



## Review:

### Exclusive Pediatric Dentistry Practice: Future and Challenges

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#### Abstract

Pediatric dentistry is a unique, dynamic specialty that manages young children and shapes their healthy and beautiful smiles. A pediatric dentist plays a major role in introducing dentistry to a child for the first time. His/her responsibilities include understanding the child's genetics and environment, modifying oral habits and behavior, and successfully instilling healthy oral hygiene practices. It is an ever-so-gratifying experience to witness them reach these milestones and develop positive dental attitudes. Therefore, training is essential for every pediatric dentist to deliver optimal dental care to infants, children, and teenagers. As a responsible practitioner, a pediatric dentist must absorb all the latest innovations, evaluate them, and appraise them in order to bring more smiles and build a healthier generation. Therefore, this research paper briefly explores the future and challenges of pediatric dentistry.

**Keywords:** Advancements, Challenges, Dental practice, Pediatric Dentist, Pediatric Dentistry

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## Introduction

Children are God-given gifts to parents and family members. The care of their general health. 'Oral health' is not an exception to this. The presence of oral diseases in children represents a major public health problem that not only affects parents but also decreases their quality of life.<sup>[1]</sup> Gynecologists play a significant role from the duration of baby creation in the mother's womb until birth. A pediatrician assumes this role from birth onwards. Pertaining to oral diseases, 'Paediatric Dentist' holds a pivotal role in the diagnosis and management of dental and oral problems occurring in tiny children. Over the years, there has been a popular belief that the specialty of pediatric dentistry is a "jack of all trades, master of none." Moreover, people often refer to this holistic specialty as the "Cinderella of All Dental Disciplines." This is due to the underappreciation of pediatric dentists' crucial role in maintaining or restoring children's oral health.<sup>[2]</sup> Some argue that, unlike other dental specialties, pediatric dentistry is not experiencing the constant changes and improvements in dental procedures brought about by new technologies and their economic impact. Professionals assert that pediatric dentistry remains stagnant, with routine, antiquated procedures still in practice. However, this is not a true representation of the specialty.<sup>[1,2]</sup> There is a tremendous paradigm shift from conventional dental procedures and concepts to advanced new technologies and treatment modalities. Therefore, the purpose of this research paper is to briefly explore the future and challenges of pediatric dentistry in the contemporary era.

## Role of Pediatric Dentists

Pediatric dentistry plays a pivotal role in ensuring the well-being of little ones with a lifetime of healthy smiles. Pediatric dentists are not only oral health professionals for children, but they are also experts well trained to work effectively with children.<sup>[3,4]</sup> Over the years, children's dentists have developed the ability to anticipate future trends and have honed their skills to identify potential problems early. The unique skill set comprises the ability to communicate complex dental concepts in an age-appropriate manner, building trust and rapport with young patients. This ensures that children feel comfortable and safe during dental visits, paving the way for a positive approach to maintaining oral health.<sup>[3]</sup>

## Future of Pediatric Dentistry

Pediatric dentistry practice constitutes professionals' sole responsibility for the provision of dental treatment

in children during dental practice, and therefore their adequate training in keeping up-to-date

**Table 1: Future advancements deemed necessary in Pediatric Dentistry**

Different Pediatric Dental Health Domain	Requirements
Oral health awareness	<ul style="list-style-type: none"> <li>Utilization of social media and videos in educating parents about children's oral health and its care</li> </ul>
Diet counselling	<ul style="list-style-type: none"> <li>Importance of balanced diet</li> <li>Good eating practices</li> </ul>
Preventive care	<ul style="list-style-type: none"> <li>Regular use of fluoride application and treatments</li> <li>Usage of pit and fissure sealants</li> </ul>
Orthodontic care	<ul style="list-style-type: none"> <li>Early intervention of minor or major orthodontic and bite problems.</li> </ul>
Regular dental visit	<ul style="list-style-type: none"> <li>Should start from one year after birth</li> <li>Establishment of dental home</li> <li>Regular dental visits every six months once</li> </ul>
Adoption of Tele-dentistry	<ul style="list-style-type: none"> <li>Enable remote consultations, follow-up appointments and provision for oral health education remotely.</li> <li>Utilization of digital communication tools or virtual consultations.</li> </ul>
Provision for child-friendly environment and experience	<ul style="list-style-type: none"> <li>Use of virtual reality (VR) and Augmented reality (AR) in behavioural management of children.</li> </ul>
Advanced Dental Materials	<ul style="list-style-type: none"> <li>Usage of minimal invasive materials and smart materials.</li> <li>Introduction of bioactive materials</li> </ul>
Innovations in Technology	<ul style="list-style-type: none"> <li>Usage of advanced diagnostics like artificial intelligence (AI) and machine learning, preventive and therapeutic equipment and machines such as digital radiographs and lasers.</li> <li>3 D Printing and Bioprinting in precise diagnosis and treatment planning.</li> </ul>



