVE BASE

A protective filling material is placed at the base of a deep preparation to act as a barrier to minimize further injury and permit possible pulp healing and repair.

Indications

1. Deep dentin preparations in teeth with vital pulp without pulp exposure.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Location of a radiopaque base between the permanent restoration and the dentin.
3. Appropriate responsiveness to electrical and thermal pulp tests.
4. No breakdown of the periradicular supporting tissues.

INDIRECT PULP CAPPING

In a tooth which has a carious lesion near the pulp, a protective dressing or cement is placed over a layer of remaining dentin which, if removed, might expose the pulp. The purpose is to protect the pulp against possible injury and to stimulate healing and repair.

Indications

1. Carious lesions in teeth with vital pulp, which, if removed, might expose the pulp.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to but not in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal vitality tests.
4. No breakdown of the periradicular supporting tissues.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

DIRECT PULP CAPPING

In a tooth with a carious lesion near or into the pulp, a protective calcium hydroxide dressing or cement is placed directly over the vital pulp at the site of the exposure to protect the pulp against further injury and to stimulate healing or repair.

Indications

1. Aseptic small mechanical or iatrogenic pulpal exposures.
2. Small pulp exposures in teeth with incompletely formed apices.

3. Socioeconomic reasons.
4. Vital pulp without history of irreversible pulpitis.

Contraindications

1. Irreversibly inflamed or necrotic pulp.
2. Tooth is to serve as an abutment for a fixed or removable prosthesis or the restoration of choice is a crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to, and in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal pulp vitality tests.
4. No breakdown of the periradicular supporting tissue.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

PULPOTOMY

Pulpotomy is the surgical amputation of the coronal portion of vital pulp. It is used to preserve the vitality and function of the remaining radicular portion of the pulp.

Indications

1. Small pulp exposures in tooth with incompletely formed apices.
2. Socioeconomic reasons.
3. Vital pulp without history of irreversible pulpitis.
4. An emergency procedure until root canal treatment can be accomplished.

Contraindications

1. Irreversibly inflamed or totally necrotic pulp.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Radiographic evidence of canal and root apex closure occasionally accompanied by an increase in root length.
3. No breakdown of periradicular supporting tissues

4. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

NONSURGICAL ENDODONTIC PROCEDURES

ROOT CANAL TREATMENT

Endodontic therapy for permanent teeth involves a biologically based chemical and mechanical debridement of the root canal system to eliminate pulpal disease and to promote healing and repair of periradicular tissues. The debridement and shaping of the canal system is followed by obturation with a biologically acceptable nonabsorable semisolid or solid core root canal filling material.

All canals are shaped, cleansed, and disinfected using aseptic technique. Proper access is dictated by the size and shape of the pulp chamber as well as by the tooth position in the arch. In all cases, the entire roof of the chamber must be removed. Debridement, enlargement, and disinfection of all canals and obturation are accomplished under rubber dam isolation. When indicated, microbial culture and sensitivity determinations are used.

Obturation is the three-dimensional filling of the entire root canal system as close to the cemento-dentinal junction as possible. Minimal amounts of root canal sealers, which have been demonstrated to be biologically compatible, are used in conjunction with core filling material to establish an adequate seal.

It is recognized that root canal instruments will fail occasionally due to manufacturing deficiencies beyond the control of the practitioner. When instrument failure occurs in a root canal, the remainder of the root canal space should be sealed with a biologically acceptable non-restorable semi-solid or solid core root canal filling material. The patient must be informed of the complication.

Indications

1. Carious pulp exposure on a permanent tooth.
2. Vital, irreversibly inflamed pulp.
3. Tooth with necrotic pulp.
4. Extensive loss of tooth structure where restorative considerations exist.

Contraindication

Pulp is vital, but with reversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e., without gross overextension or underfilling in the presence of a patent canal; no ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, within 4 years the recall radiographs should demonstrate return to an intact lamina dura and a normal periodontal ligament space around the entire root or roots under observation.
4. If a tooth had a normal periodontal ligament space and an intact lamina dura around the root or roots at the time of obturation, recall radiographs taken 6 months or later postobturation should demonstrate a similar appearance.

ENDODONTIC RETREATMENT

Retreatment is preferred to surgical retrofilling in teeth where the root system is accessible and amenable to reinstrumentation and obturation. Retreatment involves removal of the previously
30 placed obturation materials in addition to the procedures normally used in orthograde endodontic treatment. Post removal may also be necessary. Further efforts may be required to correct radicular defects, ledges, calcifications, and separated instruments.

Retreatment cases vary greatly in complexity, requiring greater effort, time, and skill, and should be undertaken with due regard to practitioner ability and expertise. Retreatment may need to be augmented by other procedures such as apexification or transmucosal intervention.

Indications

1. An incompletely debrided or filled root canal system with a radiographically observable unfilled root canal space.
2. Cases of unresolved periradicular pathosis and radiographic evidence of a deficiency in the quality of root canal filling.

3. Cases where removal of existing obturation materials as dictated by anticipated restorative or prosthetic procedures.
4. Cases where persistent symptoms are associated with a previously treated tooth and there is reason to question the adequacy of previous endodontic debridement and/or obturation.
5. Evidence of prolonged coronal leakage into the root canal system.

Contraindications

1. Persistent apical inflammation despite evidence of adequate debridement and obturation and in the presence of an adequate cast restoration.
2. Presence of a vertical root fracture.
3. Calcification, separated instrument, and/or other errors precluding access to apical canal system.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e. without gross overextension or underfilling in the presence of a patient canal. No ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, then the recall radiographs should demonstrate a return to an intact lamina dura and normal periodontal ligament space around the entire root or roots under observation. If a tooth had a normal periodontal ligament space and intact lamina dura around the root or roots at the time of obturation, the subsequent postoperative radiographic appearance should remain the same.

APEXIFICATION

Apexification is a method of inducing apical closure or apical development of the root or roots of an incompletely formed permanent tooth with a pulp. It may involve several treatments over an extended period of time. Calcium hydroxide compounds are commonly used for this purpose. When root closure is complete, endodontic therapy must be performed.

Indications

1. Root pulp necrotic, with or without apical periodontitis.

Contraindications

1. Pulp vital.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic evidence of apical closure without supporting tissue breakdown.
3. No lateral root surface pathosis.
4. Healing of periradicular pathosis.

SURGICAL ENDODONTIC PROCEDURES

INCISION AND DRAINAGE - SOFT TISSUE

Incision and drainage is a surgical procedure designed to release accumulated byproducts of tissue breakdown, collect samples for bacteriologic analysis, and provide a more favorable gradient and pathway for drainage.

Indications

Acute swelling with localized fluctuance.

Contraindications

1. No abscess localized or fluctuating.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of accurate symptoms.
3. Reduction of acute cellulites with localized fluctuance.
4. Return to normal soft tissue architecture.

INCISION AND DRAINAGE - SOFT AND HARD TISSUE

Incision and drainage through both the soft and hard tissues is a surgical procedure performed to liberate accumulated byproducts of tissue breakdown by surgical reflection of the soft tissue and penetration of the cortical plate in the periradicular area.

Indications

1. For the relief of pain caused by a buildup of fluid within the bony tissue.

Contraindications

1. Fluctuating abscess that can be localized and drained.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of acute symptoms.
3. No damage to root structure because of the procedure.
4. Soft tissue closure over the surgical site without fenestration.
5. No damage to the alveolar bone, roots of adjacent teeth, or other anatomical structures.

PERIRADICULAR CURETTAGE

Periradicular curettage consists of the removal of soft tissue and/or foreign material around the root apex without root end removal.

Indications

1. A marked apical over extension into the periradicular tissue of filling materials, that acts as an irritant.
2. A periradicular lesion that is enlarging after acceptable root carnal treatment, as noted on follow-up radiographs.
3. A persistent periradicular lesion that has not decreased in size one or two years after the completion of root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases when a biopsy or surgical exploration of the area is deemed necessary.

Contraindications

1. As the sole procedure for treatment of endodontic failures without addressing the cause.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the apex of the treated root(s) has a normal appearance with reestablishment of a normal periodontal ligament space.
3. No damage to adjacent teeth or anatomical structures.
4. No sinus tract present.

APICOECTOMY

Apicoectomy is a surgical procedure in which part of the tooth root apex is removed to evaluate or improve the apical seal of the root canal filling; to facilitate access for creation of a root end preparation for a retrofilling; to allow for curettage behind the root; or to remove a portion of the root that cannot be obturated because of severe curvature of the root, calcification of the root canal space, etc. This procedure may include curettage of the apical tissue.

Indications

1. A marked apical or lateral over extension of filling materials into the periradicular tissues.
2. A periradicular lesion that is enlarging as noted on follow-up radiographs.
3. A periradicular lesion that has not decreased in size one or two years after root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases where apical curettage reveal an inadequate seal of a previously filled root.
6. An unfilled apical portion of the root canal system not accessible from a coronal approach.
7. Roots that cannot be retreated nonsurgically because of an obstruction such as a post or a separated **instrument.**

Contraindications

When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.

2. Alveolar bone at the apex of the surgically altered root(s) should have normal appearance with reestablishment of the normal periodontal ligament space.
3. Sinus tract, if previously present, has healed.
4. No damage to adjacent teeth or anatomical structures.

RETROFILLING

Retrofilling is an additional procedure following apicoectomy by which a cavity is prepared in the root end or lateral aspect of the root and a biologically acceptable filling material is placed into that prepared cavity.

Indications

1. Correction of respective defects of the root.
2. Cases where the dentist is unable to negotiate a canal in a routine manner because of iatrogenic problems or anatomic complications of the canal system.
3. Previously treated teeth where an inadequate apical seal is indicated by a periradicular lesion which is enlarging or has not decreased in size over a two year period after completion of root canal filling.
4. A tooth that has periradicular symptoms or pathosis and had a post crown which cannot be removed.
5. Treatment of root perforations.
6. Persistent or recurrent signs and/or symptoms of laterial or periapical pathosis which cannot be sealed by a nonsurgical approach.

Contraindications

1. When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the site of repair of the treated root(s) should have normal appearance with reestablishment of the periodontal ligament space.

3. Retrofilling material should be within the confines of the root and should seal the root canal(s) and isthmus areas if present.
4. Scatter of retrofilling material into the surrounding bone should be avoided.
5. No damage to adjacent teeth or anatomical structures.

BIOPSY

A biopsy involves the surgical removal of a hard or soft tissue specimen for microscopic examination.

Indications

1. Tissue or foreign material is removed at or near the surgical site.
2. Unusual tissues are noted on clinical or radiographic examination.
3. A medical history indicates the merits of biopsy of all tissues removed. (See Oral Pathology Tissue Management)

Contraindications

1. For apical periodontitis of obvious or probable endodontic origin which would be treated by root canal treatment or nonsurgical treatment. (See Oral Pathology Tissue Management)

Outcomes Assessment

1. To establish or confirm a diagnosis by microscopic examination of tissues or foreign materials.

HEMISECTION AND BISECTION

Hemisection and Bisection (Bicuspidization) are surgical procedures that are used to separate a portion of the crown and one or more of the roots of a multirooted tooth. Both procedures are most commonly performed on mandibular molars. Hemisections may, however, be performed on maxillary molars or maxillary bicuspids. The separated segments may be removed or restored. In certain instances it is feasible to section a mandibular molar into two distinct separate roots.

34 Subsequently, the separate roots are restored as though each root was a bicuspid root. This procedure is commonly called a bisection.

Hemisection requires root canal treatment on all remaining roots. Bisection requires root canal therapy on all canals of each root. In each case, it is preferable to complete the root canals

fillings before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Crown fracture extending into the furcation.
4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and apical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root which is to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, recurrent periradicular pathosis, or periradicular inflammation where nonsurgical treatment or periradicular surgery is not possible.
8. Inoperative or uncorrectable resorptive defects of the root.
9. Furcal perforation.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of a furcation and periodontal pockets; total amputation of the coronal portion of the tooth that is associated with the root to be removed.
3. Adequate structure supporting the remaining roots(s) to maintain tooth function.
4. Remaining root in satisfactory condition.
5. Adequate root canal fillings in the remaining root.

ROOT AMPUTATION

Root amputation is the removal of a root of a multirooted tooth without the corresponding portion

of the crown when insufficient periodontal supporting tissue warrants the removal of this section of the tooth.

Root amputation requires root canal treatment of all remaining roots, preferably before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Fractures extending into the furcation.

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4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and periapical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, periradicular inflammation, or periradicular pathosis where nonsurgical root canal therapy or periradicular surgery is not possible.
8. Inoperative or uncorrectable root resorptive defects.
9. Furcal or stripping perforations.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of the furcation and periodontal pockets.
3. Adequate supporting structure surrounding the remaining roots to maintain tooth function.
4. Adequate root canal fillings in remaining root(s).
5. Seal of all external openings into the pulp chamber.
6. Elimination of pre-operative signs and symptoms of pathosis.

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REPLANTATION OF AVULSED TEETH

Replantation of the avulsed tooth involves the replacement of a tooth into its natural alveolus after it has been accidentally avulsed or luxated out of its alveolar socket. The goal is normal reattachment of the periodontal ligament and the return of normal tooth function. Success depends upon accomplishing the replantation as soon as possible after the accident and keeping the root moist during the extraoral period. The involved teeth should be stabilized for a period of time. Pulp tissues should be removed within two weeks following the injury. The intracanal treatment usually consists of placement of calcium hydroxide, which may need to be replaced periodically, followed by placement of an acceptable root canal filling material. These teeth should be periodically re-examined following replantation.

Indications

1. Tooth avulsed due to trauma.

Contraindications

1. Tooth with additional fractures compromising future root canal treatment.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic placement of tooth into the socket.
3. Minimal resorption of tooth root structure.
4. No ankylosis.
5. No breakdown of periradicular supporting tissues.
6. Maintenance of the tooth as a firm, functional member of the dentition.

INTENTIONAL REPLANTATION OR TRANSPLANTATION

Intentional replantation involves the removal of a tooth from its alveolar socket, the apical retrograde sealing of the canals or lateral root defect with an inert filling material, and the insertion of the tooth into its alveolar socket.

Intentional transplantation involves the same procedures as the replantation except the tooth is transplanted into the socket of another extracted tooth.

These teeth should be periodically reexamined following replantation or transplantation.

Indications

1. Pulpectomy or root canal treatment is not possible, has not been successful, or when conventional surgery in situ is not advisable.

Contraindications

1. Conventional orthograde or retrograde endodontic therapy can be performed.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic orientation of tooth in its socket.
3. Elimination or absence of lateral root or periapical pathosis (some root resorption may occur).
4. No periodontal pathosis.
5. Root length minimally shortened.
6. Proper placement of the apical seal(s).
7. Maintenance of the tooth as a firm, functional member of the dentition.

BLEACHING PROCEDURES

Bleaching is the reduction of discoloration of a vital or pulpless tooth through the application of oxidizing agents to the available surfaces of the affected tooth. Success in restoration to normal tooth shade and translucency is dependent upon the cause, severity, and duration of the discoloration.

INTERNAL BLEACHING

Internal bleaching is indicated for discolored teeth that have previously received a root canal filling. Assuming that the canal seal is adequate, 30 to 35 percent hydrogen peroxide, along with other activating agents, is used to affect the oxidation process.

Indications

1. Discolored teeth which have previously received a root canal filling.

Contraindications

1. Tooth has root filling of poor quality.
2. Extensive restorations of crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. Improved translucency.
4. No cervical external root resorption.

37 EXTERNAL BLEACHING

External bleaching is indicated for treatment of discolored enamel. It can use acid conditioning procedures along with oxidizing agents to lighten affected teeth. These agents are applied to the external surface of the tooth. This procedure is commonly indicated for teeth that are discolored because of endemic fluorosis or tetracycline staining.

Indications

1. Discolored vital tooth with normal pulp.

Contraindications

1. Extensive dental restorations.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. No cervical external root resorption.

RESTORATIVE DENTISTRY

Definition of Restorative Dentistry

The discipline of Restorative Dentistry is that area of dental practice concerned with the diagnosis, prevention, interception, preservation and treatment of natural teeth defects by restorations and replacement with fixed partial dentures. These defects may include dental caries, erosion, abrasion, attrition, hypoplasia, developmental anomalies, hypocalcifications, discoloration, trauma, and missing teeth. Treatment goals are to restore the natural dentition to normal health and function. These goals can offer significant challenge and great satisfaction to both patient and clinician by transforming a poorly functioning masticatory system to an attractive, comfortable and healthy orofacial unit. Success requires meticulous attention to detail

from the initial patient interview through treatment planning and operative procedures into a planned schedule of follow-up care. Restorative treatment spans an age range from adolescence to geriatric patients. It also involves an array of clinical and laboratory procedures, thereby testing the depth of knowledge and experience of the clinician.

PIT AND FISSURE SEALANTS

Pit and Fissure Sealants protect caries-susceptible tooth surfaces least benefited by fluoride. Sealants can play a significant role in the prevention and control of dental caries in pits and fissures of primary and permanent teeth. Sealants should be placed as soon as possible after tooth eruption when isolation can be achieved without moisture contamination.

Indications

1. Non-carious or questionable carious primary or permanent, premolar and molar teeth with deep pits and/or fissures, and in the cingulum area of maxillary incisors with deep lingual pits and/or fissures.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Obvious dental caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the sealant.
2. Normal occlusal relationship maintained.
3. Sealant remains intact and covers susceptible pits and fissures.

PREVENTIVE RESIN RESTORATION

Preventive resin restorations are small, distinct composite resin restorations that are used to restore carious lesions followed by placement of occlusal sealants to protect susceptible, but uninvolved pits and/or fissures. Preventive resin restorations generally require minimal tooth preparation to remove caries from one or more susceptible sites in the pits and/or fissures.

Indications

1. Deep pits and fissures in primary and permanent teeth that are suspected of being carious or exhibit frank caries in isolated areas.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Extensive caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the preventive resin restoration.
2. Normal occlusal relationships maintained.
3. Preventive resin restoration remains intact and covers involved and/or susceptible pits and fissures.

DENTAL AMALGAM

Dental amalgam is a direct placement, intermetallic compound, restorative material. It is used to restore tooth defects resulting from dental caries, tooth fracture, or to replace defective restorations. Dental amalgam requires sound tooth structure for support, retention and resistance form. The use of dental amalgam in restorations to replace cusps and large areas of tooth is not paradigmatic, and should be restricted where possible. When additional retentive designs are incorporated (pins, slots, posts) dental amalgam can be used as a core build-up material for subsequent crown restorations.

Indications

1. For restoration of tooth defects resulting from either dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. For use as a crown core/build-up restoration.
4. Patient economic resources.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Where esthetics is a primary consideration.
3. When there is not sufficient sound tooth structure to support and retain the restoration.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the amalgam restoration.

2. Normal occlusal relationships maintained.
3. The restoration remains intact and functions acceptably.

COMPOSITE RESIN (DIRECT PLACEMENT)

Composite resin is a polymer based resin matrix containing an inorganic filler particle phase. It is used to restore tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Composite resin is primarily used in anterior teeth where esthetics is a primary concern. However, it has also found use in posterior teeth where clinical conditions and patient preferences are appropriate.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, esthetic concerns, or replacement of defective restorations.
2. For use in Class I, III, IV, V or veneer anterior restorations.
3. For use in Class I, II, or V posterior restorations when:

- Esthetics is a primary patient concern.
- Appropriate isolation is attainable.
- Where there are some centric occlusal stops remaining in tooth enamel.
- Tooth reinforcement is required in situations where a cast restoration may not be an option.
- When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
- Restoration of the post-endodontically treated tooth in which minimal loss of tooth structure has occurred.
- Patient economic resources.
- Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.

