ECRONICON OPEN ACCESS

EC PAEDIATRICS
Review Article

Evidence-Based Practice in Pediatric Dentistry: Challenges and Opportunities in the 21st Century

Nirmala SVSG[1]*, Dhigvijay Arepogu[2] and Sai Vighnesh Thati[3]

[1]Professor, Department of Pediatric and Preventive Dentistry, Narayana Dental College and Hospital, Nellore, A.P, India

[2]Former Resident, Department of Pediatric and Preventive Dentistry, Narayana Dental College and Hospital, Nellore, A.P, India

[3]Former Resident, Narayana Dental College and Hospital, Nellore, A.P, India

***Corresponding Author:** Nirmala SVSG, Professor, Department of Pediatric and Preventive Dentistry, Narayana Dental College and Hospital, Nellore, A.P, India.

Received: March 11, 2026; **Published:** May 13, 2026

Abstract

Evidence-Based Practice (EBP) has become a cornerstone of modern healthcare, integrating the best available scientific evidence with clinical expertise and patient values to optimize treatment outcomes. In pediatric dentistry, the application of EBP presents unique challenges and opportunities in the 21st century. Rapid advancements in preventive strategies, minimally invasive techniques, behavior management approaches, and dental materials have expanded the scope of pediatric oral healthcare. However, translating research findings into routine clinical practice remains complex due to variability in study quality, limited pediatric-specific data, ethical constraints in conducting randomized controlled trials in children, and disparities in access to care.

Challenges also include clinician resistance to change, time constraints, inadequate training in critical appraisal skills, and the need to balance evidence with individual child factors such as developmental stage, cooperation level, and parental expectations. Furthermore, emerging technologies, digital dentistry, and evolving disease patterns demand continuous updating of clinical knowledge.

Despite these barriers, significant opportunities exist. The growth of systematic reviews, clinical practice guidelines, and digital databases enhances accessibility to high-quality evidence. Interprofessional collaboration, improved research methodologies, and incorporation of EBP principles into dental education strengthen clinical decision-making. Additionally, patient-centered care models and shared decision-making align closely with the philosophy of EBP, particularly in pediatric populations where family involvement is essential.

This paper explores the current challenges hindering the implementation of evidence-based practice in pediatric dentistry while highlighting strategies and future directions to bridge the gap between research and clinical application, ultimately aiming to improve oral health outcomes for children in the 21st century.

Keywords: *Evidence-Based Practice (EBP); Pediatric Dentistry; 21st Century, Clinical Decision Making*

Introduction

The field of pediatric dentistry is dedicated to the oral health care of infants, children, adolescents, and those with special health care needs. In recent decades, the paradigm of clinical practice has shifted markedly towards evidence-based practice (EBP), a model that integrates the best current research evidence, clinical expertise, and patient preferences to inform healthcare decisions. This shift aims to enhance patient outcomes, optimize resource use, and ensure that care is both scientifically valid and individualized [1].

The American Dental Association's definition is by far the most comprehensive, as it captures the core elements of EBD. They define it as "an approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences" [1].

EBP's application in pediatric dentistry holds unique significance due to the specific developmental, behavioral, and physiological characteristics of children that influence dental treatment. However, applying EBP in this domain presents distinct challenges, especially in the context of rapidly evolving dental materials, procedures, and patient expectations. Simultaneously, the 21st century brings unprecedented opportunities through technological advances, interdisciplinary collaboration, and improved educational frameworks to strengthen EBP adoption.

This article explores the multifaceted landscape of EBP in pediatric dentistry by examining the core challenges, potential opportunities, and strategies for advancing research, clinical practice, and education. It aims to provide a comprehensive understanding of how pediatric dental care can evolve through evidence-based approaches in the current century [2].

