Episode 117 – Children and Oral Health: Part Three

September 27, 2024

Introduction

Oral health is essential for overall health. Oral health can affect children's functional capacities, psychological well-being, and social integration. Routine visits to an oral health provider are vital to helping children prevent oral health problems and establish a healthy oral care routine. Healthy behaviours established in childhood can extend into adulthood and influence oral health outcomes later in life. [1]

Frequency of oral health visits is based on individual needs and oral disease risk. Each pediatric age group and each individual child have distinct needs to be addressed as part of comprehensive care. Early oral health interventions allow for more effective and less-costly preventive care and education compared to disease treatment provided in offices, emergency care facilities, or hospitals. Education and counselling are essential components of oral care, which can also influence systemic health through general health promotion and disease prevention. [2]

Oral health practitioners can improve the overall health of children by preventing and treating oral disease, screening for health conditions, proactively recognizing and reporting child abuse,[1] preventing traumatic injuries through education, promoting vaccine uptake, preventing obesity via healthy eating advice, and making referrals to appropriate providers for any concerns. Interprofessional collaboration is essential.

Addressing overall health issues is more essential as children age since the frequency of medical visits tend to decrease as the frequency of oral recare visits increases. Research shows children aged 6- to 12-years are four times more likely to visit an oral health professional than a pediatrician.

Oral health examinations

The first oral health appointment is recommended around the time the first tooth erupts and no later than 12 months of age. The developing dentition and occlusion should be monitored regularly throughout eruption.

[1] All oral health professionals have the duty to report. The *Child, Youth and Family Services Act, 2017* (CYFSA) mandates the public, including dental hygienists, to promptly report suspected child abuse or neglect to a Children's Aid Society. Only reasonable grounds to suspect child abuse or neglect are needed to make a report. Individuals must report it themselves and cannot assign the task to anyone else. Consent of the child or their caregivers is not needed to make a report. Failure to report may lead to a fine upon conviction. Scroll down to page 27 for more information on duty to report. [56] [57] [58]

Components of a comprehensive clinical exam to enable correct diagnosis and effective treatment planning include:

- Medical, oral health, and social history review
- Extraoral exam
- Intraoral soft and hard tissue exam
- Oral hygiene and periodontal-risk assessment
- Assessing the developing occlusion
- Radiographic assessment, if indicated
- Caries-risk assessment
- Assessing the cooperation and behaviour of the child [2]

Frequency of exams is based on individual needs and susceptibility to disease. Some children may require more or less frequent exams and preventative services, based on their health history and clinical and radiographic findings. Re-evaluating their oral health and reinforcing prevention with parents/caregivers and clients can improve outcomes and potentially allay anxiety and fear in apprehensive children and adolescents. [2]

Caries risk assessment

Caries risk assessment (CRA) should be performed as soon as the first primary tooth erupts and reassessed periodically. The goal is to prevent disease by identifying clients at high dental caries[2] risk and developing individualized preventive measures and recare intervals. Studies show dental caries experience in the primary dentition is highly predictive of caries occurring in the permanent dentition. Utilizing CRA forms[3] and caries management protocols helps to simplify and clarify the process. [2]

Certain groups of children are at greater risk for developing early childhood caries[4] (ECC). ECC etiology is multifactorial and significantly influenced by health behaviours. Preventive education for expectant parents and parents of very young children should target caries risk factors (e.g., early *S. mutans* transmission, poor oral hygiene habits, nighttime feeding, high frequency sugar consumption). [2] [3]

Early school-aged children are transitioning from primary to mixed dentition. They are at a heightened risk for developing caries from increased consumption of cariogenic foods and beverages at school and their growing independence, which may result in unsupervised toothbrushing. Therefore, their oral hygiene and dietary practices require special attention and parental education. [2]

Adolescents may experience heightened caries activity due to more teeth in the permanent dentition, increased intake of cariogenic substances, and low priority for oral self-care. Risk assessments can help ensure tailored preventive care (e.g., professional

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[2] Refer to Episode 115 for detailed discussion on dental caries in the pediatric population.

[3] Canadian Caries Risk Assessment Tool (Ages <6 years) https://umanitoba.ca/dentistry/community-and-partners/canadian-caries-risk-assessment-tool

ADA Caries Risk Assessment Forms Download Instructions

- Caries Risk Form (Ages 0-6 Years)
- Caries Risk Form (Over 6 Years)

[4] Refer to Episodes 86 and 115 for additional information on early childhood caries.

and home-use fluoride and antimicrobial agents), and determine frequency of oral care visits. Risk assessments should be repeated regularly, as the risk of developing dental caries can change over time due to changes in habits (e.g., diet, home care). [2]

Periodontal risk assessment
Periodontal risk assessment (PRA) identifies risk factors that place clients at increased risk of developing periodontal diseases and factors that influence disease progression. Probing should begin after the first permanent molars and incisors have fully erupted and if tolerated by the child. Probing of primary teeth may be necessary when clinical and radiographic findings indicate periodontal pathology. Bleeding on probing during early childhood, even at a low number of sites, is indicative of high susceptibility to periodontal diseases. PRA can improve clinical decision-making and individualized treatment planning. Maintaining periodontal health during childhood and adolescence can help ensure periodontal health as an adult.[5] [2]