3. When all occlusal centric stops would be restored with composite resin.

Treatment Goals/Expected Outcomes

1. No evidence of caries development beneath or adjacent to the composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

GLASS IONOMER

Glass ionomers are water-based cements consisting of alumnio-silicate glasses, interacted with a form of poly (alkenoic) acid, with or without a polymer based resin matrix. Glass ionomers are used to restore tooth defects from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Primary use for the glass ionomer is in clinical situations where adhesion to tooth is required and fluoride release is a clinical benefit.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I (not including the occlusal surface), III or V restorations.
3. Restoration of root surface carious lesions.
4. When fluoride release may be beneficial.
5. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restorative material to tooth is required.
6. When esthetics is a consideration.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.
3. When occlusal centric stops or proximal contact areas would be restored with glass ionomer.
4. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

Outcomes Assessment

1. No caries development beneath or adjacent to the glass ionomer restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

41 CAST GOLD INLAY

An indirect restorative procedure using cast gold dental alloy primarily in intracoronal restorations. The cast gold inlay is used to restore conservative tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. Where patient has an occlusal function or needs a proximal contour that exceeds the capacity of dental amalgam or composite resin as suitable restorative material options.
4. When specific tooth contours are required, i.e. axial contours necessary for fabrication of a clasp on a removable partial denture.
5. A retainer for an etched metal restoration.
6. Patient preference.

Contraindications

1. When there is insufficient sound tooth structure to support and retain the restoration.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. Where esthetics is a primary concern.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the cast gold restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. Pulp vitality maintained.

4. The restoration remains intact and functions acceptably.

INDIRECT COMPOSITE RESIN INLAY/ONLAY

An Indirect Composite Resin Inlay/Onlay is an indirect restorative procedure using composite resin. Usually the composite resin will have received an additional extra-oral cure to improve its clinical performance. This is a restoration that is bonded to the tooth with a composite resin luting material.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV, V or veneer restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. Tooth reinforcement is required when a cast restoration is not an option.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Esthetics.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When all occlusal centric stops would be restored with composite resin.
7. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.
8. When there is insufficient sound tooth structure to support and retain the restoration.

9. Patient preference.
10. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the indirect composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN INLAY/ONLAY

A Porcelain Inlay/Onlay is an indirect restorative procedure using dental porcelain as the restorative material. This is a restoration that is bonded to the tooth with a composite resin luting material and is primarily limited to use in the posterior teeth where esthetics and tooth reinforcement are indicated.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV or V restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. When tooth reinforcement is required in situations where a cast restoration is not an option.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When there is insufficient sound tooth structure to support and retain the restoration.

7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the porcelain inlay/onlay.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN VENEER

The porcelain veneer is primarily an esthetic restoration involving the incisor teeth and sometimes the maxillary premolars. A labial veneer is constructed in the dental laboratory and is bonded to the tooth with a composite resin luting material. These restorations are used to modify tooth color and contour.

Indications

1. For use on facial surfaces of incisor and maxillary premolar teeth.
2. When there is sufficient tooth enamel remaining (75% of the restored tooth surface).
3. Esthetic improvement of tooth color and/or contour.
4. Closure of anterior diastemas.
5. Normal occlusal function and posterior occlusal support.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. When proper isolation of the operating field is not possible.
4. When there is insufficient sound tooth structure, enamel, to support and retain the restoration.
5. Patient economic resources.
6. Unrealistic patient expectations.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal functions and tooth contours are maintained.

3. Desired, achievable, esthetic result obtained.
4. The restoration remains intact and functions acceptably.

PARTIAL CROWN COVERAGE-ALL METAL (Cast Onlay, 3/4 Crown, 7/8 Crown)

The Partial Crown Coverage-all metal restoration is an indirect restorative procedure which requires some cuspal coverage but less than full replacement or coverage of the enamel crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations involving a significant amount of the clinical crown.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (ALL METAL)

The Full Crown Coverage-all metal restoration is an indirect restorative procedure involving full replacement of the functional clinical crown.

Indications

1. For restoration of tooth defects from extensive dental caries, tooth fracture, or to replace defective restorations.
2. Short clinical crowns that would compromise retention of partial coverage restorations.
3. Restoration where definitive occlusal support is to be created and maintained.
4. Retainer for a fixed partial denture.
5. Retainer and rest seat for removable partial denture clasp.
6. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal or endodontic prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (Porcelain Fused to Metal)

THE OXFORD DENTAL COLLEGE AND HOSPITAL
10th Milestone, Bommanahalli, Hosur Road, Bangalore - 560 068

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The Full Crown Coverage-(Porcelain Fused to Metal) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. A cast metal core is veneered with dental porcelain to provide an esthetic and functional outer surface.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or to replace defective restorations.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is not sufficient sound tooth structure to support and retain the restoration.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Normal occlusal relationships and crown contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (All Porcelain)

The Full Crown Coverage-(All Porcelain) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. The crown is fabricated from different porcelains without a metal substructure. These restorations are usually limited to single unit crowns and are indicated when maximum esthetics is desired for a full coverage crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or replacement of defective restorations.
2. When full coverage is required and the esthetic demand is paramount.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Excessive or abrasive occlusal function.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the Full Crown Coverage-(All Porcelain) restoration.
2. Normal occlusal functions and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

IMPLANT SUPPORTED CROWNS

An implant supported crown(s) is a treatment option for patient with partial edentulism. Prosthodontic evaluation is performed to determine the patient's suitability for an implant supported crown(s). Surgical assessment is performed to determine if contraindications exist for implant therapy.

Indications

1. Lack of mastication.

2. Impaired speech.
3. Esthetics.
4. Partial edentulism.
5. Unsatisfactory existing prostheses.

Contraindications or Risk Factors Affecting Quality of Treatment

1. Bone factors (quantity and quality).
2. Pre-existing systemic conditions.
3. History of radiation therapy.
4. Insufficient interarch space.
5. Active periodontal disease.
6. Tobacco use.
7. Biomechanical loading factors.
8. Occlusal factors.
9. Current and past pharmaceutical therapies.

Outcomes Assessment (favorable)

1. Long-term preservation of supporting bone.
2. Improved function.
3. Improved speech.
4. Improved esthetics.
5. Reduced pain during function.
6. Preserve tooth structure.
7. Improved intra-arch and interact integrity and stability.

AMALGAM/COMPOSITE RESIN CORE BUILD-UP RESTORATION

A core restoration replaces tooth structure before crown fabrication. Without a core, there would not be enough remaining clinical crown for adequate crown retention and resistance form. Core restorations are fabricated from dental amalgam or composite resin and may or may not involve a post.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. A tooth with inadequate coronal structure to provide retention and resistance form for a crown restoration.
3. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal restoration.
4. There is enough tooth structure to provide support and retention for dental amalgam or composite resin.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient tooth structure remaining to adequately support and retain the core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. The restoration remains intact and continues to function acceptably.

POST RESTORATION

A Post is a restorative procedure in which part of a metallic post is placed into the prepared space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post can be either a prefabricated post or one which is custom made to adapt to the specific root canal space. The post provides a retentive base serving as a portion or all of the retentive form upon which a core build-up is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of coronal tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or extensive dental amalgam or composite resin restoration.

3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured form the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic apical seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

POST/CORE CAST METAL RESTORATION

A post is placed in an endodontically treated tooth to provide retention for the overlaying core of restorative material. The core serves as a foundation for the final tooth restoration. It is not intended for tooth reinforcement. When there is insufficient remaining tooth structure to adequately retain a direct placement post/core restoration, the cast metal post/core is a viable clinical alternative.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal crown.
3. There is insufficient tooth structure to provide retention for the core component of the restoration.
4. A prepared post space that permits 3-6 mm of undisturbed root canal filling material as measured from the tooth apex.
5. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately support a post and core restoration.
3. Inadequate crown to root ratio of the final restoration.
4. Tortuous canals or thin, ribbon shaped roots.
5. Poor periodontal prognosis for tooth retention.
6. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the case metal post/core restoration.
2. Absence of root fracture.
3. No compromise of endodontic apical seal.
4. The observed restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

NON-METALLIC POST RESTORATION

The non-metallic post restoration is a prefabricated post restoration that is either ceramic or fiber reinforced polymer material. The non-metallic post is placed into the prepared post space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post provides the retentive base serving as a portion or all of the retentive form upon which a core buildup is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal. The non-metallic post is cemented using a total-etch / bonded technique.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or composite resin restoration.
3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured from the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

5. In anterior esthetic situations where metallic posts which block light transmission in the cervical area of the tooth resulting in "graying" of the free marginal gingival.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the bonded post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

ETCHED METAL RETAINERS

An etched metal retainer is an indirect restoration that achieves its retentive form from micromechanical bonding between tooth enamel and microporosities in the metal retainer. The luting agent between the etched metal retainer and tooth enamel is a composite resin material and is, therefore, subject to all the clinical requirements of a polymer bonded restoration. These restorations rely on the availability of adequate tooth enamel for retentive form.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations.
2. For restoration of partial crown coverage of metal based crowns.
3. Abutments for short span (less than 2 pontics) etched metal fixed partial dentures.
4. Abutments for tooth splints.
5. Restorations to modify tooth contours facilitating design of a removable partial denture.

Inadequate periodontal support for abutment teeth, poor oral hygiene, inadequate clinical crown contours and/or strength of abutment teeth.

Outcomes Assessment

1. Partial dentures are retentive, stable; acrylic bases are adequately extended.
2. Patient is satisfied with esthetics, function, and comfort.
3. Remaining teeth and soft tissues are healthy.

INTERMEDIATE DENTURE

An intermediate or temporary denture for a patient who requests immediate replacement of teeth following extraction of remaining teeth. The intermediate denture is for esthetics more than function.

Indications

A patient who wants to maintain esthetics immediately after extractions.

Contraindications

Patients requiring extensive recontouring of alveolar bone or removal of tori.

Outcome Assessment

1. Dentures are retentive and stable.
2. Vertical dimension, centric occlusion, and esthetics are preserved.

PROSTHODONTIC RECALL EXAMINATION

A prosthodontic recall examination is regularly performed to evaluate the fit and performance of the complete or partial denture and the patient's oral health. Adjustments are made if needed; the denture or partial is polished, remaining teeth are examined and cleaned and prevention is reinforced.

Indications

A patient wearing removable partial or complete dentures.

Contraindications

None

Outcomes Assessment

1. Dentures and or partial dentures are stable and fit adequately.
2. Remaining teeth and soft tissue are healthy.
3. Any further treatment is explained to patient and treatment planned.
4. Preventive strategies have been reinforced to the patient.
5. Recall interval is agreed upon.

RELINE

A reline restores the tissue bearing surfaces of a denture base when base adaptation to the edentulous alveolar ridge is deficient. A reline can be performed on a complete or partial denture.

Indications

1. Lack of retention and/or stability of the maxillary or mandibular acrylic base due to resorption of the edentulous ridges or inadequate border extension.
2. Lack of retention and/or stability of the maxillary acrylic base due to an inadequate posterior palatal seal.

Contraindications

1. Retention and/or stability are affected by factors other than lack of tissue bearing surface adaptation.

Outcomes Assessment

1. Denture or partial is well extended, retentive, and esthetic.
2. Improved retention and stability result in patient satisfaction.

REBASE

Rebasing a denture replaces the original denture base to compensate for lost oral tissues while leaving teeth in their original position.

Indications

Denture teeth are positioned correctly and provide stable occlusion. The vertical dimension is correct and tissues are relatively healthy.

Contraindications

Dentures exhibit gross occlusal disharmony. Size, shade, and position of denture teeth are inappropriate or inadequate. The dentures have improperly extended borders.

Outcome Assessment

1. Dentures are retentive, stable, and esthetic.
2. Occlusion is preserved and functional.

ORTHODONTICS

CLINICAL EXAMINATION

All patients of record should receive an initial cursory examination noting facial form and occlusal relationships to detect possible malocclusion. All candidates for limited orthodontic treatment must subsequently receive a comprehensive evaluation. Limited treatment is defined as conditions that can be treated by tipping mechanics and that generally are correctable within six to nine months including the retention phase. This normally limits treatment to minor anterior alignment, uncomplicated molar uprighting, crown lengthening by means of forced eruption, space regaining, and non-skeletal crossbite corrections. The following data are recorded in the chart: medical and dental histories; extraoral facial evaluation and classification; occlusal relationships; functional problems related to mastication, speech and mandibular range of motion. Students are expected to obtain consultations related to pathology, periodontal problems and restorative treatment needs. Active disease must be detected and corrected prior to orthodontic

Treatment.

Indications

A cursory analysis of facial form and occlusal relationships is required for all patients of record. The in-depth exam described above is for patients with specific limited orthodontic treatment needs.

Contraindications

1. There are no contraindications for the cursory clinical examination.

2. The more in-depth analysis may be unwarranted if the patient has no interest in further treatment or desires referral for comprehensive orthodontic treatment.

Outcomes Assessment

1. Occlusal and facial relationships, functional problems and the morphologic basis of malocclusion are summarized in the orthogonal format.

2. All data and interpretations are recorded on the 4-D form.

3. The patient's chief complaint, collection of consults, determination of interacting factors, and supplement records to permit a thorough, comprehensive diagnosis for treatment planning are properly documented.

RADIOGRAPHIC PROCEDURES

All candidates for limited orthodontic treatment must have a panoramic radiograph and periapical and bitewing films sufficient to determine general health, root form and position, periodontal status and developmental status of the dentition. Lateral or posterior-anterior cephalometric, or other films will be ordered as necessary to assess skeletal relationships in the appropriate planes of space.

Indications

1. All developmental patients who are candidates for limited orthodontic treatment will have at minimum a panoramic film, anterior periapical radiographs and bitewing radiographs.
2. All information and interpretations are recorded on the 4-D form.
3. The health and morphologic variables of root form and position are properly determined.
4. Cephalometric films are accurately exposed with the patient in natural head posture. Landmarks and tracings should reveal that the morphologic basis of the patient's dentofacial relationships are accurately and comprehensively determined.

ANALYSIS OF DIAGNOSTIC, HAND-HELD, STUDY CASTS

Properly trimmed hand-held study casts are required for all patients receiving limited orthodontic treatment. The casts facilitate a more in-depth analysis of the patient's occlusion, arch form and symmetry, alignment problems and tooth size. These are indicated for assessing space requirements and tooth size discrepancies (Bolton analysis).

Indications

1. Patients receiving limited orthodontic treatment.

Contraindications

None

Outcomes Assessment

1. Impressions are accurate and undistorted, stored properly in 100% humidity with a wax occlusal registration in centric occlusion (maximum intercuspation) with additional wax registrations if there are occlusal discrepancies.

2. Impressions are poured as soon as possible, trimmed, and labeled to orthodontic specifications.

3. Casts are not distorted and accurate measurements are made. Analysis of casts produces a comprehensive data base for a thorough and accurate treatment plan.

4. All appropriate measures and interpretations will be included on the 4-D form.

TREATMENT PLANNING PROCEDURS

Treatment planning in ORT 841 is based on developing a prioritized problem list in three planes of space along with an assessment of significant interacting factors that may influence treatment decisions and outcomes. Students will develop the problem list with possible solutions, determine the appropriate goals (long term) and objectives (sequence of treatment procedures in the short term) to reach the treatment goals. A biomechanical plan that includes the patient's

chief complaint, consultations from other disciplines, anchorage requirements, force diagrams in all planes of space and a sequence of appointments to meet treatment objectives. Fees, limitations and risks, and retention requirements are also included for discussion during treatment planning. Treatment planning sessions are scheduled with an attending faculty member away from clinical activity to minimize distractions.

Indications

1. All limited treatment must be treatment planned with a signed 4-D form.

Contraindications

None

Outcomes Assessment

1. The treatment plans have goals and objectives stated along with a description of risks and limitations, fees, estimated time for active treatment, retention needs, appointment sequence with mechanical plan, description of the appliance and force diagrams, and faculty signature.
2. Patients are informed of their treatment needs and understand clearly the limitations and risks of orthodontic treatment.
3. Students have a clear understanding of the goals and objectives of the treatment plan and have an in-depth understanding of appliance design and management for each appointment.
4. Treatment occurs in a timely manner and effective retention strategies are implemented.
5. The patient is satisfied with the results.

TREATMENT PROCEDURES FOR LIMITED ORTHODONTIC THERAPY

Limited orthodontic treatment for ORT 841 typically refers to therapy that can be accomplished in 6- to 9-months. Force systems are usually restricted to tipping movements of the crown, but can occasionally involve some root movement with approval of the attending faculty. These requirements most commonly involve the correction of minor anterior alignment problems, uncomplicated molar uprighting, crown lengthening procedures, space regaining, and non-

skeletal crossbites. Treatments may use fixed or removable appliances as indicated by force analysis, anchorage requirements and sometimes patient request.

ANTERIOR ALIGNMENT

Indications

1. Misaligned anterior teeth with anterior crowding (no more than 2 to 3 mm), excess spacing (less than 3 mm), or minor rotations (less than 10 degrees) may be candidates for anterior alignment procedures. These may relate to repositioning teeth for esthetic purposes alone, or for correction of minor occlusal interferences, or for improvement of crown positions for esthetic crown restorations, or for abutment placement for fixed or removable prostheses.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Severe underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
6. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improved alignment of anterior teeth that meets esthetic, functional, and restorative or periodontal treatment objectives.
2. Alignment objectives are met within the estimated time.
3. Minimal trauma to teeth and supporting structures.
4. Anchorage units are stable with minimum displacement.

5. Patient maintains acceptable oral hygiene and periodontal maintenance during treatment. Retention measures are in place.
6. Prognosis for additional dental treatment is good.
7. Patient is satisfied.

MOLAR UPRIGHTING

The primary purpose of molar uprighting is to improve the axial inclination of a tipped molar that will serve as an abutment for a fixed or removable partial denture.

Indications

1. Tipped molar planned as an abutment tooth.
2. Eliminate unfavorable root proximity.
3. Eliminate or reduce periodontal pockets to enhance post treatment maintenance.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Serve underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
5. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improvement of the axial inclination of a tipped molar to facilitate restorative and periodontal treatment and maintenance.

2. Treatment did not cause excess occlusal stress or cause significant vertical bite opening. (Frequent checks and occlusal adjustments are expected.)
3. Anchor units show minimal change, unless specific changes were planned.
4. Molar is uprighted to the desired position with minimal trauma to roots and supporting structures and with minimal occlusal interferences.
5. Treatment should be completed within an appropriate time interval and the prognosis for prosthetic treatment should be good.
6. Following active treatment, the uprighted molar is properly stabilized for a minimum of 6 weeks prior to abutment preparations.

FORCED ERUPTION PROCEDURES FOR CROWN LENGTHENING

Forced tooth eruption is primarily an adjunctive procedure to create sufficient crown length to facilitate restorative and endodontic treatments. Additional gingival and alveolar bone recontouring may be required in order to establish level crestal bone and gingival margin height.

Indications

1. Fractured or carious tooth requiring additional crown height.

Contraindications

1. Unfavorable crown/root ration, uncontrolled periodontitis.
2. Untreatable pulpal disease.
3. Inadequate anchorage.
4. Poor root morphology.
5. Root resorption, root fracture.
6. Ankylosis.
7. Other negative factors are poor oral hygiene, active caries, poor patient compliance.
8. Unresolved systemic illness may also contraindicate orthodontic treatment.

Outcomes Assessment

1. Adequate extrusion of an unrestorable tooth to facilitate restorative and/or root canal treatment.
2. Minimal trauma to the tooth and supporting structures.
3. The tooth does not exhibit excessive mobility.

4. Minimal unwanted changes in the anchorage segments.
5. The tooth is stabilized for a minimum of 6 weeks prior to restorative treatment.

SPACE REGAINING

The most common indication is to regain space lost during the mixed dentition due to mesial drifting of the first permanent molar resulting from the premature loss of a second primary molar.

Indications

1. Mesial drifting of the first permanent molar.
2. Skeletal relationships should be Class I with a balanced soft tissue profile.

Contraindications

1. Underlying tooth size-arch size discrepancy.
2. Severe crowding and/or skeletal jaw discrepancies that require additional corrective measures.
3. Space loss greater than 3 mm.
4. Space loss associated with bodily tooth migration.
5. Poor patient compliance.
6. Poor oral hygiene.
7. Inadequate anchorage.

Outcomes Assessment

1. Normal molar occlusion with sufficient space for the erupting succedaneous tooth.
2. Adequate space maintenance to preserve tooth positions until gingival emergence occurs.