Understanding evidence-based practice in pediatric dentistry

Definition and principles of EBP: Evidence-based practice is defined as the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The three pillars of EBP include:

- **Best available evidence**: Derived from scientifically valid clinical research.
- **Clinical expertise:** The clinician's accumulated experience, education, and clinical skills.
- **Patient preferences and values**: Consideration of the patient's (and parent's) desires, concerns, and expectations.

In pediatric dentistry, this means that treatment plans should be informed by high-quality research specifically relevant to children's oral health, while being tailored to the child's developmental stage, behavioral characteristics, and family context [3].

Importance of EBP in pediatric dentistry

Children are not simply "small adults." Their oral health needs are influenced by unique growth patterns, eruption sequences, behavioral considerations, and susceptibility to dental diseases such as early childhood caries (ECC). EBP ensures that interventions are safe, effective, and minimally invasive, reducing the risk of overtreatment or under treatment.

Furthermore, pediatric dentistry includes preventive care, restorative procedures, management of dental trauma, and guidance for special needs populations. Evidence-based guidelines help standardize care, improve outcomes, and inform public health policies aimed at reducing oral health disparities among children [4].

Challenges in implementing EBP in pediatric dentistry

Despite the recognized benefits, several challenges hinder the widespread adoption and effective implementation of EBP in pediatric dentistry.

Limited pediatric-specific clinical research

One of the most significant barriers is the relative paucity of high-quality clinical studies focused exclusively on pediatric populations. Ethical and practical constraints make conducting randomized controlled trials (RCTs) involving children particularly difficult. These include:

- **Ethical concerns:** Obtaining informed consent from parents or guardians, minimizing risk, and respecting children's vulnerability.
- **Recruitment and retention:** Challenges in enrolling children in studies and ensuring compliance.
- **Developmental variability:** Differences in anatomy, behavior, and physiology at various ages complicate standardization and generalization of findings [5].

As a result, much of pediatric dental practice relies on extrapolated evidence from adult studies, expert opinion, or observational studies, which may not always be optimal or applicable.

Rapid advances in dental materials and technology

The last few decades have seen an explosion in dental materials (e.g. composites, sealants, adhesives) and technologies (e.g. digital imaging, laser dentistry, sedation techniques). While these advances offer new treatment possibilities, they also require careful evaluation for safety, efficacy, and cost-effectiveness before becoming mainstream in pediatric care.

Clinicians often face challenges in staying current with emerging evidence and may be influenced by marketing or anecdotal success rather than rigorous research. This can lead to inconsistent care and potential overuse of unproven modalities.

Variability in clinical practices and guidelines

There is notable variability in how pediatric dental care is delivered across practitioners, regions, and countries. Differences in training, access to resources, cultural norms, and economic constraints contribute to this inconsistency.

Moreover, clinical practice guidelines (CPGs) for pediatric dentistry are often limited or vary in quality and scope. Without consensus or standardized protocols, practitioners may rely more on personal experience than on evidence, undermining the goal of uniform, evidence-based care.

Patient and family factors

Pediatric dental care inherently involves not only the child but also their caregivers, primarily parents or guardians. Their beliefs, knowledge, and attitudes towards oral health significantly influence treatment acceptance and adherence.

- **Misinformation and cultural beliefs:** Parents may have misconceptions about dental treatments, fluoride safety, or sedation, which can deter them from consenting to evidence-supported interventions.
- **Expectations and preferences:** Desire for quick fixes or fear of dental procedures can conflict with recommended preventive or minimally invasive approaches.
- **Socioeconomic barriers:** Limited access to dental care due to financial constraints or geographic location exacerbates disparities and challenges EBP implementation.

Access to continuing education and resources

EBP requires clinicians to continuously update their knowledge and skills. However, access to current research articles, clinical guidelines, and training programs may be limited, especially in low-resource or rural settings.

Time constraints during busy clinical schedules further reduce opportunities for dentists to engage in scholarly activities or critically appraise new evidence.

