



Dental Home - An Imperative Practice Elapsed

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Abstract

The dental home is inclusive of all characteristics of oral health that result from the interface of the patient, parents, non-dental professionals and dental professionals. Establishment of the dental home is initiated by the identification and interface of these individuals, resulting in a heightened awareness of all issues impacting the patient's oral health and it embraces the importance of early intervention with optimal preventive strategies chosen based on the risk of the patient and would encourage the first dental visit by approximately six year of age.

Keywords: Dental Home; Anticipatory Guidance; Preventive Dentistry; Risk Assessment; Infant Oral Health

Abbreviations

AAPD: American Academy of Paediatrics Dentistry; ADA: American Dental Association; APD: American Academy of Paediatrics; ECC: Early Childhood Caries

Introduction

The dental home is a locus for preventive oral health management and emergency care. It can be a source of record and can focus on making special referrals. When culture and ethnicity are barriers to care, Dental Home proposes a modified site for care and is delicate to 0 family values.

The concept of "dental home" is derived from the American Academy of Pediatrics. The American Academy of Pediatrics states that medical care for infants, children, and adolescents should be accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective [1-4].

An important feature of the dental home is that parents are given advance guidance so that they are aware of the growth and development of their child, as well as the risk factors that may occur as the child ages. Another advantage of the dental home is that preventive interventions can be personalized to the needs of the child. Risk assessment remains an emerging science and although practical indications are available for high-risk children, physician comments are still valid.

Background

AAP released a policy statement in 1992 defining a medical home [5]. After that, the health care provided to patients in a medical home environment is more effective and less costly compared to emergency care facilities or hospitals [6-8].

The AAPD definition for the dental home was revised in 2015. "The dental home is a continuous ongoing relationship between the dentist and the patient that provides a comprehensive, consistent,

coordinated and family-centered distribution of all aspects of oral health care. A dental home should be set up for at least 12 months to help keep children and their families healthy for life. A dental home addresses anticipatory guidance and preventive, acute, and comprehensive oral health care and includes referral to dental specialists when appropriate”.

Clinical evidence for the effectiveness of early professional dental care is available, along with caries-risk assessment, prior guidance, and periodic monitoring. Establishing a dental home as a complementary, low-cost, and high-quality health care setting for emergency care conditions can follow the medical home model, Children who have a dental home are more likely to obtain appropriate preventive and routine oral health care. Children should be referred by primary care physician or health care provider, based on a risk assessment, at 6 months of age or 6 months after the first tooth eruption, but before of 12 months of age [9-11].

In addition, the number of appointments is based on risk assessment. It provides opportunities to implement preventive health practices and reduce the risk of preventable dental/oral disease in children [12].

Dental home policy statement by AAPD

1. AAPD encourages parents and other caregivers to establish dental home for every child by 12-month of age.
2. AAPD recognizes the need to provide a dental home [13]:
 - A. Comprehensive oral health care including intensive care and prevention services in accordance with AAPD’s regular schedules [14]
 - B. Comprehensive assessment of oral diseases and conditions
 - C. Personalized prevention dental health program based on caries-risk assessment [15]
 - D. Advance guidance on growth and development issues (i.e. dental, nutritional or mitigation habits)
 - E. Planning for a serious dental injury

- F. Proper care of children’s teeth and gingiva. These include the prevention, diagnosis and treatment of oral disease, as well as the health and function of those structures and tissues
 - G. Diet counselling
 - H. Referral to dental specialities. when care cannot be provided in dental home.
3. AAPD promotes communication with early intervention programs, schools, child education, child care programs, members of medical and dental associations, and other public and private community groups to raise awareness on age-determining oral health issues [16].

Risk group for dental caries

The caries risk of having an infant can be determined using the caries risk assessment tool (Table 1: Caries-risk assessment form for 0 - 5 Years Old, Table 2: Caries-risk assessment form for ≥ 6 years old) (Table 3: Example of a caries management pathways for 0-5 Years Old, Table 4: Example of a caries management pathways for ≥ 6 years old).