Oral habit assessment
Oral habits (e.g., nonnutritive sucking habits [digit, pacifier], bruxism,[6] tongue thrust swallow, abnormal tongue position, self-injurious behaviour) may apply forces to teeth and dentoalveolar structures. Although early use of pacifiers and digit sucking are considered normal, pacifier use beyond 18 months can influence the developing orofacial complex. Increased overjet and class II malocclusion are more strongly associated with digit versus pacifier sucking. Children with nonnutritive sucking habits beyond age three have a higher incidence of malocclusions. Early oral health visits provide opportunities to counsel parents to help their children stop sucking habits before malocclusion or skeletal dysplasias occur. School-aged children and adolescents may need counselling on existing habits (e.g., fingernail biting, clenching, bruxism), including the potential immediate and long-term effects on dentition. Managing oral habits may include client and parent education, behaviour modification, appliance therapy, and referral to other providers (e.g., orthodontists, psychologists). [2]

Recommendations by age groups
The American Academy of Pediatric Dentistry (AAPD) recently developed best practice recommendations to promote oral health from infancy through adolescence. The recommendations, organized by age groups: 6 to 12 months, 12 to 24 months, 2 to 6 years, 6 to 12 years, and 12 years and older, emphasize the importance of early professional interventions and care continuity based on individualized needs. [2]

6 to 12 months*
Elements for comprehensive care for children 6 to 12 months include:
- Clinical oral examination (with adjunctive diagnostic tools as required).
- Assessing systemic and topical fluoride exposure (including type of infant formula consumed) and providing fluoride education.
- Assessing feeding practices, including bottle and breastfeeding, and providing dietary counselling related to oral health as indicated.

[5] Refer to Episode 115 for additional information on pediatric periodontal diseases.
[6] Refer to episode 82 for discussion on bruxism and other habits that can cause tooth wear.

- Caries risk assessment.
- Parental oral hygiene education, including implications of caregivers' oral health.
- Age-appropriate injury prevention counselling to prevent orofacial trauma.
- Counselling on nonnutritive oral habits (e.g., digit and pacifier sucking).
- Consulting medical providers as needed.
- Providing required treatment (e.g., deposit and stain removal, fluoride varnish) and referrals.
- Determining recare intervals. [2]

12 to 24 months*

Elements for comprehensive care for children 12 to 24 months include:

- Repeating the procedures for ages 6 to 12 months every six months or as indicated by individual needs and susceptibility to oral disease.
- Assessing feeding practices (including bottle, breastfeeding, no-spill training cups) and providing counselling as indicated.
- Reviewing fluoride status and provide parental counselling.
- Assessing and monitoring occlusion.
- Providing preventive treatments every six months or as indicated by individual needs and susceptibility to disease. [2]

2 to 6 years*

Elements for comprehensive care for children 2 to 6 years include:

- Repeating the procedures for 12 to 24 months every six months or as indicated by the individual needs and disease risk status, including periodontal conditions.
- Providing age-appropriate oral hygiene instructions.
- Assessing diet to identify patterns that increase dental caries risk. Provide counselling or referral to a dietician as indicated.
- Providing preventive treatment every six months or as indicated by individual needs and disease susceptibility.
- Dental sealants for caries-susceptible primary and permanent teeth.
- Counselling as needed for orofacial trauma prevention (e.g., mouthguards, helmets with face shields).
- Assessing developing dentition and occlusion, and provide orthodontic referral as indicated.
- Providing required treatment and referrals for any oral diseases, habits, or injuries as indicated. [2]

6 to 12 years*

Elements for comprehensive care for children 6 and 12 years include:

- Repeating the procedures for ages 2 to 6 years every six months or as indicated by individual needs and susceptibility to oral disease.
- Periodontal-risk assessment with periodontal probing with eruption of first permanent molars.

- Substance use education[7] (e.g., smoking, smokeless tobacco,[8] vaping,[9] cannabis[10]) and referral to medical providers if indicated.
- HPV and the benefits of the HPV vaccine education.[11]
- Oral piercing education.
- Monitoring for disordered eating and providing referrals as appropriate.[12]
- Providing preventive treatment every six months or as indicated by individual needs and disease susceptibility. [2]

12 years and older*

Elements for comprehensive care for youth 12 years and older include:

- Repeating the procedures for ages 6 to 12 years every six months or as indicated by the child's individual needs and susceptibility to oral disease.
- Assessing the presence, position, and development of third molars during late adolescence, and refer as required.
- Providing preventive treatment every six months or as indicated by individual needs and disease susceptibility. [2]

* Nonexhaustive lists.