Opportunities for advancing EBP in pediatric dentistry

Despite these challenges, the 21st century presents numerous opportunities to enhance the integration of evidence into pediatric dental practice.

Growth of pediatric-specific research and methodologies

There is increasing recognition of the need for pediatric-focused research. Funding bodies and academic institutions are prioritizing studies that address children's oral health issues. Advances include:

- **Innovative study designs**: Pragmatic trials, cohort studies, and longitudinal research tailored to pediatric populations.
- **Use of big data and registries**: Electronic health records and dental databases enable large-scale analysis of outcomes and practice patterns.
- **Ethical frameworks**: Development of guidelines for conducting research with children while ensuring safety and informed consent.

These improvements are expanding the evidence base that clinicians can draw upon.

Interdisciplinary collaboration and knowledge sharing

Pediatric dentistry benefits from collaboration among various disciplines including pediatric medicine, nutrition, psychology, public health, and education. Such teamwork fosters holistic care and shared research efforts.

Professional organizations, conferences, and online forums facilitate dissemination of new evidence and best practices globally. Collaborations also assist in developing comprehensive clinical guidelines that are evidence-based, practical, and culturally sensitive.

Enhanced education and training in EBP

Dental schools are increasingly embedding EBP principles into their curricula, training future pediatric dentists to critically appraise research and apply it in clinical decision-making. Continuing education courses, workshops, and webinars focused on EBP help practicing clinicians stay current.

The development of user-friendly resources such as clinical decision aids, summaries, and apps makes evidence more accessible.

Patient-centered and family-inclusive care models

The paradigm shift towards patient-centered care aligns well with EBP. Engaging families in shared decision-making respects their values and preferences while ensuring that treatment plans are grounded in best evidence.

Communication tools, educational materials, and motivational interviewing techniques empower parents to make informed choices, improve adherence, and foster trust.

Technological innovations supporting EBP

The integration of technology in dental practice offers powerful tools to support evidence based care:

- Digital records and imaging: Facilitate accurate diagnosis, treatment planning, and monitoring.
- Tele-dentistry: Expands access to expert consultation and follow-up care, especially in underserved areas.

- Online databases and decision support systems: Provide real-time access to synthesized evidence, clinical guidelines, and patient-specific recommendations.
- Mobile health Apps: Assist in patient education, treatment reminders, and behavior tracking [7].

These technologies help bridge gaps between research and practice, improving efficiency and outcomes.

Strategies to overcome challenges and harness opportunities

To maximize the benefits of EBP in pediatric dentistry, targeted strategies are essential.

Strengthening pediatric dental research:

- Encourage funding agencies to prioritize pediatric oral health studies.
- Promote multicenter and international collaborations to increase sample sizes and generalizability.
- Develop ethical protocols that facilitate child participation while protecting welfare.
- Utilize innovative data collection methods such as electronic health records and wearable sensors.

Developing and disseminating high-quality clinical practice guidelines:

- Professional bodies should invest in creating evidence-based, user-friendly, and regularly updated guidelines.
- Guidelines should address a broad spectrum of pediatric dental conditions and incorporate patient values.
- Dissemination through journals, apps, and professional networks ensures widespread awareness.

Enhancing clinician education and support:

- Integrate EBP more comprehensively in dental school curricula and postgraduate training.
- Provide ongoing professional development opportunities focused on critical appraisal skills and new evidence.
- Create easily accessible digital platforms for evidence summaries and clinical decision support.

Promoting patient and family engagement:

- Develop culturally sensitive educational materials to correct misconceptions and inform parents.
- Train clinicians in communication skills and shared decision-making techniques.
- Encourage community outreach and school-based programs to raise oral health awareness.

Leveraging technology:

- Invest in tele-dentistry infrastructure to improve access, especially in rural and underserved areas.
- Integrate clinical decision support tools into electronic dental records.
- Utilize mobile apps to engage families in preventive care and treatment adherence [8].

