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The Oxford Dental College, Bommanahalli
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Textbook of Public Health Dentistry

Third Edition

SS Hiremath



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INTRODUCTION

The good clinician thinks in qualitative terms. During the diagnostic examination, the dental practitioner not only goes for existing disease, but also tries to look ahead for the possibility of future disease. Measuring oral disease in a population however requires a more standardized and objective approach. Specific diagnostic criteria, written explicitly for clinical, microbiologic, radiographic and pathologic examination, has replaced the judgement of the practitioner. These criteria, meaning objective standards on which diagnostic judgement can be based, are applied to judge the condition of the oral tissues as they are at examination time, not on how they might be in the future. This objective application of diagnostic criteria is the most important philosophical difference between the epidemiological examination and that carried out for treatment planning.

An index is a representation of clinical observations of numbers. It is used usually to describe the relative status of the individual or the population with respect to a particular condition/disease being measured. Indices using various criteria have been developed to compare the extent and severity of the diseases. These measurements aid in the overall assessment of the oral health status.

Thus dental index or indices can be considered as the main tool of epidemiological studies in dental diseases to find out incidence, prevalence and severity of the diseases, based on which preventive programmes are adopted for their control and prevention.

DEFINITION OF INDEX

An index has been defined as a numerical value describing the relative status of a population on a graduated

scale with definite upper and lower limits, which is designed to permit and facilitate comparison with other populations classified by the same criteria and methods (Russell AL).

OBJECTIVE OF AN INDEX

The main purpose or objective of using indices in dental epidemiology is to increase understanding of the disease process along with measurement of the disease prevalence and incidence, thereby leading to methods of control and prevention. In addition, it attempts to discover populations at high and low risk, and to define the specific problem under investigation.

The simplest form of measuring any disease is by a count of the number of cases, but going one step ahead and making more meaningful results by expressing it in terms of proportion or rate will be a much more useful measure, as the results of different populations can be compared.

PROPERTIES OF AN IDEAL INDEX

Validity

If the index measures what it was supposed to measure, it is said to be valid. The scores should correspond with the clinical condition.

Reliability

The index that gives the same measurement at different occasions is said to be reliable. The term *reliability* is also called as *reproducibility*, *repeatability* and *consistency*, meaning the ability of the examiners to interpret and use the index in the same way under different conditions.

Caries Risk Assessment

Hiremath SS and Archana Krishnamurthy

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INTRODUCTION

Dental caries is a chronic, transmissible, carbohydrate modified, local infection with saliva acting as an important regulator. The initiation, development and progression of dental caries are influenced by combination of a variety of factors like oral health status, aetiological factors, preventive factors, modifying factors and other risk factors. Because of its multifactorial nature, the pattern and prevalence of dental caries is highly variable and unevenly distributed. The risk for caries development also varies significantly for different age groups, individuals, teeth and teeth surfaces. Hence, caries preventive measures should not only be tailored to the individual's risk, but also should target teeth and surfaces at risk.

RISK GROUP

Risk groups can be divided into two categories: (i) risk age group and (ii) other risk groups.

Risk Age Group

According to some recent studies, initiation of dental caries is age specific, especially in children and also in adults. The prime risk period in children for initiation of caries seems to be during eruption of permanent molars and at the time when enamel is undergoing secondary maturation. In adults, root caries development is seen in the older age group, which could be attributed to a higher prevalence of exposed root surfaces.

Age 5–8 years. The risk of caries development in 5–8-year-old children is high owing to the eruption of first permanent molars. The enamel of erupting and newly erupted permanent teeth is considerably more susceptible to caries development until secondary maturation is completed, which takes about two years of eruption.

Age 11–15 years. The risk of caries development in 11–15 year old children is high due to eruption of second permanent molar. Normally, second molar erupts at the age of 11–12 years and total eruption time ranging from 14–18 months. The proximal surfaces of newly erupted posterior teeth are usually at maximum risk for caries development. Therefore, 11–15 years olds have not only by far the highest number of intact tooth surfaces but also the more number of surfaces at risk.