Oral piercings

Oral piercing of the tongue, lip, cheek, or other soft tissue is a form of body art and self-expression often seen in adolescents and young adults, with the tongue being the most common site. Complications from intraoral and perioral piercings include chipped or fractured teeth, restoration damage, gingival recession, soft tissue laceration, embedded oral jewellery (requiring surgical removal), hypersalivation, palatal erythema, oral lichenoid lesions, keloid formation, allergic contact dermatitis, pain, infection with purulent discharge, and life-threatening conditions such as bleeding, edema, and airway obstruction. Education on oral piercings should start for when clients are in their preteen years and be reinforced during subsequent visits.[13] [2] [4]

DIY social media trends

Social media has opened opportunities for oral health professionals to share best practices and promote oral health. It has also allowed the spread of misinformation and unsafe "do it yourself" (DIY) trends that may appeal to young people.[14] These trends are not low-cost solutions and can cause problems requiring extensive and expensive treatment. Understanding trends clients may follow permits practitioners to recommend more appropriate home care or treatment options.

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[7] Refer to Episodes 104 and 104 for additional information on substance use.
[8] Refer to Episode 101 for detailed discussion on tobacco use and cessation.
[9] Refer to Episode 19 for discussion on e-cigarettes and vaping.
[10] Refer to Episodes 58, 104, and 105 for additional information on cannabis and oral health.
[11] Refer to Episodes 7, 76, 77, and 116 for additional information on HPV and HPV vaccination.
[12] Refer to Episodes 95 and 96 for discussion on eating disorders.
[13] Refer to Episode 70 for additional information on oral piercings, including client education and preprocedural and post-care.
[14] DIY orthodontics led to an eight-year-old boy losing his maxillary central incisors when he placed a tiny elastic around these teeth to close a diastema. The boy and his parents assumed the elastic fell off when the band disappeared. However, it had slipped under the gingiva and caused severe bone loss, resulting in tooth loss. [51] [52]

A growing trend is “fashion braces,” often promoted on social media platforms such as TikTok. Fashion braces are fake orthodontic wires and brackets that resemble authentic braces but have no functional use. DIY fashion braces kits, sold online, include “brackets” and “wires” and an adhesive to cement the fake appliance to the teeth.

The low cost and trendy look of fake braces may appeal to youth. However, fashion braces pose serious risks. Hazards include exposure to toxic materials such as cadmium and lead in the hardware, tooth damage and misalignment, infections from unsterile hardware, soft tissue laceration, and choking hazards, as brackets and wires can fall off. [5]

Other detrimental social media trends include:

- Attempting to whiten teeth with homemade tooth-whitening toothpaste with ingredients such as hydrogen peroxide, household bleaching agents, charcoal, and baking soda mixed with lemon juice or abrasive sponges.
- Shaping teeth with nail files or rotary tools.
- Filling cavities or closing spaces between teeth with materials made from heated moulded plastic beads.
- Mewing to reshape the jawline and improve facial aesthetics using specific tongue placement. This practice lacks scientific backing and carries risks of dental issues from chronic tongue pressure loosening teeth and disrupting tooth alignment, which can contribute to tooth wear. Altered tongue placement can cause speech issues.
- Mixing flavoured sparkling water with balsamic vinegar, which increases the risk of enamel erosion as both are acidic.[15]
- Scaling teeth with hand scalers and ultrasonic instruments, which can burnish calculus, lodge deposits under the tissues, etc.
- Chewing “facial fitness gum” to define jawlines and tone facial muscles. However, excessive chewing can lead to inflammation and jaw pain.[16] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16] [17] [18] [19]

Addressing DIY trends

Opportunities to address social media misinformation with youth and parents include:

- During recare visits, when discussing oral health and oral hygiene routines, ask youth if they have seen any DIY trends online and explain the risks involved and safer alternatives.
- Include a message on dangerous social media trends in office newsletters or blogs.
- Add a FAQ section to the office website about DIY trends and explain their risks.
- Send emails to parents informing them of DIY trends and their risks, as their children may try these trends often without parents' approval or awareness.

Social media

Social media is an integral part of many people’s lives and can put pressure on the way individuals present themselves to the world. An online survey of 2,000 American social

[15] Refer to Episode 82 for additional information on enamel erosion.
[16] Refer to Episode 115 for additional information on “facial fitness gum.”

media users was commissioned by Forbes Health and conducted by market research company OnePoll. Data was collected from March 18 to March 20, 2024.

Results of the survey revealed:

- 45% felt social media harms their confidence in their smile, particularly Gen Z.[17]
- 57% compare their smiles to others on social media (72% being Gen Z).
- 47% of Gen Z feel pressured to change their smile due to social media (e.g., at-home whitening, orthodontic aligners, etc.).
- Gen Z are more likely to try to hide their smile around people than older generations.
- 27% of Gen Z have edited or considered editing the appearance of their teeth in a photo before posting it on social media.
- Younger generations, especially Gen Z and millennials, are more inclined to embrace digital enhancement tools.
- 52% of Gen Z and 56% of millennials refuse to edit their smiles, emphasizing the importance of authenticity in an increasingly filtered online landscape. [20] [21]

Oral hygiene

Parent-led toothbrushing with fluoride toothpaste is part of an evidence-based strategy to prevent dental caries in children. Peralta et al. (2024) assessed maternal perspectives on assisting children with toothbrushing. In the qualitative, cross-sectional study, 301 mothers were asked about their perceptions of when and how to assist their children aged 3 to 5 with toothbrushing. During the interviews, mothers described:

- Assisting their children with toothbrushing or ceasing to assist,
- Needing more specific instructions on how to brush their children's teeth, or
- Adhering to recommendations on child toothbrushing assistance.