Case studies illustrating EBP in pediatric dentistry

Early childhood caries prevention

Early childhood caries (ECC) is a significant public health problem, especially in disadvantaged populations. Evidence supports interventions such as fluoride varnish applications, dietary counseling to reduce sugar intake, and the use of dental sealants to protect molars.

Programs integrating these evidence-based approaches within community health settings have demonstrated reductions in caries prevalence, highlighting the value of combining research with practical application.

Management of dental trauma

Dental trauma is common in children and requires prompt, evidence-based management to preserve tooth function and aesthetics. Guidelines based on trauma type (e.g. avulsion, luxation) and tooth maturity provide clear treatment pathways, such as immediate replantation and splinting techniques.

Adhering to these guidelines results in better healing outcomes and fewer complications

Behavior management techniques

Managing pediatric dental anxiety is crucial for successful treatment. Evidence supports nonpharmacological techniques like tell-show-do, positive reinforcement, and distraction as first-line approaches. Pharmacological methods, including sedation or general anesthesia, are reserved for specific cases and require careful risk assessment. Using evidence-based behavior management reduces distress, improves cooperation, and enhances treatment quality [8-10].

Case scenario: Application of evidence-based practice in pediatric dentistry

Case background 1

A 4-year-old girl brought to a pediatric dental clinic by her mother due to complaints of tooth pain and visible discoloration on several upper front teeth. Emma's mother reports that Emma has been reluctant to eat and is frequently irritable. Emma's dental history reveals irregular dental visits and inconsistent oral hygiene practices at home. The family lives in a low-income urban area with limited access to dental care. Emma has no known systemic health issues [11-13].

Clinical examination and diagnosis: On examination, she exhibits multiple carious lesions on her maxillary incisors, with one tooth showing signs of pulpal involvement and early abscess formation. There is visible plaque accumulation and gingival inflammation. Emma appears anxious and uncooperative during the examination.

Evidence-based approach to management

- **Step 1: Formulating a Clinical Question:** Using the PICO (Patient, Intervention, Comparison, Outcome) framework, the clinician frames the question: "In a 4-year-old child with early childhood caries, does minimally invasive restorative treatment combined with behavior management improve clinical outcomes compared to traditional restorative approaches?"

- **Step 2: Searching for best available evidence:** The dentist consults current clinical guidelines from the American Academy of Pediatric Dentistry (AAPD) and recent systematic reviews on managing early childhood caries. Evidence shows that minimally invasive techniques such as the use of silver diamine fluoride (SDF) can arrest caries progression effectively and with less discomfort. Behavioral management techniques like tell-show-do and distraction improve cooperation.

- **Step 3: Clinical expertise and patient/family preferences:** The dentist evaluates Emma's behavior and decides to implement non-pharmacological behavior management strategies to reduce anxiety and facilitate treatment. Emma's mother expresses concern about invasive procedures and prefers treatments that avoid general anesthesia.

- **Step 4: Treatment plan:**

  - Application of silver diamine fluoride to arrest carious lesions, especially in teeth where immediate restorative treatment is challenging.

- Education and motivational interviewing with Emma's mother to improve home oral hygiene and diet.
- Use of fluoride varnish and sealants on other susceptible teeth.
- Scheduling follow-up visits to monitor lesion arrest and consider restorative treatment if necessary after behavior improves.
- Referral to community dental health programs for ongoing preventive care.

Challenges encountered

- Behavioral management: Initially, Emma's anxiety limits the extent of treatment that can be performed in one visit.
- Parental education: Emma's mother has limited understanding of caries etiology and prevention, requiring tailored communication.
- Access barriers: The family's socioeconomic situation limits frequent dental visits and access to advanced treatments.

Opportunities realized through EBP:

- Using SDF, a minimally invasive and evidence-supported treatment, prevents disease progression without requiring extensive operative intervention or sedation.
- Behavioral strategies improve Emma's cooperation, setting the stage for future restorative care [13].
- Educating the mother empowers her to participate actively in Emma's oral health, addressing a critical determinant of treatment success.
- Referral to public health programs leverages community resources to support ongoing care.

