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Guideline on Infant Oral Health Care

Originating Committee
Clinical Affairs Committee – Infant Oral Health Subcommittee
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1989, 1994, 2001, 2004, 2009, 2011, 2012

Purpose
The American Academy of Pediatric Dentistry (AAPD) recognizes that infant oral health is one of the foundations upon which preventive education and dental care must be built to enhance the opportunity for a lifetime free from preventable oral disease. The AAPD proposes recommendations for preventive strategies, oral health risk assessment, anticipatory guidance, and therapeutic interventions to be followed by dental, medical, nursing, and allied health professional programs.

Methods
This guideline is an update of the previous Guideline on Infant Oral Health Care, revised in 2009. This revision included a hand search of literature as well as a new search of the MEDLINE/Pubmed® electronic database using the following parameters: Terms: "infant oral health", "infant oral health care", and "early childhood caries"; Fields: all; Limits: within the last 10 years, humans, English, and clinical trials. Papers for review were chosen from the resultant list of 449 articles and from references within selected articles. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background
The Centers for Disease Control and Prevention reports that caries is the most prevalent infectious disease in our nation's children.[1] More than 40% of children have caries by the time they reach kindergarten.[2] In contrast to declining prevalence of dental caries among children in older age groups, the prevalence of caries in poor US children under the age of 5 is increasing.[3] Early childhood caries (ECC) and the more severe form of ECC (S-ECC) can be particularly virulent forms of caries, beginning soon after tooth eruption, developing on smooth surfaces, progressing rapidly, and having a lasting detrimental impact on the dentition.[4-9] This disease affects the general population but is 32 times more likely to occur in infants who are of low socioeconomic status, who consume a diet high in sugar, and whose mothers have a low education level.[10,11] Caries in primary teeth can affect children's growth, result in significant pain and potentially life-threatening infection, and diminish overall quality of life.[12-21] Since medical health care professionals are far more likely to see new mothers and infants than are dentists, it is essential that they be aware of the infectious etiology and associated risk factors of ECC, make appropriate decisions regarding timely and effective intervention, and facilitate the establishment of the dental home.[4,22-25]

Dental caries. Dental caries is a common chronic infectious transmissible disease resulting from tooth-adherent specific bacteria, primarily mutans streptococci (MS), that metabolize sugars to produce acid which, over time, demineralizes tooth structure.[26] MS generally is considered to be the principal group of bacterial organisms responsible for the initiation of dental caries.[27] MS colonization of an infant may occur from the time of birth.[28-34] Significant colonization occurs after dental eruption as teeth provide non-shedding surfaces for adherence. Other surfaces also may harbor MS.[32,35,36] For example, the furrows of the tongue appear to be an important ecological niche in harboring the bacteria in predentate infants.[33,35]

Vertical transmission of MS from mother to infant is well documented.[37-39] Genotypes of MS in infants appear identical to those present in mothers in 17 reports, ranging from 24 to 100%.[39] The higher the levels of maternal salivary MS, the greater the risk of the infant being colonized.[40,41] Along with salivary levels of MS, mother's oral hygiene, periodontal disease, snack frequency, and socioeconomic status also are associated with infant colonization.[36] Reports indicate that horizontal transmission (ie, transmission between members of a group such as siblings of a similar age or children in a daycare center) also may be of concern.[42-45] Dental caries is a disease that generally is preventable. Early risk assessment allows for identification of parent-infant groups who are at risk for ECC and would benefit from early preventive intervention. The ultimate goal of early assessment is the timely delivery of educational information to populations at high risk for developing caries in order to prevent the need for later surgical intervention.

Anticipatory guidance. Caries-risk assessment for infants allows for the institution of appropriate strategies as the primary dentition begins to erupt. Even the most judiciously designed and implemented caries-risk assessment, however, can fail to identify all infants at risk for developing ECC. In these cases, the mother may not be the colonization source of the infant's oral flora, the dietary intake of simple carbohydrates may be extremely high, or other uncontrollable factors may combine to place the infant at risk for developing dental caries. Therefore, screening for risk of caries in the parent and infant, coupled with oral health counseling, is not a substitute for the early establishment of the dental home.[41] The early establishment of a dental home, including ECC prevention and management, is the ideal approach to infant oral health care.[25,37] The inclusion of education regarding the infectious and transmissible nature of bacteria that cause ECC, as well as methods of oral health risk assessment, anticipatory guidance, and early intervention, into the curriculum of medical, nursing, and allied health professional programs has shown to be effective in increasing the establishment of a dental home.[47,48] Recent studies, noting that a majority of pediatricians and general dentists were not advising patients to see a dentist by 1 year of age, point to the need for increased infant oral health care education in the medical and dental communities.[49,50]

Recommendations

Recommendations for parental oral health[51]

Oral health education: All primary health care professionals who serve parents and infants should provide education on the etiology and prevention of ECC. Educating the parent on avoiding saliva-sharing behaviors (eg, sharing spoons and other utensils, sharing cups, cleaning a dropped pacifier or toy with their mouth) can help prevent early colonization of MS in infants.

Comprehensive oral examination: Referral for a comprehensive oral examination and treatment during pregnancy is especially important for the mother.

