

# **Illustrated Pediatric Dentistry**

## **(Part I)**

Edited by

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## **Illustrated Pediatric Dentistry (Part I)**

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## FOREWORD 1

It is my great pleasure to pen down a foreword for this tremendous book on Pediatric Dentistry for a legend and doyen of the subject, a mentor and guide to the brightest of minds in the field of dentistry.

Rising from the fundamentals, comprehensive in-built, contemporary and authoritative in construct and approach, and hands-on to the core, *Illustrated Pediatric Dentistry* is a wonderful work engineered by some of the best-known academics in this noble realm. The chief author, **Professor Satyawan Damle**, is a colossus among giants, having been a celebrated teacher, distinguished leader, and dynamic policymaker at several dental institutions and universities, including the most prized, the University of Mumbai.

Prof. Satyawan Damle is the rare blend of a gifted clinician and a carved-out academic guru whose intellect has emerged with decades of practice. It is no secret that the degree of acquisition of knowledge by students is one of the measures of the effectiveness of a medical curriculum; and with Pediatric Dentistry being one of the crucial epicentres of growth, it has the potential to make momentous advancements in the evolutionary trajectory of oral and general health.

His co-editors **Ritesh Kalaskar**, **Abdulkadeer Jetpurwala**, and **Dhanashree Sakhare** are examples excellence in their arena. The work reflects their collective understanding of where pediatric dentistry stands today, what have been the treasures and well-kept secrets of the past, and where this tree of knowledge finds fruition today paving way for the future.

Embedding best care practices of all times, *Illustrated Pediatric Dentistry* is a comprehensive yet concise work, which fulfils the essentials of the pediatric dentistry curriculum both for graduates and postgraduates across all universities.

Walking you through the nitty-gritties of preventive, curative and restorative childhood dentistry, be it the behavioral challenges, cariology, endodontics, traumatology, para-surgical themes such as the use of conscious sedation and general anaesthesia at that age, and the management of medically compromised children, the work is a tree of knowledge, nurtured with experiential learning, and carries wonderful blossoms of practical wisdom.

Let us savour and celebrate the chef-d'oeuvre. Indeed, *Illustrated Pediatric Dentistry* is a must-read and must-assimilate work for each one of us. Students, practitioners and teachers of Pediatric dentistry will cherish it as a treasured possession on their shelves. I congratulate Prof. Damle and Bentham Science, Singapore, for publishing this irreplaceable tome.

**Prof. (Dr.) Mahesh Verma**  
Vice Chancellor  
Guru Gobind Singh  
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New Delhi,  
India

## FOREWORD 2

I am delighted to write this foreword for a Book of Illustrated Pediatric Dentistry authored by Professor Satyawand Damle and other academicians. Prof. Satyawand Damle is a well-known researcher and academician with over 44 years of clinical and teaching experience in Dentistry. Besides the several posts and hats he wore in the various roles he played for the profession, he is also a recipient of several awards and recognitions, including the Lifetime Achievement Awards, Outstanding Public Servant Awards, and Research Awards and Fellowships. He is an active member of the Indian Council of Medical Research. Despite his extraordinary achievements as a Pediatric dentist, researcher, and academician, Prof Satyawand Damle will always be known as the longest-serving chief editor of Indexed journals. For almost 35 years. He dedicated himself to overseeing the publication of the highest-quality peer-reviewed studies and opinion pieces on child dental health.

Prof. Damle is actively involved in writing several books on Pediatric Dentistry and Dentistry, which is the testimony of his in-depth knowledge of the subject. The Book of Illustrated Pediatric Dentistry is their new venture initiated by him. I am confident that this book will be accepted by students and faculty involved in teaching Pediatric Dentistry. His work as a teacher, researcher, innovator, visionary and extraordinary academician made him a legend. His role as a mentor and friend made him a role model to those of us who know him and worked with him. His legacy persists not only in academics but also as an able administrator, as he proved his mettle as the Dean of a dental school, Director of Medical Education, Joint Municipal.

Commissioner of Mumbai and, ultimately, the Vice Chancellor of a University. Prof. Damle has worked conscientiously and untiringly to present an unmatched educational endeavour. The topics in this book display a clear and succinct clinical expertise and the capability of imparting updated education and information to Oral Health Professionals. The entire volume of this book deals with ultramodern and current state-of-the-art techniques. I take this opportunity to congratulate Prof. Satyawand Damle and his team of contributors - Ritesh Kalaskar, Abdulkadeer Jetpurwala and Dhanashree Sakhare for having published this Textbook for Bentham Sciences.