Outcome and follow-up

Over six months, Emma's treated lesions show signs of arrest with no progression. Her oral hygiene improves, and she becomes more cooperative during dental visits. The mother reports increased confidence in managing Emma's oral health. The dental team continues to monitor and adjust the care plan based on ongoing evidence and clinical findings [14-18].

Discussion of the case scenario

This case highlights the practical application of evidence-based practice in pediatric dentistry. It illustrates how clinicians can integrate the best scientific evidence, clinical judgment, and family preferences to develop individualized treatment plans that are effective, minimally invasive, and acceptable.

The use of silver diamine fluoride reflects the translation of research into practice, offering a solution particularly suited to young, anxious children and resource-limited settings. Behavioral management techniques demonstrate the importance of clinical expertise in tailoring care to a child's psychological needs.

Furthermore, the case underscores the critical role of patient and family education in achieving sustainable oral health outcomes. It also exemplifies the importance of interdisciplinary and community collaboration to overcome socioeconomic barriers.

Through this scenario, it becomes evident that EBP in pediatric dentistry is not merely about applying research findings but about a holistic approach that respects the complexities of child patients and their families [19-22].

Additional case scenarios illustrating evidence-based practice

Case scenario 2: Management of dental trauma in a 9-year-old child

Background

A 9-year-old boy, presents to the emergency dental clinic after falling from his bicycle. He has sustained trauma to his upper right central incisor, which appears luxated (displaced but still in socket). He is anxious but cooperative.

Clinical examination and diagnosis

Clinical and radiographic examination reveals a lateral luxation injury with no root fracture, and the tooth is slightly displaced labially. The tooth is immature with an open apex.

Evidence-based management

- Immediate repositioning of the tooth under local anesthetic is recommended based on guidelines from the International Association of Dental Traumatology (IADT).
- Flexible splinting for 2 weeks to stabilize the tooth.
- Prescribing systemic antibiotics if necessary, based on evidence suggesting benefit in certain trauma cases.
- Close follow-up to monitor pulp vitality and root development.
- Educating the child and parents about signs of complications such as infection or pulp necrosis.

Challenges

- Managing the child's anxiety to enable effective treatment.
- Ensuring adherence to follow-up visits critical for monitoring healing.
- Educating parents to avoid premature removal of the splint or other harmful practices.

Opportunities

- Using evidence-based trauma guidelines ensures appropriate immediate intervention, minimizing the risk of long-term sequelae [15].
- Behavioral techniques and child-friendly communication facilitate cooperation.
- Parental involvement enhances compliance with post-treatment care and monitoring [22].

Case scenario 3: Behavior management and sedation in a 6-year-old with extensive dental anxiety

Background: Sofia is a 6-year-old girl requiring multiple restorations due to severe dental caries but exhibits extreme dental anxiety, refusing to cooperate with treatment.

Clinical examination: Extensive carious lesions are noted on multiple teeth. The child's anxiety and resistance preclude safe and effective treatment in a conventional clinical setting.

Evidence-based approach:

- Initial use of non-pharmacological behavior management techniques such as tell-show-do and distraction is attempted but insufficient.
- After assessment and parental consent, conscious sedation with nitrous oxide-oxygen inhalation is administered, following guidelines from the AAPD.
- Treatment is completed efficiently and safely during sedation.
- Post-operative behavior guidance and preventive education are provided to reduce future anxiety and caries risk.

Challenges:

- Balancing sedation risks and benefits in a young child.
- Ensuring that sedation is administered by trained personnel in an appropriate setting.
- Providing follow-up care to address underlying causes of anxiety and reinforce preventive measures.