However, even the most discreetly designed and implemented caries risk assessment tool can fail to identify all infants with dental caries, such as

- Children with special health care.
- Children of mothers with an increased rate of dental caries.
- Children with definite caries, plaque, white spots, and/or staining.
- Infants who sleep overnight with either bottle fed or breastfeeding.
- Post-order children.
- Children from low-income families.

Factors	High risk	Moderate risk	Low risk
Risk factors, social/biological			
Mother/primary caregiver has active dental caries	Yes		
Parent/caregiver has life-time of poverty, low health literacy	Yes		
Child has frequent exposure (>3 times/day) between-meal sugar-containing snacks or beverages per day	Yes		
Child uses bottle or non-spill cup containing natural or added sugar frequently, between meals and/or at bedtime	Yes		
Child is a recent immigrant		Yes	
Child has special health care needs		Yes	
Protective factors			
Child receives optimally-fluoridated drinking water or fluoride supplements			Yes
Child has teeth brushed daily with fluoridated toothpaste			Yes
Child receives topical fluoride from health professional			Yes
Child has dental home/regular dental care			Yes
Clinical findings			
Child has non-cavitated (incipient/white spot) caries or enamel defects	Yes		
Child has visible cavities or fillings or missing teeth due to caries	Yes		
Child has visible plaque on teeth	Yes		

Table 1: Caries-risk assessment form for 0 - 5 years old [17].

Circling those conditions that apply to a specific patient helps the practitioner and parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low, moderate, or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (e.g., frequent exposure to sugar-containing snacks or beverages, more than one decayed missing filled surfaces [dmfs]) in determining overall risk.

Overall assessment of the child’s dental caries risk: High r
Moderate r Low r.

Factors	High risk	Moderate risk	Low risk
Risk factors, social/biological			
Patient has life-time of poverty, low health literacy	Yes		
Patient has frequent exposure (>3 times/day) between-meal sugar-containing snacks or beverages per day	Yes		
Child is a recent immigrant		Yes	
Patient has special health care needs		Yes	
Protective factors			
Patient receives optimally-fluoridated drinking water			Yes
Patient brushes teeth daily with fluoridated toothpaste			Yes
Patient receives topical fluoride from health professional			Yes
Patient has dental home/regular dental care			Yes
Clinical findings			
Patient has ≥1 interproximal caries lesion	Yes		
Patient has active non-cavitated (white spot) caries lesions or enamel defects	Yes		
Patient has low salivary flow	Yes		
Patient has defective restorations		Yes	
Patient wears an intraoral appliance		Yes	

Table 2: Caries-risk assessment form for ≥6 years old [17] (For dental providers).

Circling those conditions that apply to a specific patient helps the practitioner and patient/parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low, moderate, or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (e.g., interproximal lesions, low salivary flow) in determining overall risk.

Overall assessment of the dental caries risk: High r Moderate r Low r.

Risk Category	Diagnostics	Interventions			Restorative
		Fluoride	Dietary Counseling	Sealants	
Low risk	<ul style="list-style-type: none"> Recall every six to 12 months Radiographs every 12 to 24 months 	<ul style="list-style-type: none"> Drink optimally fluoridated water Twice daily brushing with fluoridated toothpaste 	Yes	Yes	<ul style="list-style-type: none"> Surveillance
Moderate risk	<ul style="list-style-type: none"> Recall every six months Radiographs every six to 12 months 	<ul style="list-style-type: none"> Drink optimally fluoridated water Twice daily brushing with fluoridated toothpaste Fluoride supplements Professional topical treatment every six months 	Yes	Yes	<ul style="list-style-type: none"> Active surveillance of non-cavitated (white spot) caries lesions Restore of cavitated or enlarging caries lesions
High risk	<ul style="list-style-type: none"> Recall every three months Radiographs every six months 	<ul style="list-style-type: none"> Drink optimally fluoridated water Brushing with 0.5 percent fluoride gel/paste Fluoride supplements Professional topical treatment every three months Silver diamine fluoride on cavitated lesions 	Yes	Yes	<ul style="list-style-type: none"> Active surveillance of non-cavitated (white spot) caries lesions Restore of cavitated or enlarging caries lesions

Table 3: Example of a caries management pathways for 0 - 5 years old [17].