NON-SKELETAL CROSSBITE CORRECTION

Indications

1. Crossbites of dental origin that can be corrected by dental tipping forces.

Contraindications

1. Severe bilateral posterior crossbites and anterior crossbites in which there are dental compensations for Class III jaw relationships.
2. Poor patient compliance.
3. Poor oral hygiene.
4. Active disease states of the hard and soft oral tissues.

5. Unresolved oral habits.
6. Vertical malocclusions involving either an excessively deep bite or an anterior open bite tendency.

Outcomes Assessment

1. Correction of the crossbite within the estimated time with minimal tissue trauma.
2. Placement of appropriate retention for a minimum of 3 months.
3. Following retention the correction should exhibit some rebound but settle into a stable occlusion.
4. There should be no functional shifts.

ORAL AND MAXILLOFACIAL SURGERY

EXTRACTION OF AN ERUPTED TOOTH

Indications

1. Pulpitis or pulp necrosis.
2. Periodontal disease.
3. Periapical pathosis.
4. Nonrestorable tooth.
5. Infection/abscess.
6. Malpositioned tooth.
7. Extraction necessary for prosthetic treatment plan.
8. Extraction necessary for orthodontic treatment plan.
9. Tooth associated with pathologic lesion.
10. Supernumerary tooth.
11. Extraction related to or in conjunction with medical disease.
12. Patient refuses other therapy for financial or other reasons.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.

4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Adjacent tooth (teeth).
7. Degree to which caries is present.
8. Size and density of alveolar bone.
9. History of endodontic treatment.
10. Relationship of tooth to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Absence of pain.
2. Absence of infection.
3. Uncomplicated healing of surgical site.
4. Restored function.
5. Complete hemostasis.
6. Removal of pathosis, if present.
7. Limited period of disability.

TREATMENT OF ODONTOGENIC INFECTIONS, INCLUDING INCISION AND DRAINAGE

Indications

1. Symptoms: pain, swelling, trismus, chills, altered function, malaise, dysphagia.
2. Clinical findings: erythema, tissue induration, lymphadenopathy, purulence, fistula, fever.

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3. Other findings: caries, periodontal bone loss, periapical pathosis, osteolytic area, abnormal results of blood count, positive culture or Gram stain.

Factors affecting risk

1. Presence of major coexisting disease or systemic condition(s).

2. Presence of psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Extent of infection.
6. Direction and/or rate of infection extension.
7. Virulence of microorganism.
8. Susceptibility of microorganism to antibiotics.
9. Ability to gain access to affected areas.
10. Relationship of infection to vital structures.
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Eliminate acute and/or chronic infection.
2. Limit pain.
3. Restore function.
4. Preserve vital structures.
5. Prevent recurrence.
6. Limit period of disability.

MODIFICATIONS OF THE DENTOALVEOLAR PROCESS (EG. TORUS REMOVAL, ALVEOLOPLASTY, SOFT TISSUE MODIFICATION, TUBEROSITY REDUCTION)

Indications

1. Clinical findings of dentoalveolar soft tissue or bone abnormality.
2. Infection, ulceration, and/or pain.
3. Speech abnormality.
4. Masticatory dysfunction.
5. Dysphagia.
6. Interference with prosthetic treatment.

7. Periodontal disease.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Anatomical location, size, and extent of the abnormality.
7. Relationship of the abnormality to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
8. Quality of alveolar bone or soft tissue.
9. Ability to gain access to the surgical site.

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10. Lack of patient compliance.

Outcomes Assessment

1. Adequate soft and hard tissue base for prosthetic reconstruction or rehabilitation.
2. Improved physiological condition of dentoalveolar structures.
3. Restoration, retention, and function of previously diseased tooth or teeth.
4. Improved mastication, speech, and/or appearance.
5. Pain relief.
6. Absence of infection.
7. Limited period of disability.
8. No unanticipated loss of hard or soft tissues.

PRE-SURGICAL EVALUATION

Pre-surgical evaluation is performed to assess the patient's chief complaint and medical history, and review systems, physical examination, and laboratory studies.

Indications

1. Presentation of a patient to the oral and maxillofacial surgery clinic for evaluation, diagnosis, care, and/or treatment.

Factors affecting risk

1. Incomplete initial assessment.
2. Communication barriers (e.g. Language, cultural, communication disorders, altered mental status or level of consciousness).
3. Patient's guardian's/responsible party's failure to disclose.
4. Physical barriers (e.g. trismus, obesity).
5. Psychological barriers.
6. Degree of patient compliance.
7. Other factors that would reduce the clinician's ability to make a complete, accurate diagnosis.

Outcomes Assessment

Achieving assessment goals resulting in adequate knowledge upon which to base a diagnosis, treatment plan, and/or to safely render treatment using either no anesthetic, local anesthesia, or conscious sedation.

CONSCIOUS SEDATION, USING PARENTERAL AGENTS, NITROUS OXIDE, AND/OR ORAL MEDICATIONS

Indications

1. Need to minimally depress the level of consciousness, anxiety, and/or pain so that the patient can undergo a procedure.
2. Need to retain the patient's ability to independently and continuously maintain an airway and respond to physical stimulation and verbal commands.

Factors affecting risk

1. Degree to which the patient and/or family understand the etiology and course of disease or condition, therapy goals, and acceptance of proposed treatment.
2. Major coexisting disease or systemic conditions.
3. Psychological conditions or psychiatric diseases.
4. Patient age.

5. Infection or other pathology.
6. Noncompliance with NPO recommendation.
7. History of drug allergies or sensitivities.
8. Psychological aversion to intravenous or intramuscular injections.
9. History of substance abuse.
10. History of untoward reactions or complications with anesthetics.
11. Lack of patient compliance.

Outcomes Assessment

1. Diminution or elimination of anxiety during therapeutic procedure.
2. Procedure completed.
3. Lack of unintended change in patient's level of consciousness.
4. Return to preanesthetic physiological and psychological state within 12 hours following cessation of anesthetic agent administration.
5. Anesthetic experience deemed satisfactory by both patient and clinician.
6. Lack of other complications or sequelae requiring follow up care related specifically to the anesthetic (e.g. phlebitis).

ENDOSSEOUS IMPLANTS

Indications

11. tooth and/or root fracture
12. missing teeth due to trauma
13. previous extraction sites
14. spaces created by orthodontic movement
15. endodontic failures
16. restorative failures
17. extractions due to periodontal disease
18. non-restorable teeth due to caries (following extraction)
19. to avoid preparation of virgin teeth for bridge abutments
20. anchorage for orthodontic tooth movement

Factors affecting risk

1. Presence of bone and/or soft tissue infection or pathology.
2. Inadequate prosthetic or surgical treatment planning (Implant Consent and Treatment Planning Form (5D) not completed).
3. Inadequate bone quality and volume.
4. Psychological conditions or psychiatric diseases.
5. Patient age.
6. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
7. Systemic conditions that may interfere with normal healing process.
8. Inadequate oral hygiene.
9. Patient age.
10. Proximity of implant placement site to adjacent structures (eg, teeth, maxillary sinus, inferior alveolar nerve).
11. Lack of patient compliance.

Outcomes Assessment

1. Retained, stable, functional implant.
2. No evidence or peri-implant radiolucency (See Implant Radiographic Guidelines in Clinic Manual).
3. Peri-implant soft tissue health.
4. Patient satisfaction with function, asthetics, and ease of maintenance.
5. Limited period of pain and disability.

6. Patient (family) acceptance of procedure and understanding of outcomes.

ORAL PATHOLOGY

SOFT TISSUE EXAMINATION

All patients should receive a soft tissue examination of the oral cavity, tonsillar area and posterior pharyngeal wall, perioral tissue and upper neck. A dentist is also in a unique situation to observe the face which should be included in the visual examination.

This standard should apply to all new patients and recall patients after continuous dental treatment has been completed.

RADIOGRAPHIC EXAMINATION

All patients should receive a radiographic examination of the teeth and jaws prior to comprehensive dental treatment. Recall patients should undergo radiographic examination in accordance with published standards for periodic radiographic examination and signs and symptoms of disease.

Patients presenting with signs and symptoms of a disease process related to teeth, bone and maxillary sinus must have radiographs taken to help with the diagnosis and to determine the extent of the process. In addition, radiographs may be needed in evaluating soft tissue disease processes.

SOFT TISSUE AND RADIOGRAPHIC ALTERATIONS/ABNORMALITIES

All soft tissue and radiographic alterations from normal must be recognized, evaluated, diagnosed and managed appropriately. The diagnosis may require a variety of diagnostic tests and may require referral to additional health care providers. Management may be carried out by the original dentist or another health care provider.

TISSUE MANAGEMENT

All tissue removed from patients in the College of Dentistry and allied clinics undergoes gross and/or microscopic examination and findings placed in the patient record. Guidelines for facilitating this process are as follows:

A. Teeth with no attached soft or hard tissue and no abnormalities beyond caries

Example: Uncomplicated carious tooth

A gross description of the tooth and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of in compliance with human waste management standards.

B. Teeth with no attached soft or hard tissue and with variations or abnormalities excluding caries

Example: Dilaceration

Concrescence

A gross description of the tooth, a diagnosis and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of as in condition A.

C. Teeth with no attached soft and hard tissue and with abnormalities excluding caries in which a specific diagnosis of the condition is required

66 Example Dentinogenesis imperfecta

Dentinal dysplasia

The tooth is submitted to oral pathology for gross and microscopic examination.

D. Teeth with no attached soft and hard tissue and no abnormalities in patients with unexplained symptoms associated with the teeth

Example Premature exfoliation of teeth

The tooth is submitted to oral pathology for gross and microscopic examination.

E. Teeth with attached soft tissue

In general, soft tissue is sent to oral pathology for gross and microscopic examination. An acceptable exclusion is the situation of an impacted tooth with pericoronal tissue interpreted clinically as dental follicle.

Criteria for what represents normal follicular tissue and what is pathology may not be clear-cut, but submission to an oral pathology laboratory for microscopic diagnosis should occur if any of the following is present:

1. A radiolucency of more than .4 cm.
2. A radiolucency that exhibits a sclerotic border.
3. A radiolucency that extends along the tooth root surface.
4. A focal increase in the size of the radiolucency.

5. A radiolucency that is associated with resorption of adjacent teeth.
6. A radiolucency that contains radiopacities.
7. Soft tissue lining a distinct cavity.
8. A cavity with luminal contents.
9. Luminal surface vegetations and growths.
10. Thickened lining.

A tooth with tissue interpreted as follicle receives a gross description which is entered in the patient's progress notes by the attending dentist. The tissue is disposed of as in A. However, the submission of normal follicular tissue for microscopic confirmation is totally acceptable.

Tissue required for submission to oral pathology includes periocoronal, periodontal and radicular pathology.

F. Teeth with attached non-diseased bone

Example Traumatic extraction

A gross description of the tooth and bone, reason for removal and interpretation of the bone are included in the patient's progress notes by the attending dentist and the tissue is disposed of as in A.

G. Bone specimens

All diseased or abnormal bone is submitted for gross and microscopic examination. Acceptable exclusions include non-pathologic bone associated with tooth extraction and pre-prosthetic surgery.

H. Soft tissue

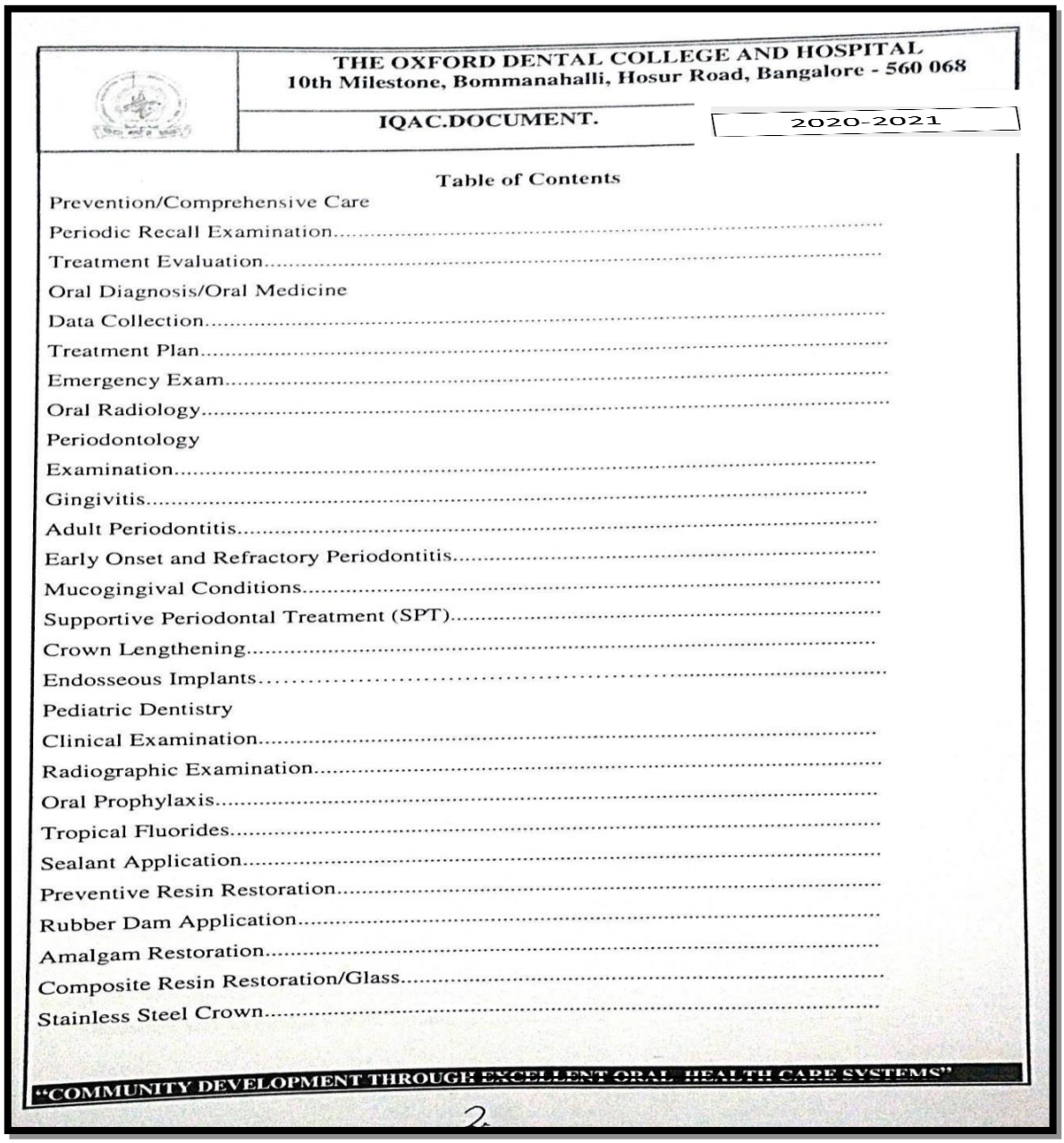
All altered or diseased soft tissue is submitted for gross and microscopic examination. Acceptable exclusions are inflamed pulp, dental follicle as described in E and essentially normal tissue such as mucosa that is removed for treatment of impacted teeth and typical inflammatory periodontal disease.

Tissue removed from routine periodontal procedures may not be submitted for microscopic examination if the clinical and radiographic presentation follows the typical pattern of periodontal disease. A description of the tissue and reason for removal should be entered in the

patient's progress notes by the attending dentist. The tissue should be disposed of as in A, but it is acceptable to submit this tissue for microscopic examination.

Tissue removed in the following situations must be submitted for microscopic examination:

1. Discrete enlargement of gingival soft tissue excluding routine gingivitis.
2. Gingivitis refractory to normal treatment.
3. Isolated alveolar bone defects.
4. Rapidly progressing alveolar bone loss.
5. Areas of exaggerated bone loss in chronic periodontitis.
6. Medical history indicating a systemic illness and/or cancer.
7. Signs and symptoms of a possible undiagnosed systemic illness.
8. Unexplained etiology.
9. Persistent active disease after appropriate therapy.



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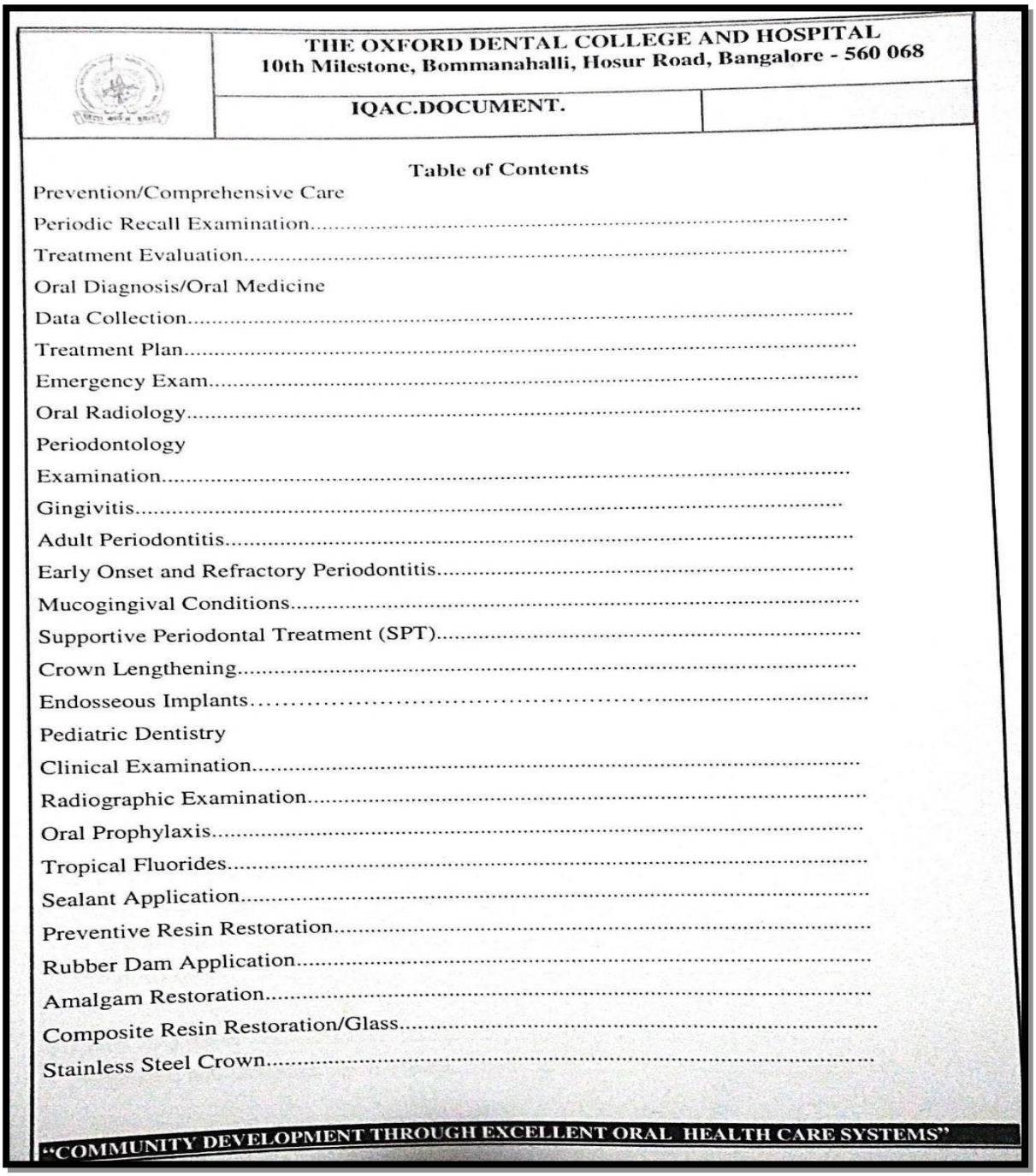