Young adults and adults (19–22 years). The risk at this age group can be attributed to the erupting or erupted third molars without full chewing function and having highly susceptible fissure for caries on mesial surfaces. In addition, changes in lifestyle, oral hygiene habits and dietary practices due to peer pressure (towards good or bad habits) increases the risk for development of dental caries.

Older adults. Individuals in this group having multiple restorations with plaque-retentive margins and exposed root surfaces as a result of chronic periodontitis are susceptible for root caries development.

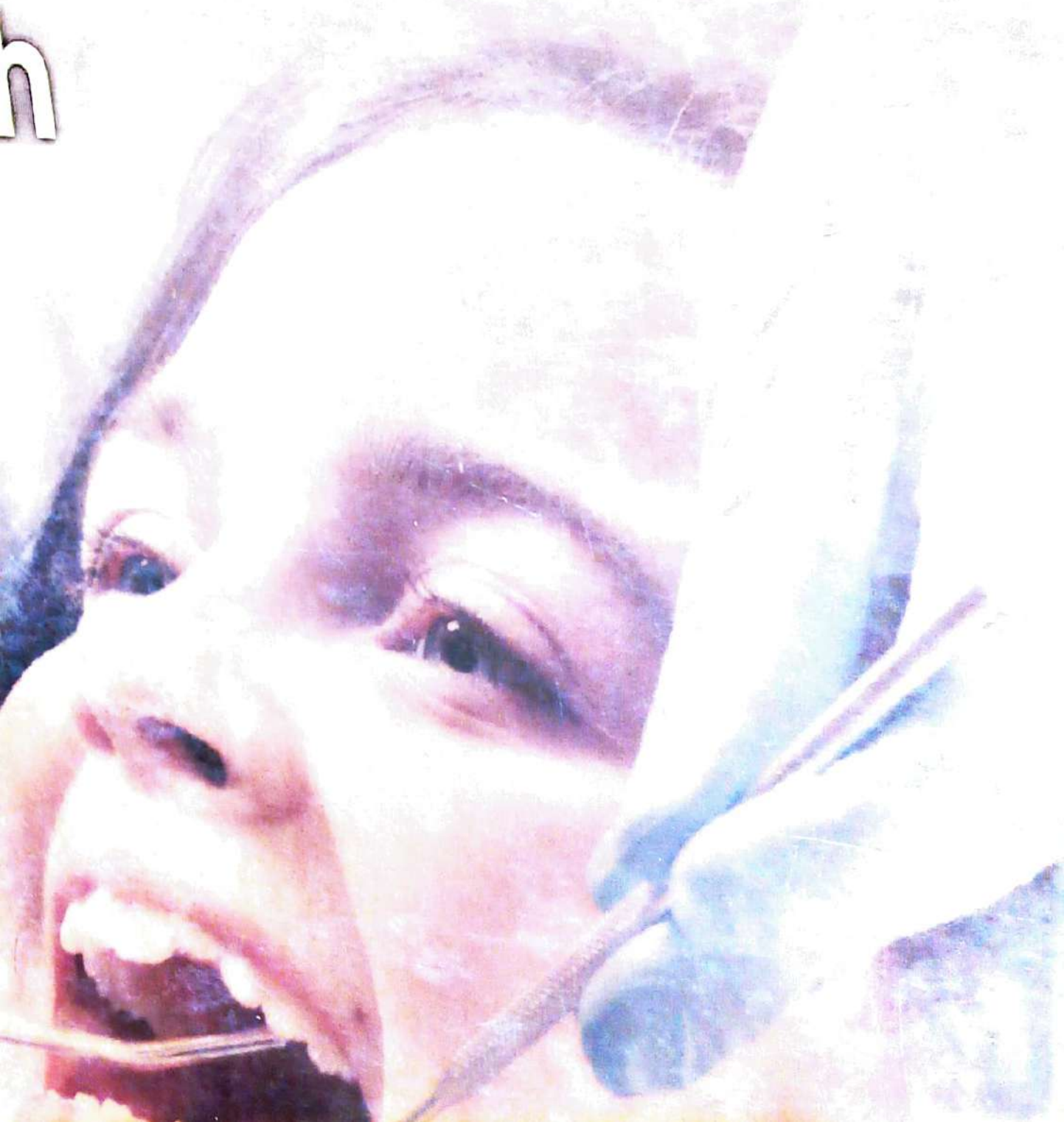
Other Risk Groups

Mothers with High Salivary Mutans Streptococci (MS)