**Dr Ashok Dhoble. Hon. Secretary**  
General, Indian Dental Association H.O.  
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## PREFACE

It is imperative to have an established approach to handling Children's oral diseases. **'Illustrated Pediatric Dentistry,'** is an unpretentious endeavour to integrate the latest developments and up-to-date reviews in the field of Pediatric dentistry by distinguished writers. The book intends to allow students to understand the conceptions of Pediatric dentistry and create a spur to discover the subject by advance reading. Several illustrations, descriptions and graphic drawings have been included to attract the students and make the subject simple to comprehend. A healthy mouth is a gateway to a healthy body and the best time to inculcate healthy habits is through childhood. Prevention of the initiation of oral diseases and training appropriate oral hygiene methods are commenced best throughout the formative years of the child. With a substantial percentage of the worldwide population being in the Pediatric age group, it is imperious to have a scientific approach in the behaviour management, prevention and treatment modalities in the dental office, as Pediatric dentistry is a fast-growing division of dental disciplines that lays the basis for the impending dental health of the populace.

The book has been divided into several sections. The sections on child psychology and the emotional development of children are important to learn the basics of various behaviour management strategies. The section on dental caries sensitizes the reader towards the most common dental disorder that is seen in children, and preventive procedures aimed towards lessening dental caries are the necessity of the hour. While an endeavour has been made to include the growth and development of the facial structures and dentition and along with their disturbances and the interceptive and preventive procedures to monitor the erupting teeth.

Pediatric Operative techniques, including endodontics and management of teeth with immature apices affected due to Dental caries and traumatic injuries have been given prominence. Innovations in the field of Pediatric dentistry are transpiring amazingly fast, and it is crucial to stay up to date with the latest materials, equipment and techniques to deliver the highest quality of care to our little patients.

The New Book cannot be successfully compiled without the collective contribution regarding meticulous reviews of the manuscript to keep pace with the latest innovative novelties. The credit for introducing a New Textbook goes to the contributors for their engrossment, devotion and dedication in presenting a manuscript after applying prudent and well-adjudged scrutiny and analytical approach and have excelled in exploring the things to the ultimate.

Accumulation of information and its cogent management would not have been conceivable without the efforts of the contributors who have painstakingly submitted their manuscripts to shape this gargantuan task and to introduce this book in the service of Pediatric dentistry.

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We do not find such appropriate words to praise the unique nature of Dr. Mahesh Verma, Vice Chancellor of Guru Gobind Singh Indraprastha University, New Delhi, who himself being a great resolute and connoisseur of dentistry occupying an illustrious position with an eminent background in dentistry, has spared his valuable time from his busy schedule to inscribe the foreword for the Textbook of "Illustrated Pediatric Dentistry." We take it as inventiveness and encouragement rather than a morale-boosting for us to uphold and keep up our determination to satisfy our hunger for academics for the advantage of budding dental professionals.

We also do not find such befitting words to laud the unique nature of Dr. Ashok Dhoble Hon, General Secretary Indian, Dental Association Head Office, who himself being a great advocate and connoisseur of dentistry occupying a distinguished position with an illustrious background in dentistry has spared his precious time from his busy schedule to write the foreword for the Textbook of Illustrated Pediatric Dentistry. I take it as an inspiration and encouragement rather than a morale-boosting for us to uphold and keep up our determination to satisfy our hunger for academics for the advantage of budding dental professionals.

We are also indebted and beholden to the contributors for their altruistic and substantial contribution to make this Textbook of Illustrated Pediatric Dentistry, a great academic endeavour. The contributors are highly competent and knowledgeable clinicians known for their aptitude and capability, which have successfully recognized the most complex and convoluted details of each topic, duly integrating and blending the latest advancements and innovations in Pediatric Dentistry. They are a terrific hard worker and legendary luminaries known for their admirable accomplishments and remarkable involvement in dental education. They have made lots of efforts to lead things to excellence. Credit goes to these patrons and benefactors for the benevolent bequest of their vast knowledge and experience for the betterment of dental education.