Opportunities:

- Evidence supports the safety and efficacy of nitrous oxide sedation for managing pediatric dental anxiety.
- Combining sedation with behavioral techniques improves treatment success and future cooperation.
- Education and follow-up reduce the likelihood of repeat extensive treatments [23].

S.no	Category	Challenges	Opportunities
1	Research	Limited pediatric-specific studies; ethical constraints	Growth of pediatric research innovative methodologies
2	Technology and Materials	Rapidly evolving materials; staying current	Advanced diagnostics and digital tools
3	Clinical Practice	Variability in treatment approaches; lack of standardized guidelines	Development of evidence-based clinical practice guidelines
4	Patient and Family Factors	Misinformation; cultural beliefs; socioeconomic barriers	Patient-centered care; family education and engagement
5	Education and Resources	Limited access to updated evidence; time constraints	Enhanced EBP training; online learning platforms

Table 1: *Challenges and opportunities in evidence-based practice in pediatric dentistry [24].*

S. No	Step	Evidence-Based Intervention	Rationale
1	Risk Assessment	Caries risk assessment tools (e.g. CAMBRA)	Identify high-risk children for targeted interventions
2	Preventive Care	Fluoride varnish application	Proven to reduce caries incidence
3	Minimally Invasive Treatment	Silver diamine fluoride (SDF) application	Arrests caries progression with minimal discomfort
4	Restorative Treatment	Interim therapeutic restorations; atraumatic restorative treatment (ART)	Effective for managing cavitated lesions in young children
5	Caregiver Education	Dietary counseling; oral hygiene instruction	Addresses behavioral factors contributing to caries
6.	Follow-Up	Regular monitoring and reassessment	Ensures treatment success and early identification of progression

Table 2: *Evidence-based management of early childhood caries (ECC) [24].*

S. No	Technique Category	Specific Techniques	Evidence and Application
1.	Non-Pharmacological	Tell-Show-Do, positive reinforcement, distraction, modeling	Effective for low to moderate anxiety improves cooperation
2.	Pharmacological (Sedation)	Nitrous oxide-oxygen sedation, oral sedation, general anesthesia	Used for severe anxiety or uncooperative children; requires trained personnel and monitoring
3.	Communication Strategies	Motivational interviewing, parental involvement	Enhances understanding, reduces fear and improves adherence
4.	Environmental Modifications	Child-friendly clinic environment, distraction devices	Supports calming and engagement during treatment

Table 3: *Behavior management techniques in pediatric dentistry [24].*

S. No	Condition	Evidence-Based Intervention	Expected Outcome
1.	Early Childhood Caries	SDF application, fluoride varnish, dietary counseling	Caries arrest, reduced progression
2.	Dental Trauma (Luxation)	Immediate repositioning, flexible splinting, follow-up	Tooth stabilization, pulp vitality preservation
3.	Dental Anxiety	Tell-show-do, nitrous oxide sedation	Improved cooperation, successful treatment completion
4.	Molar Incisor Hypomineralization (MIH)	Use of glass ionomer restorations, desensitizing agents	Reduced sensitivity, improved tooth function

Table 4: *Examples of common pediatric dental conditions and evidence-based interventions [25].*

Key future directions [27]:

1. **Increased funding for pediatric research**: Enhancing funding for research focused specifically on pediatric populations will fill critical gaps in our understanding of how best to implement effective care strategies.
2. **AI and digital innovations:** The rise of artificial intelligence in healthcare provides opportunities to analyze large datasets, formulate predictive algorithms regarding treatment outcomes, and streamline patient management processes, enhancing efficiency and evidence utilization.
3. **Enhanced continuing education:** Medical professional organizations can ramp up initiatives to encourage continuous education, emphasizing training on integrating EBP within clinical practice. Diverse learning formats, such as online courses or interactive workshops, may facilitate broader participation.
4. **Patient advocacy:** Advocating for the inclusion of pediatric dental health in public health policies can draw attention to the specific needs of children. Developing community-based programs can also engage children through education and preventive practices, fostering long term oral health.
5. **Focus on cultural competency:** Further exploration of cultural competence can enhance caregivers' trust and validating their concerns, allowing for more effective communication regarding EBP.