Mothers are the prime source from whom MS is transmitted to their children as soon as first primary tooth erupts. The enamel of erupting and newly erupted primary teeth has voids until completion of secondary maturation, and hence is highly susceptible for caries development. The specific immune system is also immature, particularly the immunoglobulin in saliva among 1–3 year olds. In addition, if oral hygiene maintenance is poor, it favours the establishment of carious micro flora.

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Third Edition



Dental Practice Management

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Shankar Aradhya MR and Shilpashree KB

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INTRODUCTION

Successful dental practice is a result of proper management of resources, professional skills, relationships with other health care providers and public in general. In India, commoners are largely dependent mainly on government health care delivery systems in which dental services are integrated with medical services while the affluent get private services for a fee. In recent years, policies of the government have allowed the participation of individual and multinational groups in private health care systems. Dental requirements of the public in India are vast, varying and largely unmet. An effort is made in this chapter to understand the concepts of "dental practice management" and its application in the Indian scenario.

Patients, most commonly, present themselves with painful tooth or bleeding gums to the dentist. The outcome is the relief provided, for which patient pays for the services, in full in private or partly in a government centre. The term "practice" means arrangement or an agreement to provide certain services under a roof by an authorized person. "Management" means the effective mode of provision of these services in a setting. Dental practice management is therefore the services provided by the dentist and auxiliaries in a clinical set-up.

FACTORS ASSOCIATED WITH SUCCESSFUL DENTAL PRACTICE

Positive impact on virtually all facets of practice is best related to a well-planned dental office which improves productivity. Several factors are responsible for a successful dental practice and are listed in the order of priority as: (i) location and designing of dental office, (ii) equipment and materials, (iii) financial resources, (iv) patients in practice, (v) fee for service, (vi) personal qualities required of the dentist, (vii) records and accounting, (viii) growth and expansion and (ix) measure of success in practice.

Location and Designing of Dental Practice (Fig. 23.1 a and b)

Locating a new dental practice either in a city or town is a serious dilemma for a new graduate. Ultimately, the dentist has to consider as to where he or she would like to settle down, get married and raise family. Consideration to children's future needs, social life, entertainment and community activity should be addressed. Established dental practice should not be shifted unless owing to unavoidable circumstances; relocation usually has severe repercussions financially and personally.