Mothers who received professional recommendations about children's toothbrushing described how they implemented the recommendations into their routines. Most of the mothers revealed they adjusted their level of assistance based on observing their children's motor skills. For instance, when the children demonstrated an ability to brush themselves, the mothers stopped providing help. However, this may not be ideal as the children may not be brushing effectively. The results highlight the importance of educating caregivers on techniques to improve toothbrushing in children, including when they can initiate independent toothbrushing. [22]

There is no consensus on when children are ready to brush independently. A cross-sectional study by Chua et al. (2021) evaluated the association between chronological age and motor development and toothbrushing effectiveness in 111 healthy 5- to 7-year-old children. Toothbrushing effectiveness was measured by disclosing plaque before and after manual toothbrushing and using the oral hygiene index (OHI) before and after brushing.

The study found children ≥6 years old could brush their teeth more effectively than children <6 years old. However, none of the children were able to achieve good oral

[17] Individuals from Gen Z are currently 12-27 years old as they were born in 1997 to 2012.

hygiene levels after toothbrushing, suggesting children in these age groups still require parental supervision to attain good oral hygiene. [23]

Children's oral health is correlated with the oral health knowledge of their parents or caregivers, as oral health-related habits are acquired during infancy and maintained throughout early childhood. A systematic review by Kaushik and Sood (2023) explored parental knowledge, attitudes, and preferences about their children's oral health. The findings indicated many parents had limited knowledge about oral health and oral healthcare for their children. For example, most parents were unaware of when their child's first tooth typically erupts and held misconceptions about proper oral hygiene. Additionally, many parents underestimated the impact of sugar on oral health. The review also found a significant number of parents had not taken their children for an oral health appointment until they experienced severe pain, indicating a lack of regular oral health check-ups.

Furthermore, many parents did not prioritize regular oral health visits for their children. The study noted the need for increased parental education and awareness regarding children's oral health. It also pointed out the importance of informing parents about the significance of primary teeth, the necessity of early oral health visits, and the potential consequences of neglecting oral health. [24]

Increasing adolescent motivation to improve oral hygiene behaviour can be a challenge. A randomized field study by Dimenäs et al. (2023) compared the self-reported experiences of 276 adolescents following two types of oral hygiene instructions. The test group received person-centred, theory-based instructions based on social cognitive constructs and motivational interviewing, whereas the control group received conventional oral hygiene instructions. Based on the adolescents' self-reported data, the test group was more satisfied with the education received about gingivitis and the communication during therapy. They also had better oral hygiene and higher confidence about keeping their gingiva healthy at six months. Considering adolescents were more satisfied with person-centred, theory-based oral hygiene instructions, clinicians should consider this approach over conventional oral hygiene instructions.[18] [25]

Oral health appointments

According to the Canadian Oral Health Survey, approximately 72% Canadians aged 12 years and older reported from November 2023 to March 2024 that they had visited an oral health professional in the past year. This percentage was down from 75% in 2018 but up from 65% in 2022. Among children and youth aged 6 to 17, about 88% had visited an oral health professional in the previous 12 months, while only 52% of children younger than six had done so. [26]

Canadians with private or public dental insurance (81%) were much more likely to report from November 2023 to March 2024 that they had visited an oral health professional in the past year than those without insurance (56%). These results are similar to recent

[18] Refer to Episode 89 for additional information on oral self-care.

reports that identified dental insurance as an independent predictor of accessing oral care, even after controlling for other factors. [26]

For example, data from the 2019 Canadian Health Survey on Children and Youth found a large percentage of Canadian children under the age of 5 had never visited an oral health professional (80% of 1-year-olds to 16% of 4-year-olds). For children and youth aged 5 to 17, 89% had visited an oral health professional within the past 12 months, with 93% being insured and 78% uninsured. [1]

Children and youth with dental insurance were nearly three times more likely to have visited an oral professional in the past 12 months than uninsured children and youth, even after adjusting for income and other sociodemographic factors. Dental insurance was protective against barriers to seeing an oral health professional because of cost. [1]

Potential psychological and other costs from lack of access to oral healthcare include:

- Decreased access to preventive treatments.
- Increased oral disease, pain, distress, and tooth loss.
- Increased likelihood that visits for treatment will be traumatic, potentially leading to conditioned dental fear, with traumatic dental stories in the media increasing fear.
- Reduced opportunities for positive learning experiences, which build trust and coping skills. A lack of trust is associated with not attending oral care appointments.
- Increased need for treatment under general anesthesia. [27]

Canadian Dental Care Plan[19]