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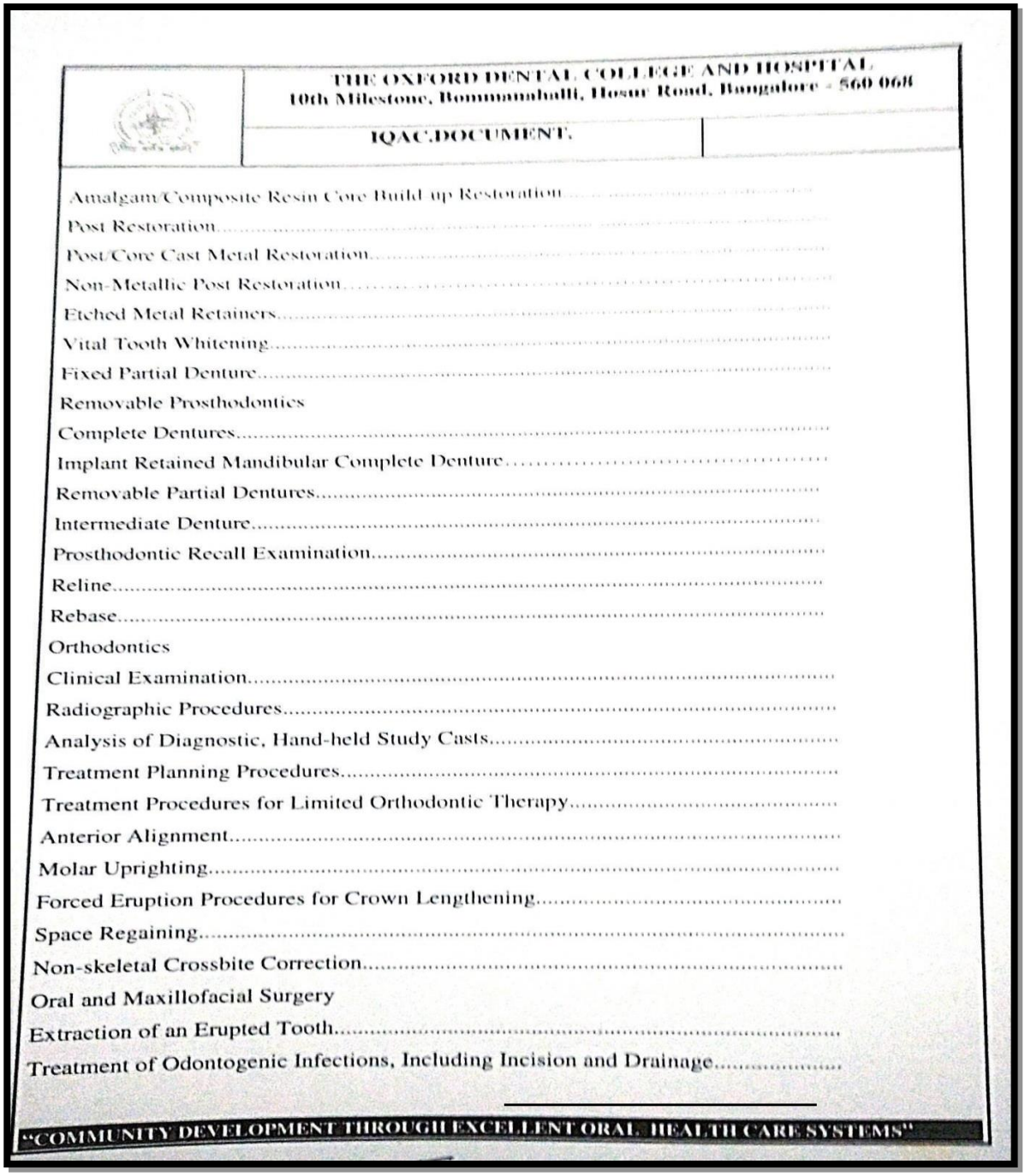

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PREVENTION/COMPREHENSIVE CARE

Preventive strategies are part of all patient care at the College of Dental Sciences. Formal prevention includes Oral Hygiene Instructions, Topical Fluoride (when indicated), and Debridement during the Initial Oral Examination. Instruction for proper home care is provided for patients when treatment is planned, during treatment, and at periodic recall examinations. Patients receiving orthodontic treatment, fixed partial dentures, removable prosthodontics, periodontal treatment, and any other dental treatment are provided instructions for cleaning and maintaining their oral health before, during and after treatment.

Periodic recall examinations are scheduled for patients to evaluate hard and soft tissue and reinforce home care. Treatment evaluation is performed at the end of active treatment to evaluate the dental care provided for the patient and work with patients who require additional instruction in prevention.

PERIODIC RECALL EXAMINATION

The periodic recall examination is provided at appropriate intervals to assist patients in maintaining their oral health. Hard and soft tissues are evaluated and recommendations for treatment are made.

Indications

All patients who request follow-up care.

Contraindications

None

Outcomes Assessment

1. All hard and soft tissues are examined and pathology is noted.
2. Home care and appropriate preventive techniques are reinforced or introduced.
3. Appropriate recall interval is established and completed.
4. Patient's oral hygiene is adequate; periodontium and dentition are healthy.

TREATMENT EVALUATION

The treatment evaluation is done at the completion of treatment to assess the care that has been provided and make improvements if needed. Prevention is evaluated and reinforced if necessary at this time.

Indications

All patients who have completed treatment.

Contraindications

None

Outcomes Assessment

1. All dental care provided for the patient is clinically acceptable.
2. Oral hygiene and periodontal condition are satisfactory.
3. Oral hygiene is reinforced, if needed, and appropriate recall interval is established.

ORAL DIAGNOSIS/ORAL MEDICINE

Oral Diagnosis is that aspect of dentistry that involves collection and interpretation of pertinent data essential to diagnosing oral disease. Oral Medicine is concerned with the oral health care of medically compromised patients and with the diagnosis and non-surgical management of medically-related diseases or conditions affecting the oral and maxillofacial region.

The predoctoral oral diagnosis/oral medicine curriculum is designed to educate the dental student to:

1. Gather and organize the necessary information to provide comprehensive and accurate oral health care for the patient;
2. be competent at collecting and recording a medical history;
3. be competent at eliciting and recording a complete dental history;
4. be competent at taking, recording and interpreting vital signs (blood pressure, temperature, pulse, respiration);
5. understand the clinical signs and symptoms of major diseases of each organ system;
6. understand the impact of diseases of various organ systems on the oral cavity and on the delivery of dental care;
7. be competent to perform a head and neck examination, including extraoral soft tissues and intraoral hard and soft tissue;
8. understand the anatomic and biologic bases of the head and neck examination;
9. understand the potential impact of dental therapy on systemic disease;
10. understand performance of a musculoskeletal examination including TMJ function;

11. be competent in the assessment of a functional relationship of the teeth and jaws;
12. diagnose and deliver appropriate care in urgent dental situations;
13. take and accurately interpret diagnostic radiographs;
14. be familiar with the procedures necessary to interact with physicians and other health care providers in total patient evaluation and care; and
15. work with the patient in understanding and supporting personal oral health care.

DATA COLLECTION

Comprehensive data is to be collected on all patients in the student clinic in order to secure an accurate diagnosis and to plan for appropriate oral health care for the patient.

Indications

All patients presenting for care in the student clinic.

Contraindications

None

Outcomes Assessment

1. Medical history is evaluated and all aspects of the patient's health that may impact on the delivery of oral health care are identified.
2. All dental disease is identified through a hard tissue and soft tissue examination.
3. Vital signs are accurately taken and recorded on all patients.
4. Appropriate radiographs are available that are diagnostic and current.
5. Consultants are contacted when appropriate and comments recorded in the dental record.
6. All data is recorded in the dental record in a logical sequence on appropriate forms.

TREATMENT PLAN

A treatment plan will be developed for each patient commensurate with their needs and desires.

Indications

All patients requesting care in the student clinic

Contraindications

None

Outcomes Assessment

1. Proposed treatment is based on documentable clinical and/or radiographic findings.

2. Treatment is sequenced in a logical manner including severity of disease, patient desire, difficulty of procedure, etc.

3. Treatment options are discussed with the patient, fees are explained, and informed consent for proposed treatment is obtained.

4. Treatment needs are sequenced according to: (1) preliminary needs (immediate care required); (2) phase I, elimination of disease; (3) phase II, elective treatment including fixed and/or removable prosthodontics, and (4) recall, maintenance therapy.

EMERGENCY EXAM

Patients presenting with urgent needs will receive an emergency exam and treatment necessary to stabilize their condition.

Indications

Patients of record reporting to the student clinic and patients of non-record reporting to the urgent care clinic.

Contraindications

Patients whose needs are determined to be a non-urgent nature by the attending dentist or are too complex for the student dentist.

Outcomes Assessment

1. Patients of record with urgent needs will be evaluated and treated by their student dentist under the supervision of the appropriate discipline.

2. Patients of non-record will be seen in the urgent care clinic, stabilized, and referred to the appropriate source for follow-up care.

3. Patients whose needs are determined to be of a non-urgent nature will be referred to the appropriate source for follow-up care.

ORAL RADIOLOGY

Oral radiology is the area of dental practice that deals with the use of radiation, including diagnostic, therapeutic, and nuclear aspects of clinical practice and research. It is based on physical principles and biologic phenomena and is linked with most branches of dental science. Radiographic examinations are based on the needs of the patient, not the amount of time elapsed

since the last exposure, not on a periodic basis, and not for administrative purposes. This is in accordance with the guidelines for prescribing dental radiographs (FDA publication #88-8273).

INTRAORAL FILMS

Indications

Patients requesting oral health care.

Contraindications

Diagnostic films taken recently and available, patient is pregnant seeking elective care during first trimester of pregnancy with no clinical evidence of oral disease, or patient is edentulous with a recent panoramic film.

Outcomes Assessment

1. Technical ability will be confirmed by a radiographic product that is diagnostic and appropriate to the patient's status.
2. Processing of the films will be performed by the clinician with any processing errors identified and remediated by that clinician.
3. Selection criteria for the radiographic examination are stated and logical.
4. Radiographs are analyzed under the supervision of qualified personnel.
5. Radiographic safety will be demonstrated through appropriate use of shielding devices, accurate exposure dosage, and radiographic records for each patient.

SUPPLEMENTAL FILMS (EXTRAORAL, PANORAMIC, ETC.)

Indications

Patients seeking care with specialized needs. Requests for additional radiographs to supplement intraoral films or to replace these films includes, but are not limited to panoramic films on edentulous patients, TMJ series, Water's view, and lateral skull.

Contraindications

Information available on intraoral films, diagnostic radiographs available from another source, pregnant individuals seeking elective care during the first trimester.

Outcomes Assessment

These films will be ordered, exposed and interpreted under the supervision of qualified personnel.

PERIODONTOLOGY

"That specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes; the maintenance of the health, function and esthetics of these structures and tissues; and the replacement of lost teeth and supporting structures by grafting or implantation of natural and synthetic devices and materials" (1).

KNOWLEDGE

While periodontal disease diagnosis and treatment requires special knowledge, practitioners must possess a working knowledge of other disciplines to provide optimum care. Some of these disciplines are:

- Physiology
- Anatomy
- Histology
- Microbiology
- Immunology
- Pathology
- Restorative Dentistry
- Oral Medicine
- Pharmacology
- Systemic Disease
- Dental Implants
- Biochemistry
- Prosthodontics
- Pediatric Dentistry
- Endodontics
- Biomaterials
- Laboratory Medicine
- Critical Thinking
- Literature Analysis

- Oral And Maxillofacial Surgery
- Radiology
- Oral Biology

INTRODUCTION

The goal of periodontics is to maintain or restore health in the periodontium. Arresting or slowing down the disease process may be alternative goals if "health" cannot be achieved. Generally the diseases dealt with are inflammatory and are categorized as gingivitis or periodontitis. The principle causative agents are intraoral microflora which colonize the tooth surface both supragingivally and subgingivally as well as the subgingival pocket area.

Transition of gingivitis to periodontitis does not always occur, although periodontitis is always preceded by gingivitis. Since the structures and microflora involved in gingivitis and periodontitis are different, treatment methodologies and outcomes will vary depending on the disease. Elimination of the bacteria present in gingivitis can lead to a complete reversal of the disease. Treatment of periodontitis always requires elimination of microflora but the periodontium will not return to its pre-diseased state.

9 The general practitioner should be able to diagnose health and disease, treatment plan, remove plaque, treat gingivitis, and manage periodontitis. Management may include nonsurgical treatment of early disease and working with a periodontist on a referral basis for treatment of all forms of periodontitis. The general practitioner should be well versed in multiple methods of patient control of oral microflora.

EXAMINATION

1. A thorough medical history should be taken on each patient. Various systemic diseases, conditions, and habits such as diabetes, hypertension, smoking and pregnancy can influence periodontal conditions and treatment. A complete list of all patient medications should be recorded, and their actions and interactions with drugs to be prescribed should be evaluated. Consultations with other health care professions should be obtained as needed.

2. A dental history should be obtained and any previous records and radiographs should be added to the current file. Contacts with previous dental practitioners may provide valuable information.
3. A head and neck extraoral examination should be performed. Abnormalities should be noted and appropriate referrals performed if necessary.
4. An intraoral examination of oral mucosa, tongue, floor of mouth, lips, palate, oropharynx, glands, and alveolus should be performed. Palpation should be utilized as required. All abnormalities should be noted and consultations obtained as needed.
5. Individual teeth, replacements, occlusion, caries, tooth position, pulpal status (as needed), restorations, and mobility should be noted. Diagnostic casts should be obtained.
6. Appropriate radiographs should be taken. A panoramic film and bite-wing radiographs are sufficient for analysis of the periodontium of a patient with gingivitis. Full mouth radiographs are required for patients with periodontitis.
7. The presence of plaque and calculus should be recorded.
8. The gingival and alveolar mucosa should be examined. Consistency, color and frenum insertions, probing depths, bleeding points, recession and furcation involvement should be recorded. The quantity of attached gingival should be noted.
9. Laboratory tests and additional radiographs should be obtained if needed.
10. Data should be analyzed and a diagnosis, treatment plan and prognosis formulated.

GINGIVITIS

Gingivitis is inflammation of the gingival by oral microflora (plaque) without attachment loss. Some or all of the following clinical findings may be present:

- Erythema
- Bleeding On Probing
- Contour Alteration
- Consistency Alteration
- Presence of Calculus
- Presence of Plaque
- Edema

Tooth position and existing restorative dentistry can be secondary contributing disease factors.

Treatment Goals

Return the gingival tissue to health by eliminating plaque, calculus and secondary contributing factors.

Methodology

1. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
2. Oral hygiene education, demonstration and evaluation.
3. Removal of microbial plaque, calculus and stain. This is typically performed by hand and/or ultrasonic instrumentation (scaling) and application of abrasive pastes.
4. Correction of secondary restorative factors. Examples may include:

- Overhanging Margins
- Open Margins
- Improperly contoured restorations
- Primary caries
- Secondary Caries
- Open Contacts
- Fractured Restorations

5. Correction of tooth malposition if possible.
6. Reexamination.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema and bleeding on probing should be evidenced if satisfactory treatment was rendered and patient oral hygiene was satisfactory. Gingival health should be present if these conditions exist.
2. If treatment is unsuccessful, additional instrumentation may be required and/or a change in frequency of instrumentation. A review of plaque control procedures with the patient as well as alternative plaque control measures may be required.

ADULT PERIODONTITIS

"Periodontitis is inflammation of the supporting tissues of the teeth. It is usually a progressively destructive change leading to loss of bone and periodontal ligament or an extension of inflammation from gingival into the adjacent bone and ligament. Adult periodontitis usually has an onset beyond age 35. Bone resorption usually progresses slowly and predominantly in the horizontal direction. Well-known local environmental factors are prominent and abnormalities in host defense have not been found" (1). Clinical features may include some or all of the following:

- Edema
- Erythema
- Bleeding on Probing
- Suppuration
- Bone Loss (early to moderate up to 1/3, advanced > 6 mm)
- Furcation involvement (early to moderate-class i, advanced-class ii or iii)
- Tooth Mobility
- Radiographic Evidence Of Bone Loss
- Probing Depths (early to moderate up to 6 mm, advanced > 6 mm)
- Attachment Loss (early to moderate up to 5 mm, advanced > 5 mm)
- Localized or Generalized Presentation
- Early, Moderate And or Advanced Stages

Treatment Goals

Eliminate arrest or slow down the disease by the elimination and/or alteration of the oral microflora and secondary factors. Preservation of a healthy, comfortable, functional and esthetic dentition is the goal for each patient.

Methodology

1. Evaluate contributing factors such as smoking, diabetes, medications, and pregnancy. Eliminate as many contributing factors as possible.

12. Reexamination as deemed appropriate.

Surgery

1. The appropriate surgical modality will be determined by a periodontal faculty member, periodontal resident and the dental student.
2. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
3. Reexamination as deemed appropriate.

Outcomes Assessment

1. Elimination or reduction of plaque, calculus, stain, edema, erythema, probing depths, and bleeding points if satisfactory treatment was rendered. Stabilization or gain of clinical attachment should also be evident during the clinical reexamination. Improvement may be seen in radiographic appearance.
2. Alteration of occlusal forces.
3. Effective patient oral hygiene.
4. Unresolved areas of periodontal disease may occur and be characterized by:
    - inflammation
    - increased probing depths
    - continued attachment loss
    - persistent bleeding on probing
    - persistent plaque deposition
5. Patient response is variable and treatment modalities may require modification or alteration as needed.

EARLY ONSET AND REFRACTORY PERIODONTITIS

These disease entities will receive treatment by periodontal residents and/or faculty.

MUCOGINGIVAL CONDITIONS

Mucogingival conditions are alterations of the normal relationship between the free gingival margin and the mucogingival junction. Alterations of morphology position and quantity of gingival may be present (1). Clinical features may include:

- Recession

- Lack of or reduction in keratinized tissue
- Lack or reduction in attached gingiva
- Probing depths which traverse the mucogingival junction
- Ridge defects

Treatment Goals

Decrease or eliminate root sensitivity, correct esthetic problems, eliminate pocketing and control or eliminate inflammation.

Methodology

Surgical procedures will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.

1. Eliminate or control inflammation through plaque control by improved oral hygiene and scaling and root planing.
2. Root desensitization.
3. Gingival grafting.
4. Root coverage (soft tissue).
5. Correction of trauma from occlusion.
6. Frenectomy or frenotomy.
7. Correction of tooth malposition.
8. Surgical procedures for probing depth reduction.
9. Surgical procedures for ridge augmentation.

Outcomes Assessment

1. Clinical signs of inflammation have been eliminated.
2. Esthetics are satisfactory.
3. Areas of recession may have been corrected.
4. Recession is not progressing.
5. Mucogingival defects have been corrected.
6. Successful treatment may not have occurred due to persistent inflammation or the persistence of mucogingival defects. Satisfactory results are not possible in all patients.

SUPPORTIVE PERIODONTAL TREATMENT (SPT)

SPT is an extension of periodontal therapy. Procedures are performed at selected intervals to assist the periodontal patient in maintaining oral health. These usually consist of an examination, evaluation of oral hygiene, scaling, root planing and supragingival plaque removal with abrasive pastes (1).

Treatment Goals

Prevent or minimize the recurrence and/or progression of periodontal disease by continual evaluation of the patient. Return the patient to active therapy if their diseases status warrants it.

Methodology

1. Examination (refer to examination section).
2. Determine disease status.
3. Determine oral hygiene status.
4. Remove local factors (as needed).
5. Review oral hygiene (as needed).
6. Determine if the patient must return to active therapy status or may remain under SPT.
7. If the patient must return to active treatment status, modify the treatment as needed.
8. If the patient remains under SPT, an appropriate time interval must be established between appointments.

Outcomes Assessment

1. Periodontal health is maintained.
2. SPT may be unsuccessful if patient oral hygiene is inadequate, compliance is poor or recurrence of disease is observed. These conditions may alter the patient treatment plan.

CROWN LENGTHENING

Periodontal surgical procedures involving the soft and/or hard tissues to permit tooth restoration.