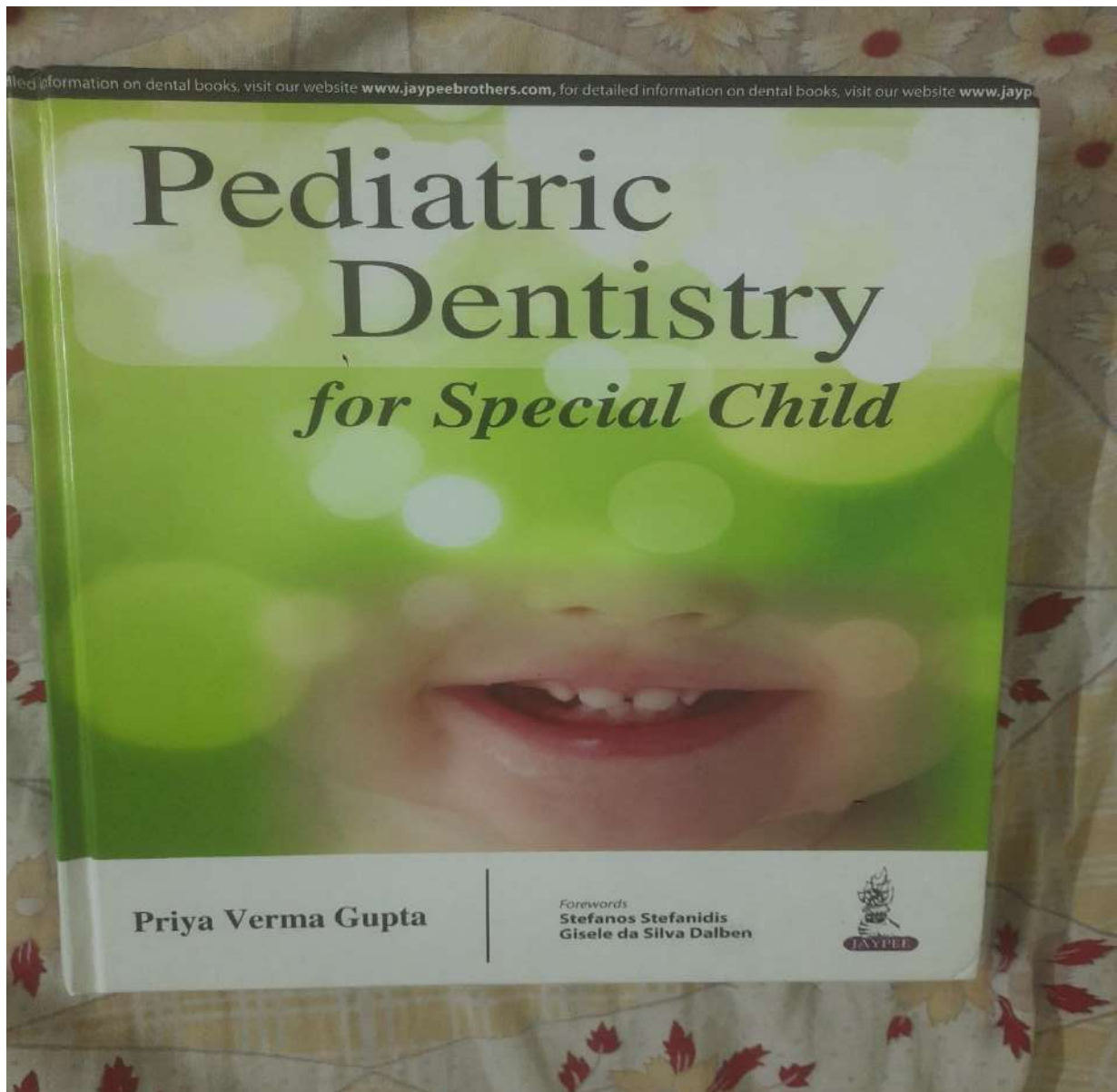
The location for opening up of the dental practice could be in: (i) business area, (ii) professional area or (iii) residential area.

Each area has distinct advantages and disadvantages. For example, starting practice in a *business area* in the city, one will encounter the difficulty in acquiring the ideal place, floor area and the easy access desirable for dental practice. The business area can be very expensive with high rental or building value, but being centrally located where most people can easily locate a dentist when they are in need. The returns in city practice are more lucrative. The town practice usually is quiet. *Professional area* is one where a number of medical practitioners, specialists and other professionals are concentrated and know each other by the practice of trade. This set-up has referral system for patients. In the *residential area*, this practice is confined to having patients within the locality where the dentist resides.

The floor plan of dental office is the most important step in the entire planning process which will focus on functions performed in the clinic. It depends upon type of practice and must include provision for patient waiting area, consulting chambers, private rooms, operation, recovery, laboratory, utility room and rest rooms.