To help address disparities and ultimately improve the oral health of Canadians, the Canadian government introduced the Canadian Dental Care Plan (CDCP). The CDCP is to help ease financial barriers to accessing oral healthcare and fill existing gaps in coverage by providing dental insurance for uninsured Canadian residents with an adjusted family net income of less than $90,000. [28]

The original Interim Canada Dental Benefit (CDB) program targeted those <12 years of age from families with annual incomes <$90,000 without private dental insurance. The program provided financial support up to $650 for each child, depending on the family's adjusted net income. The Interim CDB began on October 1, 2022, and was sunset on June 30, 2024. [28]

Schroth et al. (2024) reviewed data on public uptake and applications made to the Canada Revenue Agency (CRA) during the first year of the Interim Canadian Dental Benefit. Results showed that 204,270 applications received approval for 321,000 children <12 years of age and over $197M was distributed by the CRA. The authors concluded that data from the first year of the Interim CDB suggests federal funding increased access to care for children <12 years by addressing the affordability of oral healthcare. Governments and oral health professions need to also address other

[19] CDCP: Applications are open for children under the age of 18 in families with no dental insurance and a family income under $90,000. https://www.canada.ca/en/services/benefits/dental/dental-care-plan.html

dimensions of access to care, such as accessibility, availability, accommodation, awareness, and acceptability of oral healthcare.[20] [28]

Dental fear and anxiety

Dental fear and anxiety continue to be a challenge for oral health practitioners when providing care to children. Clients with dental anxiety tend to avoid oral health appointments and necessary treatments, which can have a negative impact on their oral health and quality of life. [29]

Dental fear and anxiety in children can result in poor oral health, which may lead to oral health problems in adulthood. A systematic review and meta-analysis by Sun et al. (2024) based on 25 observational studies found approximately 30% of 2–6-year-old children experience dental fear and anxiety globally. Levels were higher in children who had not visited an oral health practitioner and in children with dental caries, compared to those who had attended oral health visits or were caries-free. The prevalence of dental fear did not significantly differ between boys and girls. [30]

Adverse childhood experiences (ACEs) are potentially traumatic events occurring before age 18 and can include physical abuse, sexual abuse, emotional abuse, neglect, household dysfunction, and bullying. Studies show ACEs are associated with health risk behaviours and poor health, including unfavourable oral health behaviour and poor oral health. [31]

Research has shown an association between ACEs and dental anxiety, with higher cumulative ACEs positively correlating with increased dental anxiety scores. Specific ACEs, such as emotional and physical neglect, sexual abuse, and household substance use, were found to significantly influence the likelihood of experiencing heightened dental anxiety. [32]

Dental anxiety is a common reason for adults missing oral health check-ups. Parents with dental anxiety are less likely to take their children for oral care appointments. As a result, parental dental anxiety can influence children's dental anxiety. Dental anxiety is more widespread among parents from underprivileged backgrounds and lower levels of education. [33]

Caregiver's oral health literacy also significantly influences oral health outcomes in young children. Caregivers from low-income backgrounds are more likely to have low oral health literacy, high dental anxiety, and infrequent use of oral healthcare services. Low caregiver oral health literacy results in poor oral health behaviours for young children, including night-time bottle feeding and irregular toothbrushing habits. [33]

[20] The 2024 Original Tooth Fairy Poll® reveals that while Tooth Fairy visits continue to promote oral hygiene and spark children's imagination, the average payout for a lost tooth has decreased by 6%, dropping from $6.23 to $5.84 in the US. This marks the first decline in 5 years. Despite the decrease, parents still see the Tooth Fairy as a valuable tool in teaching children about money and healthy habits. The 2024 poll also revealed the average amount received in Ireland and Spain was €5.40, £4.62 in England, and $7.89 in Canada. [31] [32]

Oral health-related quality of life (OHRQoL) is adversely affected by negative dental experiences. Research has also revealed parental dental anxiety can impact OHRQoL of children who have not had a negative dental experience. [34]

Understanding the risk indicators of parental dental anxiety and oral health literacy can help oral health practitioners recognize challenges and effectively engage with parents to build trust and promote early and regular oral health visits, thereby improving their children's oral health. [33]

Previous dental experiences can influence pediatric clients' behaviour. Those who have had negative interactions with oral healthcare may exhibit heightened fear during dental procedures. [35]

Pain or fear of pain during dental treatment is stressful for many people. Some children and adolescents are not always able or confident enough to express stress during dental treatment. Krekmanova et al. wanted to uncover this silent or hidden stress. In a pilot study, researchers used devices capturing hand movement and sweating via electrodermal activity to monitor the stress levels of 34 adolescents aged 14 to 16 undergoing standard oral health exams or anesthetic injections and subsequent tooth extraction.