Some or all of the following may be indications:

- tooth fracture (crown and/or root)
- extensive primary caries
- extensive secondary caries
- endodontic perforation

2. Education of the patient as to the causative disease factors (microflora), disease effects and characteristics.
3. Oral hygiene education, demonstration and evaluation.
4. Removal of microbial plaque, calculus and stain (supragingivally and subgingivally). Typically performed by hand and/or ultrasonic instrumentation (scaling and root planning).
5. Local delivery of antimicrobials may be utilized secondarily.
6. Systemic delivery of antibiotics may be utilized secondarily.
7. Correction of secondary restorative factors such as:
   - Overhanging Margins
   - Open Margins
   - Improperly Contoured Restorations
   - Primary Caries
   - Secondary Caries
   - Open Contacts
   - Fractured Restorations

8. Correction of other secondary factors such as:
   - Poor Prosthetic Appliances
   - Trauma from Occlusion
   - Tooth Malposition

9. An appropriate time interval should be observed to allow for inflammation resolution and repair. A thorough periodontal reexamination should be performed including gingival characteristics, probing, and bleeding points. Evaluation of the patient should be performed and their disease status determined.
10. If periodontal therapy has resolved the periodontal disease, supportive periodontal treatment (SPT) should be initiated.
11. If periodontal therapy has not resolved the periodontal disease, further nonsurgical or surgical therapy should be performed as deemed appropriate.

- inadequate crown length for adequate preparation
- iatrogenic dentistry
- post-orthodontic extrusion

Treatment Goals

Provide adequate crown length, and maintain proper crown to root ratio while preserving the biologic width.

Methodology

1. Determination of need will be made by the periodontal and restorative faculty in conjunction with the periodontal resident and dental student.
2. Resective soft and/or hard tissue surgery.
3. Surgical treatment will be performed by a periodontal resident in conjunction with a dental student under the supervision of the periodontal faculty.
4. Determine patient oral hygiene.

Outcomes Assessment

1. Post-operative crown length adequate for required post-surgical procedures.
2. Adequate patient oral hygiene.
3. Unfavorable results can be evidenced due to inadequate tissue resection, poor oral hygiene, inadequate crown to root ratio, and fractures requiring tooth extraction.

ENDOSSEOUS IMPLANTS

Replacement of (a) teeth (tooth) with (a) machined root form shaped titanium alloy to improve function and/or esthetics. The following may be indications for placement:

1. Tooth and/or root fracture
2. Missing teeth due to trauma
3. Previous extraction sites
4. Spaces created by orthodontic movement
5. Endodontic failures
6. Restorative failures
7. Extractions due to periodontal disease

8. Non-restorable teeth due to caries (following extraction)
9. To avoid preparation of virgin teeth for bridge abutments
10. Anchorage for orthodontic tooth movement

Treatment Goals

Provide the patient with 1) replacement function and/or esthetics in edentulous areas of the mandible and/or maxilla or 2) anchorage for orthodontic tooth movement.

Methodology

1. The determination of the appropriate treatment will be determined by clinical faculty in the appropriate disciplines which would generally be periodontics, restorative dentistry, prosthodontics, and orthodontics. The Implant Consent and Treatment Planning Form (5D) and financial arrangements must be completed before treatment begins.

2. The supervising periodontal resident and the dental student will be involved in the treatment plan.

3. Appropriate faculty, the periodontal resident, and the dental student will explain the treatment plan to the patient.

4. Existing periodontal disease in the dentition must be resolved prior to implant placement.

5. A plaque score of 25% must be achieved prior to implant placement.

6. Implant placement will be performed by the periodontal resident who will be assisted by the dental student assigned to the patient. The procedure will be performed in the periodontal graduate clinic under the supervision of the periodontal faculty.

Outcomes Assessment

1. The implant will be evaluated radiographically for adequate placement (See Radiographic Guidelines for Implant Patients in the Clinic Manual).
2. Following healing (3-6 months) the implant will be evaluated for mobility and probing depth.
3. Patient oral hygiene will be evaluated and corrected as required.
4. Radiolucencies, implant mobility, and increased probing depths are indications that an implant is ailing, failing or has failed and further treatment is required.

References

1. Glossary of Periodontal Terms. The American Academy of Periodontology, 1992.

PEDIATRIC DENTISTRY

Pediatric Dentistry is an age specific dental specialty that encompasses all aspects of dentistry. Since children are unique in their stages of development, oral diseases, and oral health treatment needs, this section will focus on comprehensive preventive and therapeutic oral health care of children. One goal is to provide a basic philosophical and technical foundation for diagnosis, treatment planning, and providing treatment procedures in children. Another goal is to provide practical experience in managing the behaviors of children. The former goal is scientifically more definitive, while the latter goal is less clearly defined. Regarding the practical experience gained through behavior management; it is only expected that the student should clearly document the child's initial behavior and describe uncooperative or inappropriate behaviors. Once strategies for managing the behaviors are implemented it is then expected that the student document effectiveness of the techniques. The goal is to have the management techniques positively affect the child's emotional development. Further, the student should understand that behavior management methods employed are to allow the opportunity for communicating, educating, coping, and cooperating during treatment procedures. In addition to words, it is desired that the student appreciate the impact of voice tone, facial expression and gestures. The more definitive pediatric dentistry treatments follow:

CLINICAL EXAMINATION

This consists of a health history review and a physical assessment.

Indications

1. All patients of record should receive a thorough examination of the intra- and extra-oral soft tissues, and intraoral hard tissue examination, and a review of the health history.

Contraindications

There are no contraindications for the clinical examination.

Outcomes Assessment

1. Health history should be reviewed and summarized:

a. Medical history summarized and ASA status determined and marked on t he medical history questionnaire. Allergies should be clearly identified with red highlighting. Need for SBE prophylaxis should be documented. Medications the child is taking should also be documented.

b. Dental history should be reviewed so that the reason for seeking care is documented. Previous dental treatment with comments about the child's behavior during that treatment should be documented. Oral habits and previous dental injuries should be reviewed and documented.

c. Home Dental Care: An assessment of the child's fluoride status, oral hygiene habits, and dietary practices should be recorded. The need for fluoride supplementation should be established.

d. Behavior History: A prediction of how the child will behave should be made. Information regarding how the child behaved on previous dental appointments or for medical appointments should be ascertained.

2. The physical assessment should survey the following:

a. General appraisal of the face, neck, lips, gingivae, buccal mucosa, palate, tongue, and tonsillar area should be documented if not within normal limits.

17 b. The presence of teeth should be circled clearly on the pediatric evaluation form. Occlusion should be recorded, with data reflecting the anterior-posterior, traverse, and vertical planes of space.

c. Anomalies in number, size, shape, texture, eruption, exfoliation, and tooth position should be documented. All dental restorations and carious lesions should be charted by tooth number and surface.

d. History of traumatic injuries and oral habits should be documented to identify teeth affected, description of how injured, duration of habit, and date of injury.

RADIOGRAPHIC EXAMINATION

Indications

All patients of record should receive an assessment of dental caries, periodontal status, developmental status, pathologic disturbances, swelling and pain or dysfunction.

All radiographs will be ordered based on the guidelines set forth by the American Academy of Pediatric Dentistry (AAPD) and as published reference manual indicates in the "Pediatric Dentistry Journal." (FDA publication #88-8273)

Contraindications

Patients in the first trimester of pregnancy seeking elective care. Radiographs will only be ordered according to the guidelines of the AAPD.

Outcomes Assessment

1. All radiographs are of diagnostic quality to permit assessment of health and development of the dentition and oral structures. They are to supplement the clinical examination findings.
2. Pathologic interpretations should also be documented on the pediatric evaluation form and/or in the progress notes. This includes eruption interferences, abscesses, and congenitally missing teeth.
3. A radiographic record should document films ordered and the number of exposures made.

ORAL PROPHYLAXIS

Traditionally this has been the polishing of teeth with a rubber cup; however, the toothbrush is an acceptable instrument for completing this procedure. Dental floss is also an adjunct for intraproximal portion of the prophylaxis. Scaling is done if calculus is present.

Indications

1. Removal of plaque, calculus, and/or extrinsic stains from the teeth.
2. Polishing the teeth.
3. Education of the child and/or caregiver.

Contraindications

1. Patients who are susceptible to subacute bacterial endocarditis need to be managed with the appropriate antibiotic therapy according to current AHA guidelines.
2. Patients who suffer with a bleeding disorder need to be managed with the appropriate precautions if bleeding is likely for this procedure.

Outcomes Assessment

1. All plaque should be removed from the crowns of all tooth surfaces.
2. Extrinsic stains and calculus should be removed and the teeth should be polished.

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3. Child should be given instructions on plaque removal and should minimally demonstrate with a toothbrush. As coordination improves, flossing instructions should be implemented.
4. A recall plan should be established and documented.

TOPICAL FLUORIDES

Indications

Caries susceptible children as demonstrated by enamel decalcifications or clinically diagnosed caries. Systemic fluoride supplementation schedule is attached.

Contraindications

1. Children who do not understand or who are unable to prevent swallowing the fluoride products.
2. Children who are a low caries risk (caries free, excellent oral hygiene, and open contacts).

Outcomes Assessment

1. Fluoride application is retained in child's mouth for one to four minutes.
2. Child does not eat or drink for the next 30 minutes.

SEALANT APPLICATION

Indications

1. Deep, retentive pits and fissures that may cause wedging or catching of an explorer.
2. History of previous occlusal caries.
3. Tooth erupted within the last 4-5 years.
4. Can be placed on primary or permanent molars, premolars, and the cingula of maxillary incisors with deep pits and/or fissures.

Contraindications

1. Well coalesced, self cleaning pits and fissures.
2. Patients with interproximal lesions on a tooth that is planned for a sealant or occlusal caries.
3. Inability to keep tooth contained with dry isolation.

Outcomes Assessment

1. Sealant is intact and covers all susceptible pits and fissures.
2. Occlusion is evenly distributed as before placement of the sealant.
3. No evidence of caries development.

PREVENTIVE RESIN RESTORATION

Indications

1. Deep pits and fissures in primary and permanent teeth that contain questionable caries areas.
2. Implicit carious lesions.
3. Well confined carious lesions.
4. Enamel defects.

Contraindications

1. Interproximal caries on suspect tooth.
2. Need to extend preparation beyond the suspect pit and/or fissure.

Outcomes Assessment

1. Restoration is intact and covering all involved and/or susceptible pits and fissures.
2. Normal occlusal relationship is maintained.
3. No evidence of caries development beneath or around the margins of the restoration.

RUBBER DAM APPLICATION

Indications

1. Restorative or endodontic procedures for primary or permanent teeth.
2. Protect soft tissues and improve patient management.
3. Prevent dental instruments and other materials from entering the oropharynx.

Contraindications

1. Orthodontic bands on teeth.
2. Patients with poor nasal exchange.
3. Patients with allergy to latex.
4. Clamp cannot be retained due to state of eruption of the tooth.

Outcomes Assessment

1. Rubber dam does not block the nose for air exchange.
2. Rubber dam barrier remains intact through procedures, does not become dislodged, and isolates teeth to be treated.
3. All stabilizing ligatures and rubber dam material is removed upon completion of restorative procedures.

AMALGAM RESTORATION

Indications

1. The restoration of dental caries.
2. The restoration of developmental defects.

Contraindications

1. First primary molar with mesial caries.
2. Interproximal caries that goes beyond the buccalline angle.
3. Caries greater than 1/3 the isthmus of the occlusal portion of the amalgam preparation in primary molars.

Outcomes Assessment

1. Vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration remains intact.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

COMPOSITE RESIN RESTORATION

Indications

1. Restoration of one or more surfaces on anterior teeth due to fracture, caries, or developmental defects.
2. Restoration of ideal one surface (Class I or Class V) caries or developmental defects on posterior teeth.
3. Restoration of small Class II carious lesions.

Contraindications

1. Large Class II restoration to restore interproximal caries in posterior teeth.
2. Inability to keep a dry field with rubber dam or cotton products, if manufacturer's directions describe dry teeth.

Outcomes Assessment

1. The vitality of the tooth is maintained.
2. Developmental form and function are restored and the restoration is intact.
3. Shade of the restorative material approximates that of the patients natural tooth structure.
4. Restoration is approximately finished and the margins are even with natural tooth structure.
5. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

STAINLESS STEEL CROWN

Indications

1. Restoration of first primary molar with mesial surface caries.
2. Restoration when failure of other available restorative materials is likely.
3. Restoration of primary or permanent teeth with extensive caries.
4. Restoration following pulpotomy or pulpectomy (root canal therapy) for primary and permanent teeth.
5. Restoration for hypoplastic or hypocalcified teeth and teeth with hereditary anomalies.
6. Restoration for a tooth to be used as an abutment for fixed appliances.
7. Restoration as temporary for fractured teeth or for permanent molars with extensive caries.

Contraindications

Not enough space to place an adequately fitting crown.

Outcomes Assessment

1. Adequate caries removal and/or pulp treatment is completed and tooth is reduced for the crown.
2. Crown is appropriately trimmed, adapted, smoothed, and polished.
3. Appropriate sized crown that maintains arch length.
4. Adequate marginal adaptation for gingival health and excess cement is removed.
5. Functional occlusion is restored.
6. Tooth vitality is maintained when possible.
7. Restoration enables patient to maintain oral hygiene.
8. Restoration does not interfere with tooth eruption.

LABIAL VENEER (PLASTIC/PORCELAIN)

Indications

1. Esthetic restoration for anterior teeth that need to be restored or are deeply stained or discolored.
2. Conservative restoration for preventing full coverage restorations of fractured permanent incisors.

Contraindications

1. Occlusal disharmonies that could cause restoration failure.
2. Patients with disorders such as esophageal reflux or bulimia that could cause luting agents to fail.

Outcomes Assessment

1. Restore form and esthetics.
2. Maintain vitality of the tooth restored.
3. Margins of the restoration do not compromise gingival health or prevent adequate oral hygiene.

DIRECT PULP THERAPY

Indications

1. Minimal pulp exposure during caries removal on a permanent tooth.

2. Therapy for permanent tooth that sustains a mechanical exposure during preparation or that has a traumatic exposure such as in the case of a fracture.

Contraindications

1. Primary teeth.
2. Greater than minimal pulp exposure (gross exposure).
3. Radiographic periapical radiolucency; signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. Hemorrhage is controlled and calcium hydroxide is placed over the exposed pulp.
2. Preparation is sealed with an appropriate restorative material.
3. Vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident (pain, swelling).
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification.

INDIRECT PULP THERAPY

Indications

A tooth that has caries approaching the pulp. Placing a protective dressing over a layer of remaining dentin protects against pulpal injury and stimulates healing.

Contraindications

1. Radiographic periapical radiolucency indicating a pathologic condition.
2. Signs and symptoms indicate irreversible pulpitis.

Outcomes Assessment

1. An appropriate base is placed over the remaining carious dentin.
2. The preparation is sealed with an appropriate restorative material.
3. The vitality of the tooth is maintained and no prolonged adverse clinical signs and symptoms are evident.
4. Developmental evidence of tertiary dentin formation occurs.
5. No evidence of pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.

PULPOTOMY

Indications

1. Carious or mechanical exposures in primary molars with vital pulps.
2. Permanent teeth when the pulp is exposed and is vital.
3. Permanent teeth as urgent treatment in preparation for conventional root canal therapy.

Contraindications

1. Inability to control hemorrhage upon removing infected or affected canal pulp tissues.
2. Periapical radiolucency in suspect primary molar.
3. Clinical signs and symptoms of irreversible pulpitis or abscess for primary molar.

Outcomes Assessment

1. Appropriate selection and use of pulp therapy medicament.
2. Radicular pulp vitality is maintained and no prolonged adverse clinical signs and symptoms are evident.
3. No pathology such as internal resorption, abnormal calcification, or periradicular radiolucency.
4. Normal root apical closure and root length occurs.

PULPECTOMY (PRIMARY TOOTH ROOT CANAL THERAPY)

Indications

1. Primary incisors traumatized with consequent pathology.
2. Non vital permanent teeth with immature roots.
3. Non vital primary molars.
4. Primary molars that sustain hemorrhage upon attempting pulpotomy procedures.

Contraindications

1. Facial swelling associated with non vital primary molar.
2. Tooth is not restorable.
3. Pathology extends to developing permanent teeth.
4. Internal or external resorption in crown and root.
5. Less than 2/3 of the primary tooth root structure remains.
6. Treatment could cause untoward sequela for medically compromised patient.

Outcomes Assessment

1. Evidence of a successful root canal filling with the appropriate material (no gross overextension or underfilling of canal).
2. Radiographic observation reveals root end closure (apexification).
3. No prolonged adverse clinical signs and symptoms.
4. No radiographic evidence of internal/external resorption.
5. No exacerbation of previous periradicular radiolucency or development of periradicular radiolucency where none existed.

PRIMARY TOOTH EXTRACTION

Indications

1. Acute or chronic pathology associated with primary teeth.
2. Over-retained teeth.
3. Cariously involved, non-restorable tooth.
4. Natal/neonatal teeth that are mobile and subject to aspiration, are a source of ulceration, or interferes with feeding.
5. Supernumerary teeth.
6. Fractured or traumatized non-restorable teeth.

Contraindications

1. Acute oral infection such as herpetic stomatitis or necrotizing ulcerative gingivitis.
2. Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Appropriate anesthesia is obtained and the correct tooth is extracted.
2. Alveolus remains intact.
3. Hemorrhage is managed.
4. Post extraction instructions (written and oral) are reviewed with the child and/or child's caregiver.
5. Antibiotic therapy is initiated when appropriate.
6. Hospital care is sought when appropriate.

ECTOPIC ERUPTION CORRECTION THERAPY

Indications

1. Radiograph reveals that delayed eruption is due to atypical direction of tooth eruption.
2. Delayed eruption is due to impingement by previously placed restoration in an adjacent tooth.

Contraindications

Procedure could cause untoward sequela for patients who are medically compromised.

Outcomes Assessment

1. Restoration is replaced and allows proper eruption of the ectopically erupting tooth.
2. Appropriate mechanical therapy repositions the ectopically erupting tooth (create enough space) to reascertain the arch length and/or preserve as much space as possible for the developing permanent dentition.

SPACE MAINTAINER THERAPY

Indications

Premature loss of teeth where it is necessary to prevent migration of adjacent teeth.

Contraindications

1. Procedure could cause untoward sequela for patients who are medically compromised.
2. Patients who are high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design is chosen to maintain the space and alignment of teeth.
2. The space present when the appliance is placed continues to be preserved until eruption of the succedaneous tooth.
3. Appliance does not prevent the normal eruption of succedaneous teeth.

HABIT APPLIANCE THERAPY

Indications

Management of a habit that is causing or may cause unfavorable consequences in the permanent dentition and orofacial development.

Contraindications

1. Child cannot understand instructions and the function of the appliance.
2. Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Eliminate or decrease the intensity of the habit.
2. Eliminate or decrease the effect of the habit on permanent dentition and orofacial development.

CROSSBITE CORRECTION THERAPY

Indications

1. Anterior and/or posterior non-skeletal crossbites.
2. End to end dental occlusion that demonstrates potential for severe attrition.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Appropriate appliance design to achieve correction of crossbite and/or improved inter arch relationships.
2. The desired occlusion is maintained.

PROSTHETIC APPLIANCE THERAPY

Indications

1. Caries causing multiple tooth extraction.
2. Trauma resulting in tooth loss.
3. Missing teeth due to congenital/genetic defects.
4. Congenital or genetic disturbances as in dentinogenesis/amelogenesis imperfecta or cleft palate.
5. Facilitation of establishing esthetics, occlusal function, speech development, and/or feeding.

Contraindications

Patient is high risk for compliance (home care, care for appliance, and keeping future appointments).

Outcomes Assessment

1. Facial profile, function, and esthetics are improved.
2. Ability to adequately remove plaque from the natural teeth is facilitated.

3. Appliance has adequate retention.
4. Appliance does not interfere with normal speech development.
5. Appliance allows normal eruption of teeth and does not prevent normal orofacial growth and development.

TREATMENT PLANNING

Indications

All pediatric patients' care must be treatment planned with a CD-12 signed by a faculty member in the section of Pediatric Dentistry.

Contraindications

None

Outcomes Assessment

1. Accurate diagnosis of clinical findings.
2. Appropriate prevention plan is established.
3. Appropriate treatment procedures are planned for each tooth to be treated.
4. Radiographic interpretation confirms the presence of suspected disease/pathology.
5. Informed consent is gained by parent or guardian.

ENDODONTICS

DEFINITION OF ENDODONTICS

Endodontics is the dental specialty concerned with the morphology, physiology, and pathology of the human dental pulp and periradicular tissues. Its study and practice encompass the basic clinical sciences including normal pulp biology; the etiology, diagnosis, prevention, and treatment of diseases and injuries of the pulp; and associated periradicular conditions.