Professional oral health care: Routine professional dental care for the parent can help optimize oral health. Removal of active caries, with subsequent restoration of remaining tooth structure, in the parents suppresses the MS reservoir and minimizes the transfer of MS to the infant, thereby decreasing the infant's risk of developing ECC.[52]

Oral hygiene: Brushing with fluoridated toothpaste and flossing by the parent are important to help dislodge food and reduce bacterial plaque levels.

Diet: Dietary education for the parents includes the cariogenicity of certain foods and beverages, role of frequency of consumption of these substances, and the demineralization/remineralization process.

Fluoride: Using a fluoridated toothpaste and rinsing with an alcohol-free, over-the-counter mouth rinse containing 0.05% sodium fluoride once a day or 0.02% sodium fluoride rinse twice a day have been suggested to help reduce plaque levels and promote enamel remineralization.[22]

Xylitol chewing gum: Evidence suggests that the use of xylitol chewing gum (at least 2-3 times a day by the mother) has a significant impact on mother-child transmission of MS and decreasing the child's caries rate.[53-55]

Recommendations for the infant's oral health

Oral health risk assessment: Every infant should receive an oral health risk assessment from his/her primary health care provider or qualified health care professional by 6 months of age. This initial assessment should evaluate the patient's risk of developing oral diseases of soft and hard tissues, including caries-risk assessment, provide education on infant oral health, and evaluate and optimize fluoride exposure.

Establishment of a dental home: Parents should establish a dental home for infants by 12 months of age.[56] The initial visit should include thorough medical (infant) and dental (parent and infant) histories, a thorough oral examination, performance of an age-appropriate tooth brushing demonstration, and prophylaxis and fluoride varnish treatment if indicated. In addition, assessing the infant's risk of developing caries and determining a prevention plan and interval for periodic re-evaluation should be done. Infants should be referred to the appropriate health professional if specialized intervention is necessary. Providing anticipatory guidance regarding dental and oral development, fluoride status, non-nutritive sucking habits, teething, injury prevention, oral hygiene instruction, and the effects of diet on the dentition are also important components of the initial visit.

Teething: Teething can lead to intermittent localized discomfort in the area of erupting primary teeth, irritability, and excessive salivation; however, many children have no apparent difficulties. Treatment of symptoms includes oral analgesics and chilled rings for the child to "gum".[57] Use of topical anesthetics, including over-the-counter teething gels, to relieve discomfort are discouraged due to potential toxicity of these products in infants.[58-60]

Oral hygiene: Oral hygiene measures should be implemented no later than the time of eruption of the first primary tooth. Cleansing the infant's teeth as soon as they erupt with a soft toothbrush will help reduce bacterial colonization. Tooth-brushing should be performed for children by a parent twice daily, using a soft toothbrush of age-appropriate size. Flossing should be initiated when adjacent tooth surfaces can not be cleansed with a toothbrush.[40]

Diet: Epidemiological research shows that human milk and breast-feeding of infants provide general health, nutritional, developmental, psychological, social, economic, and environmental advantages while significantly decreasing risk for a large number of acute and chronic diseases.[61] Human breast milk is uniquely superior in providing the best possible nutrition to infants and has not been epidemiologically associated with caries.[62-64] Frequent night time bottle feeding with milk is associated with, but not consistently implicated in, ECC.[63] Breastfeeding $\geq$7 times daily after 12 months of age is associated with increased risk for ECC.[66] Night time bottle feeding with juice,

repeated use of a sippy or no-spill cup, and frequent in between meal consumption of sugar-containing snacks or drinks (eg, juice, formula, soda) increase the risk of caries.[67-68] High-sugar dietary practices appear to be established early, by 12 months of age, and are maintained throughout early childhood.[69,70] The American Academy of Pediatrics has recommended children 1-6 years of age consume no more than 4-6 ounces of fruit juice per day, from a cup (ie, not a bottle or covered cup) and as part of a meal or snack.[71]

Fluoride: Optimal exposure to fluoride is important to all dentate infants and children.[72] Decisions concerning the administration of fluoride are based on the unique needs of each patient.[73-75] The use of fluoride for the prevention and control of caries is documented to be both safe and effective.[76-80] When determining the risk-benefit of fluoride, the key issue is mild fluorosis versus preventing devastating dental disease. In children considered at moderate or high caries risk under the age of 2, a 'smear' of fluoridated toothpaste should be used. In all children ages 2 to 5, a 'pea-size' amount should be used.[81-83] Professionally-applied topical fluoride, such as fluoride varnish, should be considered for children at risk for caries.[76,79,80,84,85] Systemically-administered fluoride should be considered for all children at caries risk who drink fluoride deficient water (<0.6 ppm) after determining all other dietary sources of fluoride exposure.[86] Careful monitoring of fluoride is indicated in the use of fluoride-containing products. Fluorosis has been associated with cumulative fluoride intake during enamel development.

Injury prevention: Practitioners should provide age-appropriate injury prevention counseling for orofacial trauma. Initially, discussions would include play objects, pacifiers, car seats, and electric cords.[56]

Non-nutritive habits: Non-nutritive oral habits (eg, digit or pacifier sucking, bruxism, abnormal tongue thrust) may apply forces to teeth and dentoalveolar structures. It is important to discuss the need for early sucking and the need to wean infants from these habits before malocclusion or skeletal dysplasias occur.[56]

Additional recommendations

Health care professionals and all other stakeholders in children's oral health should support the identification of a dental home for all infants by 12 months of age. Legislators, policy makers, and third party payors should be educated regarding the importance of early interventions to prevent ECC.

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