The most efficient shape for dental office is a square or rectangle and to avoid long and narrow shapes, triangular or odd shapes. The clinic should be well ventilated with windows allowing the patients to have a view into the landscaped area. The dental office interiors must fulfill a wide range of diverse needs and choose colors

Dr. Kiran K Chapter Edited



Pediatric Dentistry *for* *Special Child*

First Edition

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- Presents unique management strategies necessary to manage children with special needs.
- Includes current trends of pharmacological behavior management. E.g. Nitrous oxide oxygen inhalation sedation.
- A special chapter dedicated to understand the needs of special children in hospital set-up along with other aspects, i.e., admission procedure, clinical records and medico-legal issues.
- Serves as one point source of information for postgraduate students, teachers, clinicians, pediatric dentists and pediatricians.

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Recommendation
DENTISTRY



Concise
Conservative Dentistry and Endodontics

Concise Conservative Dentistry and Endodontics is a comprehensive book covering the entire syllabus prescribed by Dental Council of India (DCI) in two sections consisting of 48 chapters altogether. It is written in easy-to-understand format which is enriched with numerous line diagrams, tables, flowcharts, boxes, colour photographs, radiographs and highlighted text.

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- Question bank and suggested readings



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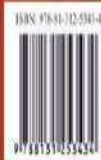
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Concise
Conservative Dentistry & Endodontics

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Fundamentals of

Periodontology and Oral Implantology

3rd Edition

Edited by:

**Dilip G Nayak
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Questions

Suggested readings

35. Determination of prognosis

Chapter overview

Overall versus individual prognosis

Determination of a prognosis

Re-evaluation of prognosis after phase 1 therapy

Questions

Suggested readings

36. Periodontal treatment plan

Chapter overview

Rationale for treatment plan

Questions

Suggested readings

37. Treatment of periodontal diseases in medically compromised patients

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| SECOND EDITION |

TEXTBOOK OF ORTHODONTICS

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To
My Teacher

I wish to have your epithets

To teach is to touch lives forever! As my role model you inspire me.
With appreciation when I look back, you touched me with your humanistic approach.
My teacher, well-informed but a good learner
who thinks with 2H — Head and Heart, with sensitivity and insight.
When I look back what you've taught me — To be positive, confident, yet unpretentious.
To ensure the brightest possible future for each of us, giving your time and experience.
Your influence on my life never stops.
Thank you, teacher, for giving me a goal to shoot for:
Thank you, teacher, I want to be like you!
But always as a student to you.

Dedicated to
My Teacher

Prof Dr V Surendra Shetty, MDS

Dean and Professor, Department of Orthodontics
College of Dental Surgery, Mangalore

Who taught me A, B, C of ORTHODONTICS and also who asked me to learn
other alphabets, words and sentences throughout my life as a student.

FOREWORD

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Dr S Gowri Sankar, Professor of Orthodontics, Narayana Dental College, Nellore, Andhra Pradesh, towers over certainly many academicians. He had been charismatic all along attracting scores of organizations to award gold medals for his outstanding performance. He has authored over 4 books for MDS entrance preparation. Dr PS Viswapurana and Dr Venkata Ramana Vannala have also added many publications to their credit in the field of Dental Science. Now, the trio has jointly written a very interesting book entitled “*Textbook of Orthodontics*.” You may agree the knowledge has steadily grown in almost every discipline, so also in dental science, and orthodontics cannot be an exception. The book written on the said subject keeps you abreast of what they have learnt in prospective modern times and reflects the experience they gained at crucial point of teaching the subject.

The modern mind and new generation dentists always demand revolutionary interrogation, questioning and cross questioning so as to rush forward to gain entry into the hidden truths. They expect the book shall also provide clues to research though with brevity. There are such characteristics in this “*Textbook of Orthodontics*.” The language and method of expression is specific and clear. The authors have immensely succeeded in writing this textbook in an acceptable manner.

The author has dedicated this book to his teacher Professor Dr V Surendra Shetty, Dean, Professor, Department of Orthodontics, College of Dental Surgery, Mangalore. Therefore, I understand no knowledge he acquired was ever easy without the guidance of Dr V Surendra Shetty. Hence, you may also find some footprints of their teacher in this book. The author have repaid a lot of tribute and marked respect to his teacher who ignited the flame of learning in him. The authors have tried to answer “*How can we further improve the knowledge in this vast field orthodontics?*” Their step is certainly in the right direction.