The scope of endodontics is defined by the educational requirements for the training of a specialist in this discipline. Its scope of endodontics includes but is not limited to the differential diagnosis and treatment of oral pain of pulpal or periradicular origin; vital pulp therapy such as pulp capping and pulpotomy; root canal therapy such as pulpectomy, nonsurgical treatment of root canal systems with or without periradicular pathosis of pulpal origin, and the obturation of these root canal systems; selective surgical removal of pathological tissues resulting from pulpal

pathosis; replantation of avulsed teeth; surgical removal of tooth structure such as in apicoectomy, hemisection, and root amputation; endodontic implants; bleaching of discolored dentin and enamel; retreatment of teeth previously treated endodontically; and treatment procedures related to coronal restoration by means of post or cores involving the root canal space.

Dental practitioners must perform endodontic therapy consistent with their educational training and clinical experience. Keeping in mind that dentistry's main goal is for the public to maintain a healthy, natural dentition, every dental practitioner must be able to recognize and effectively treat pulpal injuries and diseases that are common and comply with the skills acquired by graduates of dental schools in the United States. Endodontic cases that are beyond the training, experience, and expertise of individual practitioners should be referred to practitioners who can appropriately provide treatment. All endodontic treatment should be of such quality that predictable and favorable results will routinely occur.

ENDODONTIC EXAMINATION AND DIAGNOSIS

Many features of endodontic evaluation are common to all dental practice.

An adequate medical and dental history with accompanying visual and radiographic examination provides basic information. Appropriate pulpal and periapical tests such as thermal, electrical, percussion, palpation, and mobility should be performed. Additional periodontal examination, transillumination, and bacteriologic testing may be indicated. Pre-operative radiographs may be taken from more than one angle to gain a better perspective of the morphology of the tooth or teeth in question. Bitewing radiographs, occlusal plane films, and radiographs of the contralateral and opposing teeth may also be necessary.

It may be necessary to recall some patients at periodic intervals to compare the examination data from one time interval to another for an accurate diagnosis. At times it is advisable to secure radiographs from previous practitioners or the existing dental record to gain a better understanding of the evolution of the current situation.

ENDODONTIC TREATMENT PLANNING, RECORDS AND RECALLS

Appropriate treatment is predicated on an accurate analysis of all diagnostic data. Treatment planning should include determining the strategic importance of the tooth or teeth considered for treatment, the expectations of the patient, the endodontic prognosis, and other factors such as excessively curved canals, periodontal disease, occlusion tooth fractures, calcified or occluded canals, and teeth with unusual or abnormal canal morphology.

27 Treatment records should include the chief complaints or patient comments, clinical impression, results of diagnostic tests and clinical examination. Also included are the pulpal and periapical diagnosis, treatment rendered, and required pre-operative, intra-operative, post-operative, and recall radiographs. Records should also include patient commentaries or complaints before and during treatment, or at any subsequent post-operative examination.

Endodontic care also includes the evaluation of the patient's post-operative response to treatment. Endodontic providers should encourage patients to return at intervals appropriate for the procedures undertaken to allow continued clinical evaluation.

VITAL PULP TREATMENT PROCEDURES

Vital pulp treatments attempt to preserve the integrity and function of the pulpal tissue in whole or in part as dictated by the degree of pulpal injury. Materials used in vital pulp therapy, such as calcium hydroxide, should meet the guideline of the ADA Council on Dental Therapeutics. The permanent restoration should be placed as soon as possible.

PROTECTIVE BASE

A protective filling material is placed at the base of a deep preparation to act as a barrier to minimize further injury and permit possible pulp healing and repair.

Indications

1. Deep dentin preparations in ~~teeth with vital pulp without pulp expo~~sure.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms
2. Location of a radiopaque base between the permanent restoration and the dentin.
3. Appropriate responsiveness to electrical and thermal pulp tests.
4. No breakdown of the periradicular supporting tissues.

INDIRECT PULP CAPPING

In a tooth which has a carious lesion near the pulp, a protective dressing or cement is placed over a layer of remaining dentin which, if removed, might expose the pulp. The purpose is to protect the pulp against possible injury and to stimulate healing and repair.

Indications

1. Carious lesions in teeth with vital pulp, which, if removed, might expose the pulp.

Contraindications

1. Nonvital pulp or vital but exposed pulp.
2. Clinical signs and/or symptoms of irreversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiopaque base should be adjacent to but not in contact with pulpal tissue.
3. Appropriate responsiveness to electrical and thermal vitality tests.
4. No breakdown of the periradicular supporting tissues.
5. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

DIRECT PULP CAPPING

In a tooth with a carious lesion near or into the pulp, a protective calcium hydroxide dressing or cement is placed directly over the vital pulp at the site of the exposure to protect the pulp against further injury and to stimulate healing or repair.

Indications

1. Aseptic small mechanical or iatrogenic pulpal exposures.
2. Small pulp exposures in teeth with incompletely formed apices.

4. No internal or external resorption or abnormal canal calcification as determined by periodic radiographic evaluation.

NONSURGICAL ENDODONTIC PROCEDURES

ROOT CANAL TREATMENT

Endodontic therapy for permanent teeth involves a biologically based chemical and mechanical debridement of the root canal system to eliminate pulpal disease and to promote healing and repair of periradicular tissues. The debridement and shaping of the canal system is followed by obturation with a biologically acceptable nonabsorable semisolid or solid core root canal filling material.

All canals are shaped, cleansed, and disinfected using aseptic technique. Proper access is dictated by the size and shape of the pulp chamber as well as by the tooth position in the arch. In all cases, the entire roof of the chamber must be removed. Debridement, enlargement, and disinfection of all canals and obturation are accomplished under rubber dam isolation. When indicated, microbial culture and sensitivity determinations are used.

Obturation is the three-dimensional filling of the entire root canal system as close to the cemento-dentinal junction as possible. Minimal amounts of root canal sealers, which have been demonstrated to be biologically compatible, are used in conjunction with core filling material to establish an adequate seal.

It is recognized that root canal instruments will fail occasionally due to manufacturing deficiencies beyond the control of the practitioner. When instrument failure occurs in a root canal, the remainder of the root canal space should be sealed with a biologically acceptable non-restorable semi-solid or solid core root canal filling material. The patient must be informed of the complication.

Indications

1. Carious pulp exposure on a permanent tooth.
2. Vital, irreversibly inflamed pulp.
3. Tooth with necrotic pulp.
4. Extensive loss of tooth structure where restorative considerations exist.

Contraindication

Pulp is vital, but with reversible pulpitis.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e., without gross overextension or underfilling in the presence of a patent canal; no ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, within 4 years the recall radiographs should demonstrate return to an intact lamina dura and a normal periodontal ligament space around the entire root or roots under observation.
4. If a tooth had a normal periodontal ligament space and an intact lamina dura around the root or roots at the time of obturation, recall radiographs taken 6 months or later postobturation should demonstrate a similar appearance.

ENDODONTIC RETREATMENT

Retreatment is preferred to surgical retrofilling in teeth where the root system is accessible and amenable to reinstrumentation and obturation. Retreatment involves removal of the previously
30 placed obturation materials in addition to the procedures normally used in orthograde endodontic treatment. Post removal may also be necessary. Further efforts may be required to correct radicular defects, ledges, calcifications, and separated instruments.

Retreatment cases vary greatly in complexity, requiring greater effort, time, and skill, and should be undertaken with due regard to practitioner ability and expertise. Retreatment may need to be augmented by other procedures such as apexification or transmucosal intervention.

Indications

1. An incompletely debrided or filled root canal system with a radiographically observable unfilled root canal space.
2. Cases of unresolved periradicular pathosis and radiographic evidence of a deficiency in the quality of root canal filling.

3. Cases where removal of existing obturation materials as dictated by anticipated restorative or prosthetic procedures.
4. Cases where persistent symptoms are associated with a previously treated tooth and there is reason to question the adequacy of previous endodontic debridement and/or obturation.
5. Evidence of prolonged coronal leakage into the root canal system.

Contraindications

1. Persistent apical inflammation despite evidence of adequate debridement and obturation and in the presence of an adequate cast restoration.
2. Presence of a vertical root fracture.
3. Calcification, separated instrument, and/or other errors precluding access to apical canal system.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic appearance of a dense, three-dimensional filling which extends as close as possible to the cemento-dentinal junction, i.e. without gross overextension or underfilling in the presence of a patient canal. No ledges or perforations are present.
3. No further breakdown of supporting tissues. If a tooth had a periradicular radiolucency indicating chronic periradicular disease at the time of the fill, then the recall radiographs should demonstrate a return to an intact lamina dura and normal periodontal ligament space around the entire root or roots under observation. If a tooth had a normal periodontal ligament space and intact lamina dura around the root or roots at the time of obturation, the subsequent postoperative radiographic appearance should remain the same.

APEXIFICATION

Apexification is a method of inducing apical closure or apical development of the root or roots of an incompletely formed permanent tooth with a pulp. It may involve several treatments over an extended period of time. Calcium hydroxide compounds are commonly used for this purpose. When root closure is complete, endodontic therapy must be performed.

Indications

1. Root pulp necrotic, with or without apical periodontitis.

Contraindications

1. Pulp vital.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Radiographic evidence of apical closure without supporting tissue breakdown.
3. No lateral root surface pathosis.
4. Healing of periradicular pathosis.

SURGICAL ENDODONTIC PROCEDURES

INCISION AND DRAINAGE - SOFT TISSUE

Incision and drainage is a surgical procedure designed to release accumulated byproducts of tissue breakdown, collect samples for bacteriologic analysis, and provide a more favorable gradient and pathway for drainage.

Indications

Acute swelling with localized fluctuance.

Contraindications

1. No abscess localized or fluctuating.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of accurate symptoms.
3. Reduction of acute cellulites with localized fluctuance.
4. Return to normal soft tissue architecture.

INCISION AND DRAINAGE - SOFT AND HARD TISSUE

Incision and drainage through both the soft and hard tissues is a surgical procedure performed to liberate accumulated byproducts of tissue breakdown by surgical reflection of the soft tissue and penetration of the cortical plate in the periradicular area.

Indications

1. For the relief of pain caused by a buildup of fluid within the bony tissue.

Contraindications

1. Fluctuating abscess that can be localized and drained.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Relief of acute symptoms.
3. No damage to root structure because of the procedure.
4. Soft tissue closure over the surgical site without fenestration.
5. No damage to the alveolar bone, roots of adjacent teeth, or other anatomical structures.

PERIRADICULAR CURETTAGE

Periradicular curettage consists of the removal of soft tissue and/or foreign material around the root apex without root end removal.

Indications

1. A marked apical over extension into the periradicular tissue of filling materials, that acts as an irritant.
2. A periradicular lesion that is enlarging after acceptable root carnal treatment, as noted on follow-up radiographs.
3. A persistent periradicular lesion that has not decreased in size one or two years after the completion of root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases when a biopsy or surgical exploration of the area is deemed necessary.

Contraindications

1. As the sole procedure for treatment of endodontic failures without addressing the cause.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the apex of the treated root(s) has a normal appearance with reestablishment of a normal periodontal ligament space.
3. No damage to adjacent teeth or anatomical structures.
4. No sinus tract present.

APICOECTOMY

Apicoectomy is a surgical procedure in which part of the tooth root apex is removed to evaluate or improve the apical seal of the root canal filling; to facilitate access for creation of a root end preparation for a retrofilling; to allow for curettage behind the root; or to remove a portion of the root that cannot be obturated because of severe curvature of the root, calcification of the root canal space, etc. This procedure may include curettage of the apical tissue.

Indications

1. A marked apical or lateral over extension of filling materials into the periradicular tissues.
2. A periradicular lesion that is enlarging as noted on follow-up radiographs.
3. A periradicular lesion that has not decreased in size one or two years after root canal treatment.
4. A persistent sinus tract or periradicular inflammation.
5. Cases where apical curettage reveal an inadequate seal of a previously filled root.
6. An unfilled apical portion of the root canal system not accessible from a coronal approach.
7. Roots that cannot be retreated nonsurgically because of an obstruction such as a post or a separated **instrument.**

Contraindications

When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.

2. Alveolar bone at the apex of the surgically altered root(s) should have normal appearance with reestablishment of the normal periodontal ligament space.
3. Sinus tract, if previously present, has healed.
4. No damage to adjacent teeth or anatomical structures.

RETROFILLING

Retrofilling is an additional procedure following apicoectomy by which a cavity is prepared in the root end or lateral aspect of the root and a biologically acceptable filling material is placed into that prepared cavity.

Indications

1. Correction of respective defects of the root.
2. Cases where the dentist is unable to negotiate a canal in a routine manner because of iatrogenic problems or anatomic complications of the canal system.
3. Previously treated teeth where an inadequate apical seal is indicated by a periradicular lesion which is enlarging or has not decreased in size over a two year period after completion of root canal filling.
4. A tooth that has periradicular symptoms or pathosis and had a post crown which cannot be removed.
5. Treatment of root perforations.
6. Persistent or recurrent signs and/or symptoms of laterial or periapical pathosis which cannot be sealed by a nonsurgical approach.

Contraindications

1. When retreatment is more feasible and will correct an obvious deficiency in debridement or obturation.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Alveolar bone at the site of repair of the treated root(s) should have normal appearance with reestablishment of the periodontal ligament space.

3. Retrofilling material should be within the confines of the root and should seal the root canal(s) and isthmus areas if present.
4. Scatter of retrofilling material into the surrounding bone should be avoided.
5. No damage to adjacent teeth or anatomical structures.

BIOPSY

A biopsy involves the surgical removal of a hard or soft tissue specimen for microscopic examination.

Indications

1. Tissue or foreign material is removed at or near the surgical site.
2. Unusual tissues are noted on clinical or radiographic examination.
3. A medical history indicates the merits of biopsy of all tissues removed. (See Oral Pathology Tissue Management)

Contraindications

1. For apical periodontitis of obvious or probable endodontic origin which would be treated by root canal treatment or nonsurgical treatment. (See Oral Pathology Tissue Management)

Outcomes Assessment

1. To establish or confirm a diagnosis by microscopic examination of tissues or foreign materials.

HEMISECTION AND BISECTION

Hemisection and Bisection (Bicuspidization) are surgical procedures that are used to separate a portion of the crown and one or more of the roots of a multirooted tooth. Both procedures are most commonly performed on mandibular molars. Hemisections may, however, be performed on maxillary molars or maxillary bicuspids. The separated segments may be removed or restored. In certain instances it is feasible to section a mandibular molar into two distinct separate roots.
34 Subsequently, the separate roots are restored as though each root was a bicuspid root. This procedure is commonly called a bisection.
Hemisection requires root canal treatment on all remaining roots. Bisection requires root canal therapy on all canals of each root. In each case, it is preferable to complete the root canals

fillings before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Crown fracture extending into the furcation.
4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and apical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root which is to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, recurrent periradicular pathosis, or periradicular inflammation where nonsurgical treatment or periradicular surgery is not possible.
8. Inoperative or uncorrectable resorptive defects of the root.
9. Furcal perforation.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of a furcation and periodontal pockets; total amputation of the coronal portion of the tooth that is associated with the root to be removed.
3. Adequate structure supporting the remaining roots(s) to maintain tooth function.
4. Remaining root in satisfactory condition.
5. Adequate root canal fillings in the remaining root.

ROOT AMPUTATION

Root amputation is the removal of a root of a multirooted tooth without the corresponding portion

of the crown when insufficient periodontal supporting tissue warrants the removal of this section of the tooth.

Root amputation requires root canal treatment of all remaining roots, preferably before the surgery.

Indications

1. "Through and through" periodontal furcation defects.
2. An untreatable infrabony defect in one root of a multirooted tooth.
3. Fractures extending into the furcation.

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4. Teeth where nonsurgical endodontic treatment is not possible or unsuccessful for at least one root, and periapical surgery is not possible.
5. Teeth with a vertical root fracture confined to the root to be separated and extracted.
6. Cases with secondary periodontal involvement.
7. Cases of persistent sinus tract, periradicular inflammation, or periradicular pathosis where nonsurgical root canal therapy or periradicular surgery is not possible.
8. Inoperative or uncorrectable root resorptive defects.
9. Furcal or stripping perforations.

Contraindications

1. Poor periodontal support.
2. All roots affected.
3. Abnormally short roots.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Elimination of the furcation and periodontal pockets.
3. Adequate supporting structure surrounding the remaining roots to maintain tooth function.
4. Adequate root canal fillings in remaining root(s).
5. Seal of all external openings into the pulp chamber.
6. Elimination of pre-operative signs and symptoms of pathosis.

REPLANTATION OF AVULSED TEETH

Replantation of the avulsed tooth involves the replacement of a tooth into its natural alveolus after it has been accidentally avulsed or luxated out of its alveolar socket. The goal is normal reattachment of the periodontal ligament and the return of normal tooth function. Success depends upon accomplishing the replantation as soon as possible after the accident and keeping the root moist during the extraoral period. The involved teeth should be stabilized for a period of time. Pulp tissues should be removed within two weeks following the injury. The intracanal treatment usually consists of placement of calcium hydroxide, which may need to be replaced periodically, followed by placement of an acceptable root canal filling material. These teeth should be periodically re-examined following replantation.

Indications

1. Tooth avulsed due to trauma.

Contraindications

1. Tooth with additional fractures compromising future root canal treatment.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic placement of tooth into the socket.
3. Minimal resorption of tooth root structure.
4. No ankylosis.
5. No breakdown of periradicular supporting tissues.
6. Maintenance of the tooth as a firm, functional member of the dentition.

INTENTIONAL REPLANTATION OR TRANSPLANTATION

Intentional replantation involves the removal of a tooth from its alveolar socket, the apical retrograde sealing of the canals or lateral root defect with an inert filling material, and the insertion of the tooth into its alveolar socket.

Intentional transplantation involves the same procedures as the replantation except the tooth is transplanted into the socket of another extracted tooth.

These teeth should be periodically reexamined following replantation or transplantation.

Indications

1. Pulpectomy or root canal treatment is not possible, has not been successful, or when conventional surgery in situ is not advisable.

Contraindications

1. Conventional orthograde or retrograde endodontic therapy can be performed.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Proper anatomic orientation of tooth in its socket.
3. Elimination or absence of lateral root or periapical pathosis (some root resorption may occur).
4. No periodontal pathosis.
5. Root length minimally shortened.
6. Proper placement of the apical seal(s).
7. Maintenance of the tooth as a firm, functional member of the dentition.

BLEACHING PROCEDURES

Bleaching is the reduction of discoloration of a vital or pulpless tooth through the application of oxidizing agents to the available surfaces of the affected tooth. Success in restoration to normal tooth shade and translucency is dependent upon the cause, severity, and duration of the discoloration.

INTERNAL BLEACHING

Internal bleaching is indicated for discolored teeth that have previously received a root canal filling. Assuming that the canal seal is adequate, 30 to 35 percent hydrogen peroxide, along with other activating agents, is used to affect the oxidation process.

Indications

1. Discolored teeth which have previously received a root canal filling.

Contraindications

1. Tooth has root filling of poor quality.
2. Extensive restorations of crown.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. Improved translucency.
4. No cervical external root resorption.

37 EXTERNAL BLEACHING

External bleaching is indicated for treatment of discolored enamel. It can use acid conditioning procedures along with oxidizing agents to lighten affected teeth. These agents are applied to the external surface of the tooth. This procedure is commonly indicated for teeth that are discolored because of endemic fluorosis or tetracycline staining.

Indications

1. Discolored vital tooth with normal pulp.

Contraindications

1. Extensive dental restorations.

Outcomes Assessment

1. No adverse clinical signs or symptoms.
2. Reduction in degree of discoloration.
3. No cervical external root resorption.