Risk Category	Diagnostics	Interventions			Restorative
		Fluoride	Dietary Counseling	Sealants	
Low risk	<ul style="list-style-type: none"> Recall every six to 12 months Radiographs every 12 to 24 months 	<ul style="list-style-type: none"> Drink optimally fluoridated water Twice daily brushing with fluoridated toothpaste 	Yes	Yes	<ul style="list-style-type: none"> Surveillance
Moderate risk	<ul style="list-style-type: none"> Recall every six months Radiographs every six to 12 months 	<ul style="list-style-type: none"> Drink optimally fluoridated water Twice daily brushing with fluoridated toothpaste Fluoride supplements Professional topical treatment every six months 	Yes	Yes	<ul style="list-style-type: none"> Active surveillance of non-cavitated (white spot) caries lesions Restore of cavitated or enlarging caries lesions
High risk	<ul style="list-style-type: none"> Recall every three months Radiographs every six months 	<ul style="list-style-type: none"> Drink optimally fluoridated water Brushing with 0.5 percent fluoride gel/paste Fluoride supplements Professional topical treatment every three months Silver diamine fluoride on cavitated lesions 	Yes	Yes	<ul style="list-style-type: none"> Active surveillance of non-cavitated (white spot) caries lesions Restore of cavitated or enlarging caries lesions

Table 4: Example of a caries management pathways for ≥6 years old [17].

Notes for caries management pathways tables [17]:

- **Twice daily brushing:** Parental supervision of a “smear” amount of fluoridated toothpaste twice daily for children under age 3, “pea size” amount for children ages 3 - 6.
- **Optimize dietary fluoride levels:** Ideally by consuming optimally fluoridated water; alternatively, by dietary fluoride supplements, in a non-fluoridated area, for children at high caries risk.
- **Surveillance and active surveillance:** Periodic monitoring for signs of caries progression and active measures by parents and oral health professionals to reduce cariogenic environment and monitor possible caries progression.
- **Silver diamine fluoride:** Use of 38 percent silver diamine fluoride to assist in arresting caries lesions. Parental consent highlighting in particular expected staining of treated lesions.
- **Interim therapeutic restorations:** Also, may be called protective restorations [18].
- **Sealants:** Although studies report unfavourable cost/benefit ratio for sealant placement in low caries risk children, expert opinion favours sealants in permanent teeth of low risk children based on possible changes in risk over time and differences in tooth anatomy. fit decision to seal primary and permanent molars should account for both the individual level and tooth level risk.

Anticipatory guidance and parent-patient education

The anticipatory guidance for the parent or Intimate caregiver should incorporate the following:

- **Oral hygiene:** Parents should be advised to brush gently twice daily (morning and evening) and floss at least once daily to reduce and minimize bacterial plaque.
- **Diet:** Important components of food education for parents are the carcinogenicity of certain foods and beverages, the role of frequency in virtue to the consumption of these substances and the process of demineralization and remineralization. Parents should be advised to drink only fruit juices and avoid all carbonated beverages during the first 30 months of infant’s life.

- **Fluoride:** Parents should be advised to use fluoride toothpaste with an alcohol free mouth rinse with 0.05% sodium fluoride every night to help reduce plaque levels and help enamel remineralization.
- **Caries removal:** Parents should consult a dentist for examination and restoration for all active caries. Regular professional dental care for parents can help keep their oral health in proper condition. It is important to diagnose active caries and restoration of those to minimize the impact of parental oral flora on the infant.
- **Delay in colonization:** Mothers should be advised to avoid early migration of dental flora in infants by avoiding utensils sharing (i.e. shared spoons, cleaning a dropped pacifier with their saliva, etc).
- **Xylitol chewing gum:** Recent evidence suggests that the use of xylitol chewing gum (4 pieces per day by the mother) may have a significant effect in reducing the rate of caries in infants [19].