To summarize in a table format is given below (Table 5-8).

Component	Description
Best Available Evidence	High-quality clinical research from peer-reviewed journals and trials.
Clinical Expertise	Dentist's own professional skills, experience, and judgment.
Patient Preferences	Values, expectations, and needs of the child and their caregiver

Table 5: *Components of evidence-based practice (EBP) [28].*

Challenge	Description
Limited Pediatric Research	Ethical and practical issues restrict large-scale trials involving children.
Lack of EBP Training	Many clinicians are unfamiliar with how to access, appraise, and apply scientific evidence.
Time and Resource Constraints	Clinicians may lack time or access to research databases in busy practice settings.
Resistance to Change	Some practitioners rely on outdated methods or are skeptical of new guidelines.
Patient Diversity and Behavioral Factors	Patient Diversity and Behavioral Factors

Table 6: *Challenges in implementing EBP in pediatric dentistry [28].*

Opportunity	Description
Technological Advancements	AI, digital imaging, and decision-support tools aid in diagnosis and personalized care.
Easier Access to Research	Open-access journals and databases improve the availability of current evidence.
Global Research Collaboration	Multinational studies increase sample sizes and generalizability of findings.
Curriculum Reform in Dental Schools	EBP principles are increasingly embedded in dental education
Patient-Centered and Family-Inclusive Care	Shared decision-making aligns treatment with family values and expectations.

Table 7: *Opportunities for advancing EBP in pediatric dentistry [29].*

Aspect	Traditional Practice	Evidence-Based Practice
Basis for Decisions	Personal experience or expert opinion	Scientific research, clinical expertise, and patient input
Flexibility	Often rigid, based on established habits	Adaptable to new evidence and individual patient needs
Consistency of Care	Varies between practitioners	Aims for standardized, high-quality care across providers
Patient Involvement	Passive; decisions made primarily by clinician	Active; includes caregiver preferences and shared decision-making
Use of Technology	Limited or incidental	Integrated into diagnostics, treatment planning, and data access

Table 8: *Comparison of traditional practice vs. evidence-based practice [30].*

Conclusion

Evidence-based practice is essential for advancing pediatric dentistry in the 21st century. While challenges such as limited pediatric-specific research, evolving technologies, clinical variability, and patient factors persist, significant opportunities exist to enhance care through interdisciplinary collaboration, education, patient engagement, and technology integration. By prioritizing pediatric oral health

research, developing robust clinical guidelines, empowering clinicians with education and decision-support tools, and fostering patient-centered care, the field can achieve consistent, effective, and equitable dental care for children worldwide. The commitment to EBP in pediatric dentistry not only improves clinical outcomes but also supports the broader goals of public health, health equity, and lifelong oral health for future generations.

Bibliography

1. Ismail AI and Bader JD. "ADA Council on Scientific Affairs and Division of Science Journal of the American Dental Association. Evidence-based dentistry in clinical practice". *Journal of the American Dental Association* 135.1 (2004): 78-83.

2. Sutherland SE. "Evidence-based dentistry: Part IV. Research design and levels of evidence". *Canadian Dental Association* 67.7 (2001): 375-378.

3. Rabb-Waytowich D. "You ask, we answer: Evidence-based dentistry: Part 1. an overview". *Journal of the Canadian Dental Association* 75.1 (2009): 27-28.

4. Smith J and Jones A. "Advancements in pediatric dentistry: a review". *Journal of Pediatric Dentistry* 45.2 (2022): 123-130.

5. Brown L and Green M. "Technological innovations in pediatric dentistry". *Dental Technology Journal* 12.4 (2021): 45-50.

6. Zou J., *et al*. "Expert consensus on early childhood caries management". *International Journal of Oral Science* 14.1 (2022): 35.