RESTORATIVE DENTISTRY

Definition of Restorative Dentistry

The discipline of Restorative Dentistry is that area of dental practice concerned with the diagnosis, prevention, interception, preservation and treatment of natural teeth defects by restorations and replacement with fixed partial dentures. These defects may include dental caries, erosion, abrasion, attrition, hypoplasia, developmental anomalies, hypocalcifications, discoloration, trauma, and missing teeth. Treatment goals are to restore the natural dentition to normal health and function. These goals can offer significant challenge and great satisfaction to both patient and clinician by transforming a poorly functioning masticatory system to an attractive, comfortable and healthy orofacial unit. Success requires meticulous attention to detail

from the initial patient interview through treatment planning and operative procedures into a planned schedule of follow-up care. Restorative treatment spans an age range from adolescence to geriatric patients. It also involves an array of clinical and laboratory procedures, thereby testing the depth of knowledge and experience of the clinician.

PIT AND FISSURE SEALANTS

Pit and Fissure Sealants protect caries-susceptible tooth surfaces least benefited by fluoride. Sealants can play a significant role in the prevention and control of dental caries in pits and fissures of primary and permanent teeth. Sealants should be placed as soon as possible after tooth eruption when isolation can be achieved without moisture contamination.

Indications

1. Non-carious or questionable carious primary or permanent, premolar and molar teeth with deep pits and/or fissures, and in the cingulum area of maxillary incisors with deep lingual pits and/or fissures.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Obvious dental caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the sealant.
2. Normal occlusal relationship maintained.
3. Sealant remains intact and covers susceptible pits and fissures.

PREVENTIVE RESIN RESTORATION

Preventive resin restorations are small, distinct composite resin restorations that are used to restore carious lesions followed by placement of occlusal sealants to protect susceptible, but uninvolved pits and/or fissures. Preventive resin restorations generally require minimal tooth preparation to remove caries from one or more susceptible sites in the pits and/or fissures.

Indications

1. Deep pits and fissures in primary and permanent teeth that are suspected of being carious or exhibit frank caries in isolated areas.

Contraindications

1. Inability to obtain isolation and moisture control.
2. Extensive caries.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the preventive resin restoration.
2. Normal occlusal relationships maintained.
3. Preventive resin restoration remains intact and covers involved and/or susceptible pits and fissures.

DENTAL AMALGAM

Dental amalgam is a direct placement, intermetallic compound, restorative material. It is used to restore tooth defects resulting from dental caries, tooth fracture, or to replace defective restorations. Dental amalgam requires sound tooth structure for support, retention and resistance form. The use of dental amalgam in restorations to replace cusps and large areas of tooth is not paradigmatic, and should be restricted where possible. When additional retentive designs are incorporated (pins, slots, posts) dental amalgam can be used as a core build-up material for subsequent crown restorations.

Indications

1. For restoration of tooth defects resulting from either dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. For use as a crown core/build-up restoration.
4. Patient economic resources.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Where esthetics is a primary consideration.
3. When there is not sufficient sound tooth structure to support and retain the restoration.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the amalgam restoration.

2. Normal occlusal relationships maintained.
3. The restoration remains intact and functions acceptably.

COMPOSITE RESIN (DIRECT PLACEMENT)

Composite resin is a polymer based resin matrix containing an inorganic filler particle phase. It is used to restore tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Composite resin is primarily used in anterior teeth where esthetics is a primary concern. However, it has also found use in posterior teeth where clinical conditions and patient preferences are appropriate.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, esthetic concerns, or replacement of defective restorations.
2. For use in Class I, III, IV, V or veneer anterior restorations.
3. For use in Class I, II, or V posterior restorations when:

- Esthetics is a primary patient concern.
- Appropriate isolation is attainable.
- Where there are some centric occlusal stops remaining in tooth enamel.
- Tooth reinforcement is required in situations where a cast restoration may not be an option.
- When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
- Restoration of the post-endodontically treated tooth in which minimal loss of tooth structure has occurred.
- Patient economic resources.
- Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.

3. When all occlusal centric stops would be restored with composite resin.

Treatment Goals/Expected Outcomes

1. No evidence of caries development beneath or adjacent to the composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

GLASS IONOMER

Glass ionomers are water-based cements consisting of alumnio-silicate glasses, interacted with a form of poly (alkenoic) acid, with or without a polymer based resin matrix. Glass ionomers are used to restore tooth defects from dental caries, tooth fracture, tooth defects, or to replace defective restorations. Primary use for the glass ionomer is in clinical situations where adhesion to tooth is required and fluoride release is a clinical benefit.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I (not including the occlusal surface), III or V restorations.
3. Restoration of root surface carious lesions.
4. When fluoride release may be beneficial.
5. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restorative material to tooth is required.
6. When esthetics is a consideration.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. When proper isolation of the operating field is not possible.
3. When occlusal centric stops or proximal contact areas would be restored with glass ionomer.
4. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.

Outcomes Assessment

1. No caries development beneath or adjacent to the glass ionomer restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

41 CAST GOLD INLAY

An indirect restorative procedure using cast gold dental alloy primarily in intracoronal restorations. The cast gold inlay is used to restore conservative tooth defects resulting from dental caries, tooth fracture, tooth defects, or to replace defective restorations.

Indications

1. For restoration of tooth defects from dental caries, tooth fracture, or to replace defective restorations.
2. For use in Class I, II, III, or V restorations.
3. Where patient has an occlusal function or needs a proximal contour that exceeds the capacity of dental amalgam or composite resin as suitable restorative material options.
4. When specific tooth contours are required, i.e. axial contours necessary for fabrication of a clasp on a removable partial denture.
5. A retainer for an etched metal restoration.
6. Patient preference.

Contraindications

1. When there is insufficient sound tooth structure to support and retain the restoration.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. Where esthetics is a primary concern.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the cast gold restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. Pulp vitality maintained.

4. The restoration remains intact and functions acceptably.

INDIRECT COMPOSITE RESIN INLAY/ONLAY

An Indirect Composite Resin Inlay/Onlay is an indirect restorative procedure using composite resin. Usually the composite resin will have received an additional extra-oral cure to improve its clinical performance. This is a restoration that is bonded to the tooth with a composite resin luting material.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV, V or veneer restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. Tooth reinforcement is required when a cast restoration is not an option.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Esthetics.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When all occlusal centric stops would be restored with composite resin.
7. When significant abrasive forces such as a clasp from a removable partial denture are anticipated.
8. When there is insufficient sound tooth structure to support and retain the restoration.

9. Patient preference.
10. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the indirect composite resin restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN INLAY/ONLAY

A Porcelain Inlay/Onlay is an indirect restorative procedure using dental porcelain as the restorative material. This is a restoration that is bonded to the tooth with a composite resin luting material and is primarily limited to use in the posterior teeth where esthetics and tooth reinforcement are indicated.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, esthetics, or to replace defective restorations.
2. For use in Class I, II, III, IV or V restorations.
3. When there is insufficient tooth structure for macromechanical retention and the ability to bond a restoration to tooth is required.
4. When tooth reinforcement is required in situations where a cast restoration is not an option.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When proper isolation of the operating field is not possible.
6. When there is insufficient sound tooth structure to support and retain the restoration.

7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the porcelain inlay/onlay.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and functions acceptably.

PORCELAIN VENEER

The porcelain veneer is primarily an esthetic restoration involving the incisor teeth and sometimes the maxillary premolars. A labial veneer is constructed in the dental laboratory and is bonded to the tooth with a composite resin luting material. These restorations are used to modify tooth color and contour.

Indications

1. For use on facial surfaces of incisor and maxillary premolar teeth.
2. When there is sufficient tooth enamel remaining (75% of the restored tooth surface).
3. Esthetic improvement of tooth color and/or contour.
4. Closure of anterior diastemas.
5. Normal occlusal function and posterior occlusal support.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. When proper isolation of the operating field is not possible.
4. When there is insufficient sound tooth structure, enamel, to support and retain the restoration.
5. Patient economic resources.
6. Unrealistic patient expectations.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal functions and tooth contours are maintained.

3. Desired, achievable, esthetic result obtained.
4. The restoration remains intact and functions acceptably.

PARTIAL CROWN COVERAGE-ALL METAL (Cast Onlay, 3/4 Crown, 7/8 Crown)

The Partial Crown Coverage-all metal restoration is an indirect restorative procedure which requires some cuspal coverage but less than full replacement or coverage of the enamel crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations involving a significant amount of the clinical crown.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (ALL METAL)

The Full Crown Coverage-all metal restoration is an indirect restorative procedure involving full replacement of the functional clinical crown.

Indications

1. For restoration of tooth defects from extensive dental caries, tooth fracture, or to replace defective restorations.
2. Short clinical crowns that would compromise retention of partial coverage restorations.
3. Restoration where definitive occlusal support is to be created and maintained.
4. Retainer for a fixed partial denture.
5. Retainer and rest seat for removable partial denture clasp.
6. Restoration of the post-endodontically treated tooth in which significant loss of tooth structure has occurred.
7. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal or endodontic prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Esthetics.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. Normal occlusal relationships and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (Porcelain Fused to Metal)

THE OXFORD DENTAL COLLEGE AND HOSPITAL
10th Milestone, Bommanahalli, Hosur Road, Bangalore - 560 068

IQAC.DOCUMENT.

The Full Crown Coverage-(Porcelain Fused to Metal) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. A cast metal core is veneered with dental porcelain to provide an esthetic and functional outer surface.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or to replace defective restorations.
2. Restoration where definitive occlusal support is to be created and maintained.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Esthetics.
6. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is not sufficient sound tooth structure to support and retain the restoration.
6. Patient preference.
7. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Normal occlusal relationships and crown contours are maintained.
3. The restoration remains intact and continues to function acceptably.

FULL CROWN COVERAGE (All Porcelain)

The Full Crown Coverage-(All Porcelain) restoration is an indirect restorative procedure involving full replacement of the functional clinical crown. The crown is fabricated from different porcelains without a metal substructure. These restorations are usually limited to single unit crowns and are indicated when maximum esthetics is desired for a full coverage crown.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, developmental defects, or replacement of defective restorations.
2. When full coverage is required and the esthetic demand is paramount.
3. Retainer for a fixed partial denture.
4. Retainer and rest seat for removable partial denture clasp.
5. Patient preference.

Contraindications

1. Patient has a demonstrated allergy or medical intolerance to a component of the restorative material.
2. Poor periodontal prognosis for tooth retention.
3. Presence of a direct pulp cap.
4. Patients with high and/or poorly controlled caries activity.
5. When there is insufficient sound tooth structure to support and retain the restoration.
6. Excessive or abrasive occlusal function.
7. Patient preference.
8. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the Full Crown Coverage-(All Porcelain) restoration.
2. Normal occlusal functions and tooth contours are maintained.
3. The restoration remains intact and continues to function acceptably.

IMPLANT SUPPORTED CROWNS

An implant supported crown(s) is a treatment option for patient with partial edentulism. Prosthodontic evaluation is performed to determine the patient's suitability for an implant supported crown(s). Surgical assessment is performed to determine if contraindications exist for implant therapy.

Indications

1. Lack of mastication.

2. Impaired speech.
3. Esthetics.
4. Partial edentulism.
5. Unsatisfactory existing prostheses.

Contraindications or Risk Factors Affecting Quality of Treatment

1. Bone factors (quantity and quality).
2. Pre-existing systemic conditions.
3. History of radiation therapy.
4. Insufficient interarch space.
5. Active periodontal disease.
6. Tobacco use.
7. Biomechanical loading factors.
8. Occlusal factors.
9. Current and past pharmaceutical therapies.

Outcomes Assessment (favorable)

1. Long-term preservation of supporting bone.
2. Improved function.
3. Improved speech.
4. Improved esthetics.
5. Reduced pain during function.
6. Preserve tooth structure.
7. Improved intra-arch and interact integrity and stability.

AMALGAM/COMPOSITE RESIN CORE BUILD-UP RESTORATION

A core restoration replaces tooth structure before crown fabrication. Without a core, there would not be enough remaining clinical crown for adequate crown retention and resistance form. Core restorations are fabricated from dental amalgam or composite resin and may or may not involve a post.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. A tooth with inadequate coronal structure to provide retention and resistance form for a crown restoration.
3. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal restoration.
4. There is enough tooth structure to provide support and retention for dental amalgam or composite resin.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient tooth structure remaining to adequately support and retain the core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries development beneath or adjacent to the restoration.
2. The restoration remains intact and continues to function acceptably.

POST RESTORATION

A Post is a restorative procedure in which part of a metallic post is placed into the prepared space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post can be either a prefabricated post or one which is custom made to adapt to the specific root canal space. The post provides a retentive base serving as a portion or all of the retentive form upon which a core build-up is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of coronal tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or extensive dental amalgam or composite resin restoration.

3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured form the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic apical seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

POST/CORE CAST METAL RESTORATION

A post is placed in an endodontically treated tooth to provide retention for the overlaying core of restorative material. The core serves as a foundation for the final tooth restoration. It is not intended for tooth reinforcement. When there is insufficient remaining tooth structure to adequately retain a direct placement post/core restoration, the cast metal post/core is a viable clinical alternative.

Indications

1. A tooth with successful endodontic treatment that requires a cast restoration.
2. As a foundation restoration for subsequent tooth restoration with a cast metal or porcelain fused to metal crown.
3. There is insufficient tooth structure to provide retention for the core component of the restoration.
4. A prepared post space that permits 3-6 mm of undisturbed root canal filling material as measured from the tooth apex.
5. A prepared post space at least equal to the length of the restored clinical crown.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately support a post and core restoration.
3. Inadequate crown to root ratio of the final restoration.
4. Tortuous canals or thin, ribbon shaped roots.
5. Poor periodontal prognosis for tooth retention.
6. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the case metal post/core restoration.
2. Absence of root fracture.
3. No compromise of endodontic apical seal.
4. The observed restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

NON-METALLIC POST RESTORATION

The non-metallic post restoration is a prefabricated post restoration that is either ceramic or fiber reinforced polymer material. The non-metallic post is placed into the prepared post space of an endodontically treated tooth. The remainder of the post protrudes into the space of the clinical crown. The post provides the retentive base serving as a portion or all of the retentive form upon which a core buildup is fabricated. The use of a post is subsequent to the placement of a proper root canal filling material which provides for a clinically acceptable apical seal. The non-metallic post is cemented using a total-etch / bonded technique.

Indications

1. A non-vital tooth with successful endodontic treatment.
2. An endodontically treated tooth with extensive loss of tooth structure, which by itself, is not adequate for retention and resistance form for a crown restoration, core buildup, or composite resin restoration.
3. A prepared post space that permits for a remaining 3-6 mm of undisturbed root canal filling material, as measured from the tooth apex.
4. A prepared post space at least equal to the length of the restored clinical crown.

5. In anterior esthetic situations where metallic posts which block light transmission in the cervical area of the tooth resulting in "graying" of the free marginal gingival.

Contraindications

1. Questionable or poor endodontic prognosis for the tooth.
2. Insufficient remaining tooth structure to adequately retain the bonded post and/or core restoration.
3. Poor periodontal prognosis for tooth retention.
4. Patient economic resources.

Outcomes Assessment

1. No evidence of caries beneath or adjacent to the restoration.
2. Absence of root fracture.
3. No compromise of the endodontic seal.
4. The restoration remains intact and continues to function acceptably.
5. Radiographic evidence of successful root canal therapy and absence of root fracture.

ETCHED METAL RETAINERS

An etched metal retainer is an indirect restoration that achieves its retentive form from micromechanical bonding between tooth enamel and microporosities in the metal retainer. The luting agent between the etched metal retainer and tooth enamel is a composite resin material and is, therefore, subject to all the clinical requirements of a polymer bonded restoration. These restorations rely on the availability of adequate tooth enamel for retentive form.

Indications

1. For restoration of tooth defects from either dental caries, tooth fracture, or to replace defective restorations.
2. For restoration of partial crown coverage of metal based crowns.
3. Abutments for short span (less than 2 pontics) etched metal fixed partial dentures.
4. Abutments for tooth splints.
5. Restorations to modify tooth contours facilitating design of a removable partial denture.

Inadequate periodontal support for abutment teeth, poor oral hygiene, inadequate clinical crown contours and/or strength of abutment teeth.

Outcomes Assessment

1. Partial dentures are retentive, stable; acrylic bases are adequately extended.
2. Patient is satisfied with esthetics, function, and comfort.
3. Remaining teeth and soft tissues are healthy.

INTERMEDIATE DENTURE

An intermediate or temporary denture for a patient who requests immediate replacement of teeth following extraction of remaining teeth. The intermediate denture is for esthetics more than function.

Indications

A patient who wants to maintain esthetics immediately after extractions.

Contraindications

Patients requiring extensive recontouring of alveolar bone or removal of tori.

Outcome Assessment

1. Dentures are retentive and stable.
2. Vertical dimension, centric occlusion, and esthetics are preserved.

PROSTHODONTIC RECALL EXAMINATION

A prosthodontic recall examination is regularly performed to evaluate the fit and performance of the complete or partial denture and the patient's oral health. Adjustments are made if needed; the denture or partial is polished, remaining teeth are examined and cleaned and prevention is reinforced.

Indications

A patient wearing removable partial or complete dentures.

Contraindications

None

Outcomes Assessment

1. Dentures and or partial dentures are stable and fit adequately.
2. Remaining teeth and soft tissue are healthy.
3. Any further treatment is explained to patient and treatment planned.
4. Preventive strategies have been reinforced to the patient.
5. Recall interval is agreed upon.

RELINE

A reline restores the tissue bearing surfaces of a denture base when base adaptation to the edentulous alveolar ridge is deficient. A reline can be performed on a complete or partial denture.

Indications

1. Lack of retention and/or stability of the maxillary or mandibular acrylic base due to resorption of the edentulous ridges or inadequate border extension.
2. Lack of retention and/or stability of the maxillary acrylic base due to an inadequate posterior palatal seal.

Contraindications

1. Retention and/or stability are affected by factors other than lack of tissue bearing surface adaptation.

Outcomes Assessment

1. Denture or partial is well extended, retentive, and esthetic.
2. Improved retention and stability result in patient satisfaction.

REBASE

Rebasing a denture replaces the original denture base to compensate for lost oral tissues while leaving teeth in their original position.

Indications

Denture teeth are positioned correctly and provide stable occlusion. The vertical dimension is correct and tissues are relatively healthy.

Contraindications

Dentures exhibit gross occlusal disharmony. Size, shade, and position of denture teeth are inappropriate or inadequate. The dentures have improperly extended borders.

Outcome Assessment

1. Dentures are retentive, stable, and esthetic.
2. Occlusion is preserved and functional.

ORTHODONTICS

CLINICAL EXAMINATION

All patients of record should receive an initial cursory examination noting facial form and occlusal relationships to detect possible malocclusion. All candidates for limited orthodontic treatment must subsequently receive a comprehensive evaluation. Limited treatment is defined as conditions that can be treated by tipping mechanics and that generally are correctable within six to nine months including the retention phase. This normally limits treatment to minor anterior alignment, uncomplicated molar uprighting, crown lengthening by means of forced eruption, space regaining, and non-skeletal crossbite corrections. The following data are recorded in the chart: medical and dental histories; extraoral facial evaluation and classification; occlusal relationships; functional problems related to mastication, speech and mandibular range of motion. Students are expected to obtain consultations related to pathology, periodontal problems and restorative treatment needs. Active disease must be detected and corrected prior to orthodontic

Treatment.

Indications

A cursory analysis of facial form and occlusal relationships is required for all patients of record. The in-depth exam described above is for patients with specific limited orthodontic treatment needs.

Contraindications

1. There are no contraindications for the cursory clinical examination.

2. The more in-depth analysis may be unwarranted if the patient has no interest in further treatment or desires referral for comprehensive orthodontic treatment.

Outcomes Assessment

1. Occlusal and facial relationships, functional problems and the morphologic basis of malocclusion are summarized in the orthogonal format.

2. All data and interpretations are recorded on the 4-D form.

3. The patient's chief complaint, collection of consults, determination of interacting factors, and supplement records to permit a thorough, comprehensive diagnosis for treatment planning are properly documented.

RADIOGRAPHIC PROCEDURES

All candidates for limited orthodontic treatment must have a panoramic radiograph and periapical and bitewing films sufficient to determine general health, root form and position, periodontal status and developmental status of the dentition. Lateral or posterior-anterior cephalometric, or other films will be ordered as necessary to assess skeletal relationships in the appropriate planes of space.