knowledge on the relevant scientific literature along with clinical skills is highly essential.<sup>[3,4,5]</sup> The future of pediatric dentistry practice depends on how much the level of scientific evidence has increased in the last few years. However, there is still a significant gap between what pediatric dentists know, including scientific evidence, and what we do in routine dental practice.<sup>[5,6]</sup> The reasons for this gap depend on many factors, including mainly educational deficiencies related to the dental curriculum.<sup>[8,9]</sup> Despite the

**Table 2: Challenges encountered during pediatric dental practice and their solutions**

Various Domain observed with challenges	Tasks to be performed
Parental Education	<ul style="list-style-type: none"><li>• About good oral hygiene habits</li><li>• Importance of a balanced diet</li><li>• Children's oral habits</li><li>• Preventive care in children</li><li>• Role in the upbringing of children</li></ul>
Easy Access dental care	<ul style="list-style-type: none"><li>• For low socio-economic group</li><li>• Underprivileged children with low-income barriers</li><li>• Community and geographical restrictions</li></ul>
Management of special health care needs children	<ul style="list-style-type: none"><li>• Should be skilled in managing behavioral, developmental and physical issues of the children.</li><li>• Usage of touch screen tablets, trackballs, intel-keys USB for improvement in skills of special children.</li><li>• Video modeling and google sketch for behavior management.</li><li>• Utilization of general anaesthesia and sedation</li><li>• Collaborative team work with other medical professionals.</li></ul>
Behavioural management of children	<ul style="list-style-type: none"><li>• Use of effective behavioural control strategies.</li><li>• Implementation of general anaesthesia and conscious sedation in every dental set up.</li></ul>

availability of sufficient high-quality evidence to conduct many dental clinical procedures, day-to-day ordinary clinical practice may not implement them.<sup>[8]</sup> The key task for future planning is to evaluate how the current scientific evidence will be implemented and what factors may be contributing to its delivery to the

young population in each scenario or location.<sup>[8,9,10]</sup> Table 1 provides a detailed description of the future developments in pediatric dentistry, as cutting-edge technology plays a pivotal role in the care of every child's smile.

#### **Challenges posed by a Pediatric Dentist**

Though enhanced literature exists on standards for dental education across the globe, however, there is still a need for the development of a core curriculum in pediatric dentistry.<sup>[9]</sup>

Therefore, for new budding generation of pediatric dental professionals, there is a challenge exists to be competent enough at applying evidence-based scientific knowledge, understanding the applied clinical sciences, and making decisions on disease management in children always with empathy and recognition of the patient's needs.<sup>[2,7-9]</sup> In the present-day, new technologies are emerging at a greater pace engulfing all fields. In health care sector too, advanced technologies are booming in rocket speed right from the diagnosis, investigations and treatment aspects of dental health and this includes even the pediatric dentistry.<sup>[7-9]</sup> However, every pediatric dentist faces challenges while treating pediatric patients which is elaborated in Table 2.

#### **Conclusion**

Pediatric dentistry is not 'jack of all and master of none.' It is all about preparing the stage for a lifetime of healthy smiles for children, as well as prevention, guidance, education, and shaping positive dental experiences that extend well into adulthood. Exclusive pediatric dental practice ensures that every child receives the best dental care and maintains a healthy and beautiful smile for life. Hence, the future of pediatric dentistry should be more exciting and filled with innovative technologies that benefit children's oral health. Being a pediatric dentist, let's all commit to providing children with the strong foundation that they need for lifelong good oral health and becoming a healthy citizen.

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