General anticipatory guidance for the young patient (0 to 3 years of age) should include the following:

- **Oral hygiene:** When a child’s teeth erupt, the parent should begin to brush (twice daily, morning and evening) and floss between the child’s teeth once every day when teeth contact one another.
- **Diet:** After the first teeth eruption, parents should give fruit juices only at meal time (not to exceed 1 cup per day). Carbonated beverages should be excluded from baby food. Do not put children to bed with bottle containing anything other than water. Children should have their mouth cleaned with a damp cloth after feeding.
- **Fluoride:** All children should have optimal exposure to topical and systemic fluoride. Care should be taken in the distribution of all products containing fluoride. Particular concerns of fair administration of fluoride should be reviewed to suit the individual needs of each patient.

Management of patients with special health care needs

The American Academy of Pediatric Dentistry (AAPD) recognizes that specialized health care requirements (SHCN) are an integral

part of the specialty of pediatric dentistry. AAPD values the individual characteristics of every person and their need to achieve maximum health benefits, regardless of their developmental or other specific health care needs.

The AAPD defines individuals with specific health care needs as “Person who has a physical, developmental, mental, sensory, behavioural, cognitive, or emotional impairment or limiting condition that needs medical management, health care intervention, and/or use of specialised services or programs” People with special health care needs are at higher risk for oral diseases [19]. Oral diseases can have a serious and devastating effect on the health of those with certain systemic health problems or conditions. Patients with compromised immunity (e.g. leukemia or other heart disease, human immunodeficiency virus positive) and heart conditions associated with endocarditis are more likely to suffer from the consequences of oral diseases.

Persons with Special Health Care Needs also include individuals with disorders or conditions apparent only in the orofacial complex (e.g. amelogenesis imperfecta, dentinogenesis imperfecta, cleft lip/palate, oral cancer). While these patients may not exhibit the same physical or communicative constraints of other Special Health Care Needs patients, their needs are unique, impact their overall health, and require oral health care of a specialized nature.

Health conditions may seem more important than dental health, especially as the relationship between oral health and general health is not well understood. Special health care requirements Patients may express high levels of anxiety to dental care than those without disabilities, which can adversely affect the frequency of dental visits and subsequently affect oral health [20]. Pediatric dentists are concerned about reducing access to oral health care in those patients. The majority of patients require specialized health care as they age. Pediatric hospitals, by imposing an age limit, can create another barrier to the care of these patients. Due to the lack of trained providers to take on the responsibility of caring for patients with specific health care needs, it is very difficult to meet their oral health care needs.

Child identification

AAPD recognizes the importance of the role of dentistry in providing information to identify missing and / or deceased children.

Community identification program should include a dental record documenting the child’s dental home [21] and encouraging consistent dental visits.

The detailed dental record, updated with recall appointments, economically establishes an excellent database of confidential, state-of-the-art child identification information which will be retrieved easily, stored safely, and properly update. The dental record may contain a comprehensive description of the dental defects, including restorative material used, appropriate dental radiographs [22], photographs, study casts, and bite records. Many programs are developed and sponsored by community groups that use various child identification methods.

Examples:

1. Child identification program (Chips), sponsored by Mason. The program collects blood samples for use in DNA fingerprinting [23].
2. National child Identification Program, sponsored by American Football Coaches Association with the Optimist International and Clear Channel Int. They use an identity card containing fingerprints, physical descriptions, photographs and the doctor’s office address/telephone number. Recognized in 2001 by US Congressional Resolution 100, they have a stated goal of making records for 60 million children [24].
3. In 1985, the ADA passed a resolution stating, “The ADA encourages dental societies, related dental organizations, and the membership to participate in efforts designed to assist in identifying missing and/or deceased individuals through dental records and other appropriate mechanism”.

Conclusion

Establishing a dental home is the most appropriate barrier to ECC, when referring to a child’s special needs. Although not always practical due to manpower and involvement issues, when practiced, the dentist recommends that all patients undergo a comprehensive dental examination during the early years.

The dental home is an crucial concept for dentist to practice. Evidence supports the benefits of early professional care and inter-

vention, early guidance to parents, and periodic supervised visits. The dental home increases the opportunities for preventive oral health services for children, which reduces the incidence of dental disease.