We would also like to thank Dr. Priyanka Bhaje, Dr. Parag Kasar, Dr. Sharath Chandra, Dr. Prachi Goyal and Dr. Vidya Iyer for their painstaking efforts and intransigent toil during the editing of this book. They displayed exceptional patience, forbearance, and commitment during the preparation of the book. Our dream has come true due to the support of our past and present students. Credit also goes to our family members for their tolerance, Love, and affection.

We would like to appreciate the efforts of Mrs. Humaira Hashmi of Bentham Science and the publishers Bentham Sciences for giving us an opportunity to pen down our ideas and academic work to reality. We also convey our kind and sincere appreciation to Pascali Pascalis.

Representative of Porter Instrument Business Unit of Parker Hannifin Matrix by Parker and Parker-Porter Product for permitting us to use the company products in our book.

Lastly, we would like to state that fortune favours those who defy complexities and overcome them on their own. We also passionately believe that Man is the architect of his own destiny, and God is on the side of those who toil and perspire to make their providence.

We place our sincerest admiration and gratitude to all those who have delightfully contributed to this cause and for their wishes and devotions made for understanding our dream.

**Satyawan Damle**  
**Ritesh Kalaskar**  
**Dhanashree Sakhare**  
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## CHAPTER 1

# Introduction to Pediatric Dentistry

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**Abstract:** Pediatric dentistry is the only speciality that has an abundance of knowledge for the management and treatment of the oral health care needs of infants and children. Pediatric dentistry concentrates on the integration of appropriate tactics and knowledge of various specialities into a framework of quality oral health care for children. It is necessary to implement procedures that are safe, comprehensive, accessible, affordable, high quality, and respectful for children. The role of a Paediatric dentist is to promote the dental health of children as well as serve as a resource person to the parents.

**Keywords:** Pediatric Dentistry, Infants, Children, Parent, Management.

## INTRODUCTION

Various authors have rightly equated children with flowers. A few of them quoted: *Let them bloom by giving them our warm smiles, our soft gentle words falling on them like rain and our art of confidence. Water them with love, nourish them with praise, and compliment them every day. Be their sun when all you see is rain. Protect them from storms and shelter their pain. Children are like flowers that blossom every day* (Fig. 1).



**Fig. (1).** Children are as lovely as flowers.

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Satyawan Damle, Ritesh Kalaskar, Dhanashree Sakhare & Abdulkadeer Jetpurwala (Eds.)  
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To put it into a nutshell, children are the flowers of life! They bring joy and happiness to our world. Let us be kind to them, let us make them happy and let us help them to save that child inside them for the rest of their lives!

Pediatric dentistry a branch of Dentistry deals with these delightful children.

### Definition

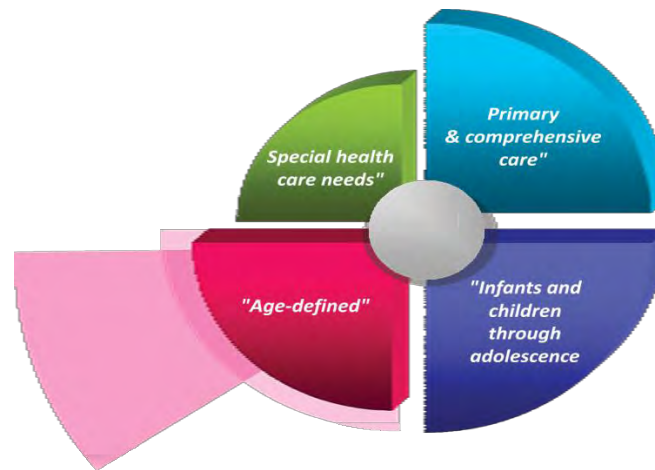
It is an age-specified speciality that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children through adolescence, including those with special health care needs (Fig. 2). Pediatric dentistry is a speciality that adjusts techniques and procedures from general dentistry and other specialities to provide primary and comprehensive preventive and therapeutic oral health care for children [1, 2].



Fig. (2). Definition of Pediatric Dentistry (AAPD 2020).

Pediatric dentistry encompasses a variety of disciplines, techniques, procedures, and skills that reveal a common basis with other specialities however these practices are modified and adapted to the unique requirements of infants, children, adolescents, and those with special health care needs (Fig. 3). Being an age-specific speciality, pediatric dentistry encompasses disciplines such as behaviour guidance, care of medically and developmentally compromised and disabled patients, supervision of orofacial growth and development, caries prevention, sedation, pharmacological management, and hospital dentistry, as well as other traditional fields of dentistry. These skills are applied to the needs of children

during their ever-changing stages of development and to treating conditions and diseases unique to growing individuals [3].