I feel the book will benefit the students immensely. It is a valuable contribution by the authors to the field of Orthodontics.

FOREWORD

Rafi Romano, DMD, MSc
Past President
Israeli Orthodontic Society



It is with great pleasure that I write this foreword to one of the outstanding, comprehensive textbook in orthodontics, attributable not only to the group of experts gathered together by its two distinguished editors, but also to the content that is perfectly suited to and fills the deficiency of information that orthodontists and general practitioners find in both theoretical and practical aspects.

Reading through the chapters, one can focus on the important points that reflect the authors' diagnosis and treatment in orthodontic patients. The literature is covered extensively and entirely up-to-date.

I truly believe this textbook will be utilized in undergraduate and postgraduate programs and private clinics alike.



PREFACE TO THE SECOND EDITION

In the preface to the first and revised editions of this book, I remarked on the paucity of introductory comprehensive texts devoted to the undergraduate students. The state of affairs has been remedied with the introduction of this book. It has been gratifying to see the first edition of this book well received by the professional colleagues as well as the student community all over India. Constructive criticism, commentaries, suggestions and feedback were received for our first edition. With this background, we feel exalted in bringing about this second edition of the book.

Orthodontics is a fascinating clinical field in dentistry. It is also one of the most rapidly changing fields. The past decades have witnessed tremendous progress in the field of orthodontics. The primary goals in preparing this second edition, over and above the pedagogical aims of the first edition is to update and expand new evidences found in the literature. New chapters and diagrams are added. Two new chapters devoted to “*Distraction osteogenesis*” and “*Aligners*” are added. More emphasis is placed on the diagnosis section of functional appliances and new innovations in fixed appliances are also appended. Around 25 new diagrams and figures are included. Care has been taken to leave the basic pattern of the book and the numbering system of figures and diagrams unchanged. The book is written to provide the dental student with a firm basic knowledge as well as to refresh his knowledge about the recent advancements. However, even among this cornucopia of literature, I hope that this updated version of the original text will continue to be useful. I modestly submit that unintentional errors may have occurred due to our ignorance in this vast field of orthodontics. I plead the readers for any indulgence of human errors that may have appeared inadvertently. We are still learners in this subject and solicit your constructive criticism for the improvement of this book.

S Gowri Sankar

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PREFACE TO THE FIRST EDITION

Orthodontics is a fascinating clinical field in dentistry. It is also one of the most rapidly changing fields. Keeping this in mind, we are very much exalted in bringing about the revised edition of this book with in modest instance of its first release. The first edition has been well received by the colleagues as well as the student community. Keeping in view the suggestions and feedback received, we have modified few chapters and some diagrams have been replaced.

The book is written to provide the dental student with a firm basic knowledge as well as to refresh his knowledge about the recent advancements. The contents of this book are sieved material of great scholarly works of our teachers, which we have come across right from our undergraduate days, with added flavour of recent developments in the field.

The book is written in accordance with the guidelines of the Dental Council of India for undergraduate students. The contents of the book are divided into sections for ease of reading and learning. The sections are arranged in sequential and systematic manner. The material is very simple with lucid language but at the same time comprehensive in nature. The subject is made illustrative in nature with more than 1000 figures, diagrams and photographs. We have stressed the importance of acquisition of knowledge and not merely passing the examinations. The wire bending exercises are demonstrated in appropriate chapters making the book useful for practical purposes also. However, a student's knowledge is judged by the final university theory or board examinations. To have an insight we have given the university questions at the end of each chapter. No doubt this book is also useful for practising dentists to update their clinical knowledge. Although this is not an all-in-one compendium for postgraduate students, we hope it will serve as a starter book to the course. We are optimistic that this book also will receive unremitting benefaction from the students.

Unintentional errors may have occurred due to our unawareness in this vast field of orthodontics. We are still learners in this subject and solicit your constructive criticism for the improvement of this book.

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