Indications

1. All developmental patients who are candidates for limited orthodontic treatment will have at minimum a panoramic film, anterior periapical radiographs and bitewing radiographs.
2. All information and interpretations are recorded on the 4-D form.
3. The health and morphologic variables of root form and position are properly determined.
4. Cephalometric films are accurately exposed with the patient in natural head posture. Landmarks and tracings should reveal that the morphologic basis of the patient's dentofacial relationships are accurately and comprehensively determined.

ANALYSIS OF DIAGNOSTIC, HAND-HELD, STUDY CASTS

Properly trimmed hand-held study casts are required for all patients receiving limited orthodontic treatment. The casts facilitate a more in-depth analysis of the patient's occlusion, arch form and symmetry, alignment problems and tooth size. These are indicated for assessing space requirements and tooth size discrepancies (Bolton analysis).

Indications

1. Patients receiving limited orthodontic treatment.

Contraindications

None

Outcomes Assessment

1. Impressions are accurate and undistorted, stored properly in 100% humidity with a wax occlusal registration in centric occlusion (maximum intercuspation) with additional wax registrations if there are occlusal discrepancies.

2. Impressions are poured as soon as possible, trimmed, and labeled to orthodontic specifications.

3. Casts are not distorted and accurate measurements are made. Analysis of casts produces a comprehensive data base for a thorough and accurate treatment plan.

4. All appropriate measures and interpretations will be included on the 4-D form.

TREATMENT PLANNING PROCEDURS

Treatment planning in ORT 841 is based on developing a prioritized problem list in three planes of space along with an assessment of significant interacting factors that may influence treatment decisions and outcomes. Students will develop the problem list with possible solutions, determine the appropriate goals (long term) and objectives (sequence of treatment procedures in the short term) to reach the treatment goals. A biomechanical plan that includes the patient's

chief complaint, consultations from other disciplines, anchorage requirements, force diagrams in all planes of space and a sequence of appointments to meet treatment objectives. Fees, limitations and risks, and retention requirements are also included for discussion during treatment planning. Treatment planning sessions are scheduled with an attending faculty member away from clinical activity to minimize distractions.

Indications

1. All limited treatment must be treatment planned with a signed 4-D form.

Contraindications

None

Outcomes Assessment

1. The treatment plans have goals and objectives stated along with a description of risks and limitations, fees, estimated time for active treatment, retention needs, appointment sequence with mechanical plan, description of the appliance and force diagrams, and faculty signature.
2. Patients are informed of their treatment needs and understand clearly the limitations and risks of orthodontic treatment.
3. Students have a clear understanding of the goals and objectives of the treatment plan and have an in-depth understanding of appliance design and management for each appointment.
4. Treatment occurs in a timely manner and effective retention strategies are implemented.
5. The patient is satisfied with the results.

TREATMENT PROCEDURES FOR LIMITED ORTHODONTIC THERAPY

Limited orthodontic treatment for ORT 841 typically refers to therapy that can be accomplished in 6- to 9-months. Force systems are usually restricted to tipping movements of the crown, but can occasionally involve some root movement with approval of the attending faculty. These requirements most commonly involve the correction of minor anterior alignment problems, uncomplicated molar uprighting, crown lengthening procedures, space regaining, and non-

skeletal crossbites. Treatments may use fixed or removable appliances as indicated by force analysis, anchorage requirements and sometimes patient request.

ANTERIOR ALIGNMENT

Indications

1. Misaligned anterior teeth with anterior crowding (no more than 2 to 3 mm), excess spacing (less than 3 mm), or minor rotations (less than 10 degrees) may be candidates for anterior alignment procedures. These may relate to repositioning teeth for esthetic purposes alone, or for correction of minor occlusal interferences, or for improvement of crown positions for esthetic crown restorations, or for abutment placement for fixed or removable prostheses.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Severe underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
6. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improved alignment of anterior teeth that meets esthetic, functional, and restorative or periodontal treatment objectives.
2. Alignment objectives are met within the estimated time.
3. Minimal trauma to teeth and supporting structures.
4. Anchorage units are stable with minimum displacement.

5. Patient maintains acceptable oral hygiene and periodontal maintenance during treatment. Retention measures are in place.
6. Prognosis for additional dental treatment is good.
7. Patient is satisfied.

MOLAR UPRIGHTING

The primary purpose of molar uprighting is to improve the axial inclination of a tipped molar that will serve as an abutment for a fixed or removable partial denture.

Indications

1. Tipped molar planned as an abutment tooth.
2. Eliminate unfavorable root proximity.
3. Eliminate or reduce periodontal pockets to enhance post treatment maintenance.

Contraindications

1. Advanced, uncontrolled periodontal disease.
2. Untreated pulpal disease.
3. Serve underlying skeletal discrepancies.
4. Complicated root movements.
5. Root resorption, poor root formation.
5. Ankylosis.
7. Insufficient anchorage.
8. Uncontrolled habits.
9. Uncontrolled caries.
10. Other negative factors are poor oral hygiene, unrealistic patient expectations, poor prognosis for long term stability, uncontrolled or untreated systemic disease, and poor patient/parent motivation.

Outcomes Assessment

1. Improvement of the axial inclination of a tipped molar to facilitate restorative and periodontal treatment and maintenance.

2. Treatment did not cause excess occlusal stress or cause significant vertical bite opening. (Frequent checks and occlusal adjustments are expected.)
3. Anchor units show minimal change, unless specific changes were planned.
4. Molar is uprighted to the desired position with minimal trauma to roots and supporting structures and with minimal occlusal interferences.
5. Treatment should be completed within an appropriate time interval and the prognosis for prosthetic treatment should be good.
6. Following active treatment, the uprighted molar is properly stabilized for a minimum of 6 weeks prior to abutment preparations.

FORCED ERUPTION PROCEDURES FOR CROWN LENGTHENING

Forced tooth eruption is primarily an adjunctive procedure to create sufficient crown length to facilitate restorative and endodontic treatments. Additional gingival and alveolar bone recontouring may be required in order to establish level crestal bone and gingival margin height.

Indications

1. Fractured or carious tooth requiring additional crown height.

Contraindications

1. Unfavorable crown/root ration, uncontrolled periodontitis.
2. Untreatable pulpal disease.
3. Inadequate anchorage.
4. Poor root morphology.
5. Root resorption, root fracture.
6. Ankylosis.
7. Other negative factors are poor oral hygiene, active caries, poor patient compliance.
8. Unresolved systemic illness may also contraindicate orthodontic treatment.

Outcomes Assessment

1. Adequate extrusion of an unrestorable tooth to facilitate restorative and/or root canal treatment.
2. Minimal trauma to the tooth and supporting structures.
3. The tooth does not exhibit excessive mobility.

4. Minimal unwanted changes in the anchorage segments.
5. The tooth is stabilized for a minimum of 6 weeks prior to restorative treatment.

SPACE REGAINING

The most common indication is to regain space lost during the mixed dentition due to mesial drifting of the first permanent molar resulting from the premature loss of a second primary molar.

Indications

1. Mesial drifting of the first permanent molar.
2. Skeletal relationships should be Class I with a balanced soft tissue profile.

Contraindications

1. Underlying tooth size-arch size discrepancy.
2. Severe crowding and/or skeletal jaw discrepancies that require additional corrective measures.
3. Space loss greater than 3 mm.
4. Space loss associated with bodily tooth migration.
5. Poor patient compliance.
6. Poor oral hygiene.
7. Inadequate anchorage.

Outcomes Assessment

1. Normal molar occlusion with sufficient space for the erupting succedaneous tooth.
2. Adequate space maintenance to preserve tooth positions until gingival emergence occurs.

NON-SKELETAL CROSSBITE CORRECTION

Indications

1. Crossbites of dental origin that can be corrected by dental tipping forces.

Contraindications

1. Severe bilateral posterior crossbites and anterior crossbites in which there are dental compensations for Class III jaw relationships.
2. Poor patient compliance.
3. Poor oral hygiene.
4. Active disease states of the hard and soft oral tissues.

5. Unresolved oral habits.
6. Vertical malocclusions involving either an excessively deep bite or an anterior open bite tendency.

Outcomes Assessment

1. Correction of the crossbite within the estimated time with minimal tissue trauma.
2. Placement of appropriate retention for a minimum of 3 months.
3. Following retention the correction should exhibit some rebound but settle into a stable occlusion.
4. There should be no functional shifts.

ORAL AND MAXILLOFACIAL SURGERY

EXTRACTION OF AN ERUPTED TOOTH

Indications

1. Pulpitis or pulp necrosis.
2. Periodontal disease.
3. Periapical pathosis.
4. Nonrestorable tooth.
5. Infection/abscess.
6. Malpositioned tooth.
7. Extraction necessary for prosthetic treatment plan.
8. Extraction necessary for orthodontic treatment plan.
9. Tooth associated with pathologic lesion.
10. Supernumerary tooth.
11. Extraction related to or in conjunction with medical disease.
12. Patient refuses other therapy for financial or other reasons.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.

4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Adjacent tooth (teeth).
7. Degree to which caries is present.
8. Size and density of alveolar bone.
9. History of endodontic treatment.
10. Relationship of tooth to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Absence of pain.
2. Absence of infection.
3. Uncomplicated healing of surgical site.
4. Restored function.
5. Complete hemostasis.
6. Removal of pathosis, if present.
7. Limited period of disability.

TREATMENT OF ODONTOGENIC INFECTIONS, INCLUDING INCISION AND DRAINAGE

Indications

1. Symptoms: pain, swelling, trismus, chills, altered function, malaise, dysphagia.
2. Clinical findings: erythema, tissue induration, lymphadenopathy, purulence, fistula, fever.

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3. Other findings: caries, periodontal bone loss, periapical pathosis, osteolytic area, abnormal results of blood count, positive culture or Gram stain.

Factors affecting risk

1. Presence of major coexisting disease or systemic condition(s).

2. Presence of psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Extent of infection.
6. Direction and/or rate of infection extension.
7. Virulence of microorganism.
8. Susceptibility of microorganism to antibiotics.
9. Ability to gain access to affected areas.
10. Relationship of infection to vital structures.
11. Root anatomy.
12. Ability to gain access to the tooth.
13. Lack of patient compliance.

Outcomes Assessment

1. Eliminate acute and/or chronic infection.
2. Limit pain.
3. Restore function.
4. Preserve vital structures.
5. Prevent recurrence.
6. Limit period of disability.

MODIFICATIONS OF THE DENTOALVEOLAR PROCESS (EG. TORUS REMOVAL, ALVEOLOPLASTY, SOFT TISSUE MODIFICATION, TUBEROSITY REDUCTION)

Indications

1. Clinical findings of dentoalveolar soft tissue or bone abnormality.
2. Infection, ulceration, and/or pain.
3. Speech abnormality.
4. Masticatory dysfunction.
5. Dysphagia.
6. Interference with prosthetic treatment.

7. Periodontal disease.

Factors affecting risk

1. Major coexisting disease or systemic conditions.
2. Psychological conditions or psychiatric diseases.
3. Patient age.
4. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
5. Infection or other pathology.
6. Anatomical location, size, and extent of the abnormality.
7. Relationship of the abnormality to vital structures (e.g. Maxillary sinus, inferior alveolar nerve).
8. Quality of alveolar bone or soft tissue.
9. Ability to gain access to the surgical site.

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10. Lack of patient compliance.

Outcomes Assessment

1. Adequate soft and hard tissue base for prosthetic reconstruction or rehabilitation.
2. Improved physiological condition of dentoalveolar structures.
3. Restoration, retention, and function of previously diseased tooth or teeth.
4. Improved mastication, speech, and/or appearance.
5. Pain relief.
6. Absence of infection.
7. Limited period of disability.
8. No unanticipated loss of hard or soft tissues.

PRE-SURGICAL EVALUATION

Pre-surgical evaluation is performed to assess the patient's chief complaint and medical history, and review systems, physical examination, and laboratory studies.

Indications

1. Presentation of a patient to the oral and maxillofacial surgery clinic for evaluation, diagnosis, care, and/or treatment.

Factors affecting risk

1. Incomplete initial assessment.
2. Communication barriers (e.g. Language, cultural, communication disorders, altered mental status or level of consciousness).
3. Patient's guardian's/responsible party's failure to disclose.
4. Physical barriers (e.g. trismus, obesity).
5. Psychological barriers.
6. Degree of patient compliance.
7. Other factors that would reduce the clinician's ability to make a complete, accurate diagnosis.

Outcomes Assessment

Achieving assessment goals resulting in adequate knowledge upon which to base a diagnosis, treatment plan, and/or to safely render treatment using either no anesthetic, local anesthesia, or conscious sedation.

CONSCIOUS SEDATION, USING PARENTERAL AGENTS, NITROUS OXIDE, AND/OR ORAL MEDICATIONS

Indications

1. Need to minimally depress the level of consciousness, anxiety, and/or pain so that the patient can undergo a procedure.
2. Need to retain the patient's ability to independently and continuously maintain an airway and respond to physical stimulation and verbal commands.

Factors affecting risk

1. Degree to which the patient and/or family understand the etiology and course of disease or condition, therapy goals, and acceptance of proposed treatment.
2. Major coexisting disease or systemic conditions.
3. Psychological conditions or psychiatric diseases.
4. Patient age.

5. Infection or other pathology.
6. Noncompliance with NPO recommendation.
7. History of drug allergies or sensitivities.
8. Psychological aversion to intravenous or intramuscular injections.
9. History of substance abuse.
10. History of untoward reactions or complications with anesthetics.
11. Lack of patient compliance.

Outcomes Assessment

1. Diminution or elimination of anxiety during therapeutic procedure.
2. Procedure completed.
3. Lack of unintended change in patient's level of consciousness.
4. Return to preanesthetic physiological and psychological state within 12 hours following cessation of anesthetic agent administration.
5. Anesthetic experience deemed satisfactory by both patient and clinician.
6. Lack of other complications or sequelae requiring follow up care related specifically to the anesthetic (e.g. phlebitis).

ENDOSSEOUS IMPLANTS

Indications

11. tooth and/or root fracture
12. missing teeth due to trauma
13. previous extraction sites
14. spaces created by orthodontic movement
15. endodontic failures
16. restorative failures
17. extractions due to periodontal disease
18. non-restorable teeth due to caries (following extraction)
19. to avoid preparation of virgin teeth for bridge abutments
20. anchorage for orthodontic tooth movement

Factors affecting risk

1. Presence of bone and/or soft tissue infection or pathology.
2. Inadequate prosthetic or surgical treatment planning (Implant Consent and Treatment Planning Form (5D) not completed).
3. Inadequate bone quality and volume.
4. Psychological conditions or psychiatric diseases.
5. Patient age.
6. Patient (or escort or family) competence or ability to understand procedure, post-op instructions, etc.
7. Systemic conditions that may interfere with normal healing process.
8. Inadequate oral hygiene.
9. Patient age.
10. Proximity of implant placement site to adjacent structures (eg, teeth, maxillary sinus, inferior alveolar nerve).
11. Lack of patient compliance.

Outcomes Assessment

1. Retained, stable, functional implant.
2. No evidence or peri-implant radiolucency (See Implant Radiographic Guidelines in Clinic Manual).
3. Peri-implant soft tissue health.
4. Patient satisfaction with function, asthetics, and ease of maintenance.
5. Limited period of pain and disability.

6. Patient (family) acceptance of procedure and understanding of outcomes.

ORAL PATHOLOGY

SOFT TISSUE EXAMINATION

All patients should receive a soft tissue examination of the oral cavity, tonsillar area and posterior pharyngeal wall, perioral tissue and upper neck. A dentist is also in a unique situation to observe the face which should be included in the visual examination.

This standard should apply to all new patients and recall patients after continuous dental treatment has been completed.

RADIOGRAPHIC EXAMINATION

All patients should receive a radiographic examination of the teeth and jaws prior to comprehensive dental treatment. Recall patients should undergo radiographic examination in accordance with published standards for periodic radiographic examination and signs and symptoms of disease.

Patients presenting with signs and symptoms of a disease process related to teeth, bone and maxillary sinus must have radiographs taken to help with the diagnosis and to determine the extent of the process. In addition, radiographs may be needed in evaluating soft tissue disease processes.

SOFT TISSUE AND RADIOGRAPHIC ALTERATIONS/ABNORMALITIES

All soft tissue and radiographic alterations from normal must be recognized, evaluated, diagnosed and managed appropriately. The diagnosis may require a variety of diagnostic tests and may require referral to additional health care providers. Management may be carried out by the original dentist or another health care provider.

TISSUE MANAGEMENT

All tissue removed from patients in the College of Dentistry and allied clinics undergoes gross and/or microscopic examination and findings placed in the patient record. Guidelines for facilitating this process are as follows:

A. Teeth with no attached soft or hard tissue and no abnormalities beyond caries

Example: Uncomplicated carious tooth

A gross description of the tooth and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of in compliance with human waste management standards.

B. Teeth with no attached soft or hard tissue and with variations or abnormalities excluding caries

Example: Dilaceration

Concrescence

A gross description of the tooth, a diagnosis and reason for removal are included in the patient's progress notes by the attending dentist. The tooth is disposed of as in condition A.

C. Teeth with no attached soft and hard tissue and with abnormalities excluding caries in which a specific diagnosis of the condition is required

66 Example Dentinogenesis imperfecta

Dentinal dysplasia

The tooth is submitted to oral pathology for gross and microscopic examination.

D. Teeth with no attached soft and hard tissue and no abnormalities in patients with unexplained symptoms associated with the teeth

Example Premature exfoliation of teeth

The tooth is submitted to oral pathology for gross and microscopic examination.

E. Teeth with attached soft tissue

In general, soft tissue is sent to oral pathology for gross and microscopic examination. An acceptable exclusion is the situation of an impacted tooth with pericoronal tissue interpreted clinically as dental follicle.

Criteria for what represents normal follicular tissue and what is pathology may not be clear-cut, but submission to an oral pathology laboratory for microscopic diagnosis should occur if any of the following is present:

1. A radiolucency of more than .4 cm.
2. A radiolucency that exhibits a sclerotic border.
3. A radiolucency that extends along the tooth root surface.
4. A focal increase in the size of the radiolucency.

5. A radiolucency that is associated with resorption of adjacent teeth.
6. A radiolucency that contains radiopacities.
7. Soft tissue lining a distinct cavity.
8. A cavity with luminal contents.
9. Luminal surface vegetations and growths.
10. Thickened lining.

A tooth with tissue interpreted as follicle receives a gross description which is entered in the patient's progress notes by the attending dentist. The tissue is disposed of as in A. However, the submission of normal follicular tissue for microscopic confirmation is totally acceptable.

Tissue required for submission to oral pathology includes periocoronal, periodontal and radicular pathology.

F. Teeth with attached non-diseased bone

Example Traumatic extraction

A gross description of the tooth and bone, reason for removal and interpretation of the bone are included in the patient's progress notes by the attending dentist and the tissue is disposed of as in A.

G. Bone specimens

All diseased or abnormal bone is submitted for gross and microscopic examination. Acceptable exclusions include non-pathologic bone associated with tooth extraction and pre-prosthetic surgery.

H. Soft tissue

All altered or diseased soft tissue is submitted for gross and microscopic examination. Acceptable exclusions are inflamed pulp, dental follicle as described in E and essentially normal tissue such as mucosa that is removed for treatment of impacted teeth and typical inflammatory periodontal disease.

Tissue removed from routine periodontal procedures may not be submitted for microscopic examination if the clinical and radiographic presentation follows the typical pattern of periodontal disease. A description of the tissue and reason for removal should be entered in the

patient's progress notes by the attending dentist. The tissue should be disposed of as in A, but it is acceptable to submit this tissue for microscopic examination.

Tissue removed in the following situations must be submitted for microscopic examination:

1. Discrete enlargement of gingival soft tissue excluding routine gingivitis.
2. Gingivitis refractory to normal treatment.
3. Isolated alveolar bone defects.
4. Rapidly progressing alveolar bone loss.
5. Areas of exaggerated bone loss in chronic periodontitis.
6. Medical history indicating a systemic illness and/or cancer.
7. Signs and symptoms of a possible undiagnosed systemic illness.
8. Unexplained etiology.
9. Persistent active disease after appropriate therapy.

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