While the adolescents who underwent a standard exam exhibited scattered stress patterns, those who received anesthetic injections experienced higher levels of stress for longer durations. The researchers found this higher level of stress was linked to anesthetic injections and spiked during administration. This study was presented at the 2024 congress of the European Academy of Paediatric Dentistry. The researchers hope their findings can inspire clinicians to monitor clients' stress levels and perform remedial measures to minimize fear and stress. [36]

Behaviour management

Before treatment, awareness of a child's behaviour and anxiety levels enables oral health practitioners to anticipate and plan for behaviour and anxiety-related responses, permitting them to implement behaviour control measures if necessary. [35]

Managing child behaviour during oral health visits can improve the quality of care provided to pediatric clients. Several approaches exist to manage pediatric clients' behaviour to achieve optimal outcomes. One popular nonpharmacological approach is the tell-show-do technique, which involves explaining the procedure to the child and demonstrating the visual, auditory, and tactile aspects. Nonverbal communication is another approach characterized by creating a child-friendly and cheerful environment, all staff using gentle communication, and practitioners employing voice control through regulated changes in voice, volume, tone, or speed to influence and guide pediatric clients' behaviour. [35]

Using stop signals gives children some control over the clinician's actions. These signals have been shown to reduce discomfort during routine oral health treatments and improve behaviour control. [35]

Observing the behaviour of family members and older siblings can positively impact children's behaviour in the oral health setting. This is known as behaviour modelling. In contrast, the distraction method aims to redirect children's focus from the oral health procedure to another situation or task. [35]

Pain management

Children and adolescents can and do experience pain due to orofacial injury, infection, and dental procedures. Inadequate pain management may have significant physical and psychological consequences on this population. Appreciating pediatric pain can help develop approaches to prevent or relieve oral pain. Pain management includes nonpharmacologic and pharmacologic strategies to treat acute and chronic pain. [37]

Nonpharmacologic pain management

Research suggests nonpharmacologic interventions may be effective alone or as adjuncts to pharmacological interventions in managing procedure-related pain, anxiety, and distress. Fear and anxiety activate circuits within the central nervous system that facilitate pain. Creating a safe, calm, and friendly environment may help children feel more comfortable and less stressed and improve pain management. [37]

Distraction

Distraction is an effective method of pain management in the pediatric population. It can be cognitive (e.g., counting, nonprocedural talk) or behavioural (e.g., videos, games), with both aiming to shift attention away from pain. Distraction techniques (e.g., bubbles, counting, conversation, music, television, toys, video games) can be used by the provider or the child’s caregiver. Strong evidence supports the efficacy of distraction techniques for needle-related pain and distress in children and adolescents. [37]

Imagery

Imagery guides the child’s attention away from the procedure using imagination and storytelling. Imagery, combined with distraction, has been shown to decrease postoperative pain in children. [37]

Virtual reality and smart phone applications

Using digital technology can provide distraction and reduction in pain and distress for children undergoing painful procedures. The use of virtual reality, video games, and smartphone applications has shown a reduction in self-reported and observer-reported pain and distress during dental treatments. Further studies are needed to assess the benefits of distraction with a tablet compared to audiovisual glasses during dental procedures. [37]

Other techniques

Research has shown efficacies for pediatric pain management with relaxation and breathing exercises, transcutaneous electrical nerve stimulation, acupuncture, and music therapies. Additional research is needed on these interventions to measure their effectiveness. [37]

Pharmacologic pain management
Recently published evidence-based clinical practice guidelines endorsed by the American Dental Association (ADA) recommend acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, as first-line treatments for managing short-term dental pain associated with toothaches and extractions in children under age 12. [38]

Although children experience adverse effects when their pain is not managed, they also can experience adverse effects from the medication used to manage their pain, depending on the medication. When acetaminophen or NSAIDs are administered as directed, the risk of harm to children from either medication is low. However, the risk of harm from opioids is concerning. Research demonstrates that when children use opioid-containing medications to manage pain, they can experience serious adverse effects, such as hospital admission or death, even when opioids are prescribed at therapeutic doses. [38]

The guideline advises that when used as directed, acetaminophen, NSAIDs, or a combination of the two can effectively manage pediatric pain after a tooth extraction or for a toothache when dental care is not immediately available. [38]

In 2024, a second ADA-endorsed evidence-based clinical practice guideline for the pharmacologic management of acute dental pain for adolescents, adults, and older adults was published. The guideline recommends NSAIDs (e.g., ibuprofen or naproxen) taken alone or along with acetaminophen as first-line treatments for managing short-term dental pain in adults and adolescents aged 12 or older. [39]

The guideline also provides recommendations for prescribing opioid medications in the limited circumstances in which they may be appropriate. These include avoiding “just in case” prescriptions, engaging clients in shared decision-making, and exerting extreme caution when prescribing opioids to adolescents and young adults. [39]

Adolescents are at an increased risk of developing an opioid use disorder, even after a single exposure. For example, adolescents and young adults (aged 13-30 years) undergoing third-molar extraction and filling a perioperative opioid prescription were associated with a 1% increased risk of persistent opioid use and a 2% increased risk of receiving a diagnosis of a substance use disorder. In addition, adolescents and young adults filling or receiving an opioid prescription after a dental procedure may have an increased risk of developing long-term opioid use and overdose than those who did not fill or receive an opioid prescription. When prescribing opioids, the guideline suggests advising clients on proper storage and disposal and considering any risk factors for opioid misuse and serious adverse events. [39]