**Fig. (3).** Pediatric Dentistry Encompasses Different Aspects.

## **DENTISTRY ENCOMPASSES DIFFERENT ASPECTS**

### **An Important Aspect of Children Being Treated in a Separate Speciality.**

What is the most appealing about children?

Is it their cute faces?

Their playfulness?

Their smile? Of course, yes, however!

Beyond all these aspects, children are beautiful because they possess something unique, that we as adults have lost and that is innocence as well as purity (Fig. 4A).

Pediatric dentists encourage the oral and dental health of children as well as provide educational resources for parents. It is advised that a dental visit should occur: within six months after the presence of the first tooth or at least by a child's first birthday. It is important to create a comprehensive and accessible ongoing association between the dentist and patient, so the healthy and beautiful smile and natural teeth always remain beautiful (Fig. 4B).



**Fig. (4A).** A Child: A Picture of Innocence.



**Fig. (4B).** Healthy Primary Dentition.

### **The Key Role of a Pediatric Dentist is**

1. To identify the treatment, need and devise a suitable treatment plan keeping in mind the child's age.
2. Discuss the treatment to be delivered to the child must be acceptable to the child and the parent.
3. Therefore, the dentist must possess child management skills to be able to do the needful (Fig. 5).

However, it is also true that all Pediatric dentists, even today, do not practice dentistry exclusively for children. Though, a few do believe that they have the necessary knowledge, skill, and love for the subject they had been taught. It is also true that many general dentists are willing to practice dentistry for children but encounter difficulties due to a lack of practical training on key areas in child behaviour management in dentistry.

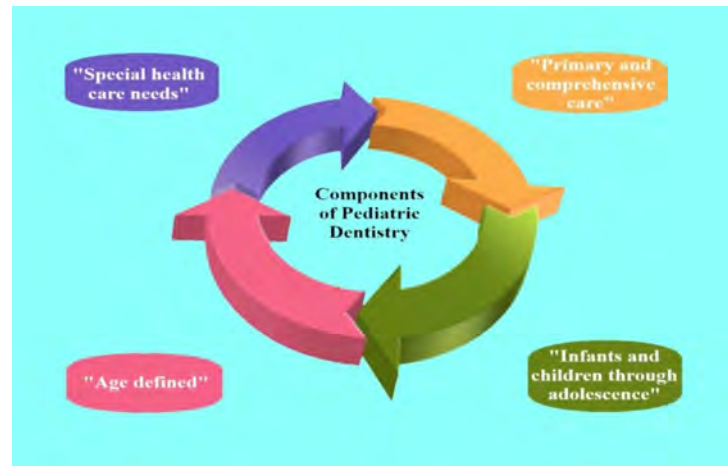


Fig. (5). Components of Pediatric Dentistry.

### Responsibilities of a Pediatric Dentist Include

- Diagnose and manage oral diseases (preventive and restorative) and pathology pertains to the oral cavity.
- Interpret x-rays and other diagnostic tests.
- Devise treatment plans to restore the oral health of children, including those with special health care needs.
- Monitor growth and development of the jaws and teeth.
- Correct malocclusion through interceptive orthodontic treatment.
- Perform surgical procedures on teeth, bone, and soft tissues of the oral cavity,
- Provide emergency care (dental infection, pain, and dental trauma)
- Treat patients under various stages of sedation (minimal, moderate, or deep), general anaesthesia (Fig. 6).

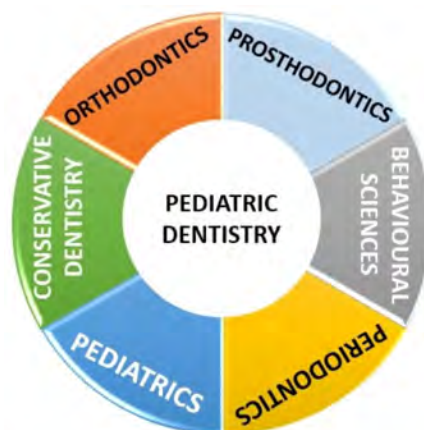


Fig. (6). Pediatric dentistry – Multispecialty in itself.