The dental home is a concept that deserves support, further investigation and with a medical home, it provides comprehensive health care that all children deserve.

Bibliography

- American Academy of Paediatrics. Committee on Children with Disabilities. Care coordination: Integrating health and related systems of care for children with special care needs. *Pediatrics*. 1999;104:978-981.
- American Academy of Pediatrics. Committee on Pediatric Workforce. Culturally effective pediatric care: Education and training issues. *Pediatrics*. 1999;103:167-170.
- American Academy of Pediatrics. Committee on Pediatric Workforce. Pediatric primary health care. *AAP News*. 1993;11:7.
- American Academy of Pediatrics. The medical home. *Pediatrics*. 2002;110:184-186.
- American Academy of Pediatrics. Ad Hoc Task Force on the Definition of the Medical Home. The medical home. *Pediatrics*. 1992;90:774.
- Berkowitz RJ, Jordan HV, White G. The early establishment of *Streptococcus mutans* in the mouths of infants. *Arch Oral Biol*. 1975;20:171-174.
- Stiles HM, Meyers R, Brunelle JA, Wittig AB. Occurrence of *Streptococcus mutans* and *Streptococcus sanguis* in the oral cavity and feces of young children. In: Stiles M, Loesch WJ, O'Brien T, eds. *Microbial Aspects of Dental Caries*. Washington, DC: Information Retrieval Inc; 1976:187.
- Loesch WJ. Clinical and microbiological aspects of chemotherapeutic agents used according to the specific plaque hypothesis. *J Dent Res*. 1979;58:2404-2412.
- Davey AL and Rogers AH. Multiple types of the bacterium *Streptococcus mutans* in the human mouth and their intra-family transmission. *Arch Oral Biol*. 1984;29:453-460.
- Berkowitz RJ and Jones P. Mouth-to-mouth transmission of the bacterium *Streptococcus mutans* between mother and child. *Arch Oral Biol*. 1985;30:377-379.
- Li Y and Caufield PW. The fidelity of initial acquisition of mutans streptococci by infants from their mothers. *J Dent Res*. 1995;74:681-685.
- Caufield PW, Cutter GR, Dasanayake AP. Initial acquisition of Mutans streptococci by infants: evidence for a discrete window of infectivity. *J Dent Res*. 1993;72:37-45.
- Klein H and Palmer CE. Studies on dental caries V. Familial resemblance in caries experience of siblings. *Pub Health Rep*. 1938;53:1353.
- Klein H. The family and dental disease IV. Dental disease (DMF) experience in parents and offspring. *J Am Dent Assoc*. 1946;33:735.
- Kaste LM, Selwitz RH, Oldakowski RJ, Brunelle JA, Winn DM, Brown LJ. Coronal caries in the primary and permanent dentition of children and adolescents 1-17 years of age: United States, 1988-1991. *J Dent Res*. 1996;75:631-641.
- American Academy of Pediatric Dentistry. Policy on the Dental Home. *Pediatr Dent*. 2004;26(7):18-19.
- Unformatted OB. Caries-risk Assessment and Management for Infants, Children, and Adolescents.
- American Academy of Pediatric Dentistry. Policy on interim therapeutic restorations. *Pediatr Dent*. 2018;40(special issue):58-59.
- DHHS. Oral health in America: A report of the Surgeon General. Rockville, Md: DHHS, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
- Shenkin JD, Davis MJ, Corbin SB. The oral health of special needs children: Dentistry's challenge to provide care. *J Dent Child*. 2001;86:201-205.
- Child Identification Program Web site. 2002.
- American Academy of Pediatrics, Medical Home Initiatives for Children with Special Needs Project Advisory Committee. The medical home. *Pediatrics*. 2002;110:184-186.
- Bowers CM and Johansen RJ. Digital analysis of bite marks and human identification. *ASFO News*. 2001;1:15-19.

24. Stimson PG and Mertz CA. Scientific methods of investigation. Forensic Dentistry. New York, NY: Robert Stern, CRC Press; 1997:1-29.

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