Ankyloglossia
Ankyloglossia is a congenital condition that limits the tongue’s range of motion because of a short lingual frenulum that tethers the underside of the tongue’s tip to the floor of the mouth. A restrictive lingual frenulum may interfere with breastfeeding by not allowing the infant to extend and elevate their tongue to grasp the nipple with suckling. [40]

Studies show the diagnosis of ankyloglossia and the frequency of performing a frenotomy has increased recently worldwide. Many healthcare professionals have expressed concerns regarding the overdiagnosis of tongue-tie surgeries that may not always resolve breastfeeding issues. The increased rate of frenotomy is fueled partly by economic incentives for healthcare providers, which has led to a surge in the number of clinics and specialists offering tongue-tie surgeries. In addition, social media has increased awareness of ankyloglossia, and online communities often pressure parents to seek surgical procedures when breastfeeding difficulties arise. [40] [41]

Parents with breastfeeding problems also face considerable pressure to have maxillary labial frenula[21] or buccal frenula[22] addressed. These are normal structures, and interventions to release these ties are not supported by evidence.

Breastfeeding difficulties are common. Maternal pain is one of the most common complaints from breastfeeding. Pain can lead to poor milk transfer and insufficient infant growth, as well as premature cessation of breastfeeding. However, most difficulties with breastfeeding, including pain, are not due to ankyloglossia, and the differential diagnosis of feeding problems in newborns is extensive.

If breastfeeding problems continue after other causes have been evaluated and treated, surgical intervention for ankyloglossia by a trained professional is a reasonable option. Despite the widespread use of lasers for frenotomy, no studies support their use over scissor clipping in infants younger than six months.

The Academy of Breastfeeding Medicine and the American Academy of Otolaryngologists-Head and Neck Surgeons recommend frenotomy for tongue-tie under limited circumstances but do not recommend interventions for labial or buccal frenula. [41] [42] [43]

ADA agrees with a 2022 policy statement by AAPD, which noted not all children with ankyloglossia need surgical intervention, and a team-based approach with other specialists can aid in treatment planning. [44] [45]

There are no uniform accepted diagnostic criteria for diagnosing ankyloglossia, and there is a lack of consensus for treating ankyloglossia, leading to wide global practice variations. Furthermore, research shows anatomic variations of the lingual frenulum do not necessarily lead to difficulties with breastfeeding, and less than 50% of infants with the characteristics of tongue-tie actually have difficulty breastfeeding.

The American Academy of Pediatrics (AAP) has released new evidence-based guidance to help pediatricians care for mothers and infants with breastfeeding

[21] Maxillary labial frenulum attaches the maxillary lip to the alveolar mucosa above the maxillary central incisors.
[22] Buccal frenula connect the buccal mucosa to the alveolar mucosa in the posterior region of the maxilla and/or mandible.

problems. It recommends prioritizing nonsurgical interventions and fostering a collaborative care model to help ensure successful breastfeeding outcomes. [40] [41]

Key findings and recommendations in the guidance include:

- Early identification of feeding problems is crucial to support successful breastfeeding outcomes and should take place in the medical home.
- Comprehensive care for infants with tongue-tie requires collaboration with lactation consultants, speech-language pathologists, and other specialists.
- Frenotomy should be reserved for cases where significant functional impairments are observed, and nonsurgical interventions have failed. The procedure is safe, and poor outcomes are rare. Post-procedure care of the infant should ensure symptoms have improved. Postoperative “stretching” exercises to prevent reattachment are not recommended.
- No evidence supports laser over other methods of frenotomy.
- Increasingly, parents are influenced by online communities advocating for surgical interventions for tongue-tie. It is essential to guide them toward evidence-based practices.
- Evidence supporting frenotomy is limited. While it may alleviate maternal nipple pain, its broader efficacy for other diagnoses remains uncertain.
- Labial and buccal frenula are normal oral structures unrelated to breastfeeding mechanics and do not require surgical intervention to improve breastfeeding.
- Sucking blisters are a normal finding in newborn infants and are not suggestive of pathology. [41]

Infant oral mutilation

Infant oral mutilation (IOM) is a traditional practice involving extraction of an infant's unerupted primary teeth or tooth buds without anesthesia or sterile instruments. IOM is prevalent in many African countries but practised most often in East Africa (or by people originating from this region) in infants aged 4 to 8 months. This practice has no health benefits but has severe acute and long-term consequences. Many children have died and are still dying from the effects of IOM. [46] [47] [48]

In literature, IOM is also called “milk tooth extraction,” “dental mutilation,” “primary canine enucleation,” “tooth bud extraction,” or “tooth bud gouging.” Countries practising IOM have traditional terms to refer to the practice or the tooth buds, such as Ebinyo, killer canine extraction, worm tooth extraction, false teeth, Lugbara teeth, nylon or plastic teeth, or lawalawa. [46] [47]