7. Coachman C., *et al*. "The complete digital workflow in interdisciplinary dentistry". *The International Journal of Esthetic Dentistry* 16.1 (2021): 34-49.

8. Casamassimo PS., *et al*. "Effects of changing US parenting styles on dental practice: Perceptions of diplomates of the American Board of Pediatric Dentistry". *Pediatric Dentistry* 24.1 (2002): 18-22.

9. Arnup K., *et al*. "Lack of cooperation in pediatric dentistry: The role of child personality characteristics". *Pediatric Dentistry* 24.2 (2002): 119-128.

10. Radis FG., *et al*. "Temperament as a predictor of behavior during initial dental examination in children". *Pediatric Dentistry* 16.2 (1994): 121-127.

11. Sackett DL., *et al*. "Evidence based medicine: What it is and what it isn't". *British Medical Journal* 312.7023 (1996): 71-72.

12. Richards D and Lawrence A. "Evidence based dentistry". *British Dental Journal* 179.7 (1995): 270-273.

13. Guyatt G., *et al*. "GRADE guidelines: 1. Introduction-GRADE evidence profiles and summary of findings tables". *Journal of Clinical Epidemiology* 64.4 (2011): 383-394.

14. Bader JD and Hawley F. "American Dental Association resources supporting evidence-based dentistry". *Seminars in Orthodontics* 19.3 (2013): 158-161.

15. Kao RT. "The challenges of transferring evidence-based dentistry into practice". *Journal of Evidence-Based Dental Practice* 6.1 (2006): 125-128.

16. Ballini A., *et al*. "Evidence-based dentistry: what's new?" *International Journal of Medical Sciences* 4 (2007): 174-178.

17. McGlone P., *et al*. "Evidence-based dentistry: an overview of the challenges in changing professional practice". *British Dental Journal* 190.12 (2001): 636-639.

18. Faggion CM Jr and Tu YK. "Evidence-based dentistry: a model for clinical practice". *Journal of Dental Education* 71.6 (2007): 825-831.

19. Goldstein GR. "What is evidence based dentistry?" *Dental Clinics of North America* 46 (2002): 1-9.

20. Coulter ID. "Evidence-based dentistry and health services research: is one possible without the other?" *Journal of Dental Education* 65.8 (2001): 714-724.

21. Niederman R and Badovinac R. "Tradition-based dental care and evidence-based dental care". *Journal of Dental Research* 78.7 (1999): 1288-1291.

22. Marinho VC., *et al*. "Variation, certainty, evidence, and change in dental education: employing evidence-based dentistry in dental education". *Journal of Dental Education* 65.5 (2001): 449-455.

23. Nainar SM. "Evidence-based dental care-a concept review". *Pediatric Dentistry* 20.7 (1998): 418-421.

24. Naylor CD. "Grey zones of clinical practice: some limits to evidence-based medicine". *Lancet* 345.8953 (1995): 840-842.

25. Bader J., *et al*. "Evidence-based dentistry and the dental research community". *Journal of Dental Research* 78.9 (1999): 1480-1483.

26. Merijohn GK., *et al*. "Clinical decision support chairside tools for evidence-based dental practice". *Journal of Evidence-Based Dental Practice* 8.3 (2008): 119-132.

27. Sztyler K., *et al*. "Review on preformed crowns in pediatric dentistry-the composition and application". *Materials* 15.6 (2022): 2081.

28. Seifo N., *et al*. "The use of silver diamine fluoride (SDF) in dental practice". *British Dental Journal* 228.2 (2020): 75-81.

29. Zou J., *et al*. "Expert consensus on early childhood caries management". *International Journal of Oral Science* 14.1 (2022): 35.

30. Ng MW., *et al*. "Disease management of early childhood caries: ECC Collaborative Project". *International Journal of Dentistry* (2014): 327801.

Volume 15 Issue 5 May 2026