IOM involves gouging out unerupted primary teeth, whereby the swollen gingiva containing the developing tooth buds are mistaken for “tooth worms” believed to cause symptoms, such as diarrhea, vomiting, and fever. Thus, tooth buds are removed to treat or prevent those conditions. IOM also performed for other reasons, such as superstitions or cultural beliefs. [46] [47]

IOM is often performed by elders or local healers using crude and nonsterile tools, exposing the infant to pain and medical and oral complications. The tools used include sharpened stones, broken glass, sharpened bicycle spokes, umbrella spokes, knives,

needles, nails, fingernails, razors or chisel-shaped instruments. IOM is performed either unilaterally or bilaterally. Two types of IOM have been reported. The first approach involves lancing the tissue over the developing primary canines with a sharp, heated tool until bleeding occurs. The second approach entails incising the developing primary canine bulge before removing (enucleating) the whole healthy tooth bud. [49]

IOM is most often sought by parents from rural areas and/or a lower socioeconomic background. IOM is mainly performed on unerupted primary mandibular canines, as these tooth buds are more visible and palpable than primary maxillary canine tooth buds. [46] [48]

Complications of IOM

IOM leads to psychological trauma and denies the child necessary medical treatment for an undiagnosed illness. Other effects of IOM include:

- Pain, hemorrhage, and infection
- Soft tissue swelling, inflammation, trismus, tissue laceration, submandibular abscess
- Dental complications (e.g., malformed teeth, enamel hypoplasia, occlusal discrepancies, tooth impaction, premature eruption of permanent teeth)
- Septicemia, severe anemia, fever, febrile convulsions, diarrhea, and dyspnea
- Infections such as HIV, hepatitis, tetanus, osteomyelitis
- Death [46] [49]

Globalization of IOM

Increased immigration from the African continent to high-income countries over the last 20 years has included individuals from African communities with deeply rooted IOM practices. This small but fast-growing population may keep this superstitious tradition alive in their adopted countries. Countries that have reported cases of IOM include UK, Sweden, USA, Canada, Australia, New Zealand, and Israel. In countries where the laws prohibit IOM, parents have often travelled to their motherland to undertake IOM on their children. Some reports have confirmed that IOM was performed illegally in the new destination countries. [47] [49] [50]

It is crucial to raise IOM awareness among oral health and medical providers so they can respectfully and routinely enquire and counsel parents and caregivers about IOM and be prepared to deal with medical and oral health emergencies arising from the practice of IOM. [49]

Clinical management of IOM

Children with confirmed or suspected IOM may present with pain, swelling, open wounds, redness, white patches, and damage to teeth and the periodontium. Treatment includes treating pain and infection (e.g., incision and drainage, antibiotics, sutures, wound dressing, topical hemostatic agents, analgesics) and possible referrals to dental specialists and medical providers. [46]

Long-term oral complications of IOM may include missing teeth, malformed teeth, occlusal discrepancies, midline shift, enamel hypoplasia, abnormal eruption of permanent teeth, rotations, chronic periapical infections, canine transpositions, or

odontomas. Treatment may include restorative, prosthodontic, orthodontic, and endodontic treatment, with specialist referrals as required. [46] [47]

IOM is a serious and hidden global public health problem and a form of child abuse to children, with short-term and long-term implications on the quality of life. IOM goes against the United Nations Convention on the Rights of the Child (1989). [49]

In 2019, the Addis Ababa Declaration to end IOM was formulated and signed by chief dental officers from East and Central Africa (Ethiopia, Somalia, Kenya, Tanzania, Rwanda, Democratic Republic of Congo, Sudan). The ultimate goal is to eradicate IOM by raising awareness through public health campaigns and spreading knowledge among oral health professionals across the world to create unity and build meaningful collaborations in ending IOM. [48]

Take home messages

- Routine oral health appointment for children should be based on their individual needs and risk assessment.
- Parents should receive guidance on how to take care of their children's teeth and when children can start taking care of their own teeth effectively.
- Understanding dental fear and anxiety experienced by pediatric clients underscores the importance of utilizing effective communication with both children and their parents/caregivers.
- Oral health practitioners should stay informed about social media trends that youth may follow to help combat misinformation and provide appropriate home care or treatment options.
- Ankyloglossia should be properly assessed and referrals to specialists as required.
- Infant oral mutilation negatively impacts children’s oral and overall health and quality of life. Heightened awareness among oral health professionals can facilitate informed discussions with parents and caregivers, a step towards eradicating IOM and protecting children's well-being and rights.

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Client Resources

Canadian Dental Care Plan (CDCP)
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Additional Resources

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Canadian Caries Risk Assessment Tool for ages <6 years, available in French or English https://umanitoba.ca/dentistry/community-and-partners/canadian-caries-risk-assessment-tool

ADA Caries Risk Assessment Forms

- Download Instructions
- Caries Risk Form (Patients Ages 0-6 Years)
- Caries Risk Form (Patients Over 6 Years)

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Duty to Report

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