Guideline on Infant Oral Health Care

Originating Committee
Clinical Affairs Committee – Infant Oral Health Subcommittee

Review Council
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Purpose
The American Academy of Pediatric Dentistry (**AAPD**) recognizes that infant oral health, along with perinatal 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. Recognizing that allied health professionals and community organizations must be involved as partners to achieve this goal, the AAPD proposes recommendations for preventive strategies, oral health risk assessment, anticipatory guidance, and appropriate therapeutic interventions to be followed by the stakeholders in pediatric oral health.

Methods
This revision included a new systematic literature search of the MEDLINE/Pubmed electronic database using the following parameters: Terms: infant oral health, infant oral health care, and early childhood caries; Field: all fields; Limits: within the last 10 years, humans, English, and clinical trials. Papers for review were chosen from the resultant list 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
Introduction
The Centers for Disease Control and Prevention reports that caries is perhaps 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] Early childhood caries (**ECC**) can be a particularly virulent form of caries, beginning soon after tooth eruption, developing on smooth surfaces, progressing rapidly, and having a lasting detrimental impact on the dentition.[3-8] 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.[9] Caries in primary teeth can affect children's growth, result in significant pain and potentially life-threatening infection, and diminish overall quality of life.[10-17] Since physicians, nurses, and other 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.[3,18-21]

Caries
Caries results from an overgrowth of specific organisms that are part of normally-occurring human oral flora.[22] Mutans streptococci (**MS**) is considered to be a principal indicator group of bacterial organisms responsible for dental caries.[23] MS colonization of an infant has been shown to occur from the time of birth.[24-30] While colonization had been thought to occur after dental eruption (as teeth provided non-shedding surfaces for adherence), current data show that other surfaces also may harbor MS.[28,31,32] For example, the furrows of the tongue appear to be an important ecological niche in harboring the bacteria in predentate infants.[29,31]

Vertical colonization of MS from mother to infant is well documented;[33-35] genotypes of MS in infants appear identical to those present in mothers in approximately 71% of mother-infant pairs.[36] The higher the levels of maternal salivary MS, the greater the risk of the infant being colonized.[37] Along with salivary levels of MS, mother's oral hygiene, periodontal disease, snack frequency, and socioeconomic status also are associated with infant colonization.[32] Recent reports have indicated that horizontal transmission (ie, transmission between members of a group) also may be of concern.[38-40] Horizontal sources may include siblings of similar age or children in a daycare center.

Preventive strategies
Caries is a disease that is, by and large, 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.

Oral health risk assessment

An oral health risk assessment for infants by 6 months of age allows for the institution of appropriate preventive strategies as the primary dentition begins to erupt. Caries risk assessment can be used to determine the patient's relative risk for caries. Even the most judiciously designed and implemented caries-risk assessment tool, 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 child's oral flora, the dietary intake of simple carbohydrates may be extremely high, or other uncontrollable factors may combine to place the patient at risk for developing caries. Therefore, screening for risk of caries in the parent and patient coupled with oral health counseling, although a feasible and equitable approach to ECC control, is not a substitute for the early establishment of the dental home.[37] Whenever possible, the ideal approach to infant oral health care, including ECC prevention and management, is the early establishment of a dental home.[21,41]

Anticipatory guidance[42]

General anticipatory guidance for the mother (or other intimate caregiver) includes the following:

- Oral hygiene: Tooth-brushing and flossing by the mother on a daily basis are important to help dislodge food and reduce bacterial plaque levels.
- Diet: Important components of dietary education for the parents include 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 approved by the American Dental Association and rinsing every night with an alcohol-free, over-the-counter mouth rinse containing 0.05% sodium fluoride have been suggested to help reduce plaque levels and help enamel remineralization.[18]
- Caries removal: Routine professional dental care for the mothers can help keep their oral health in optimal condition. Removal of active caries with subsequent restoration is important to suppress maternal MS reservoirs and has the potential to minimize the transfer of MS to the infant, thereby decreasing the infant's risk of developing ECC. [46]
- Delay of colonization: Education of the parents, especially mothers, 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 their infants.
- Xylitol chewing gums: Evidence demonstrates that mothers' use of xylitol chewing gum can prevent dental caries in their children by prohibiting the transmission of MS.[47]

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

- Oral hygiene: Oral hygiene measures should be implemented no later than the time of the eruption of the first primary tooth. Cleansing the infant's teeth as soon as they erupt with either a washcloth or soft toothbrush will help reduce bacterial colonization. Children's teeth should be brushed twice daily with fluoridated toothpaste and a soft, age-appropriate sized toothbrush.[37] A "smear" of toothpaste is recommended for children less than 2 years of age,[48] while a "pea-size" amount of paste is recommended for children 2-5 years of age.[48-50] Flossing should be initiated when adjacent tooth surfaces can not be cleansed with a toothbrush.[37]
- Diet: High-risk dietary practices appear to be established early, probably by 12 months of age, and are maintained throughout early childhood.[51,52] Frequent night time bottle feeding, ad libitum breast-feeding, and extended and repeated use of a sippy or no-spill cup are associated with, but not consistently implicated in ECC.[53] Likewise, frequent consumption of snacks or drinks containing fermentable carbohydrates (eg, juice, milk, formula, soda) also can increase the child's caries risk.[54]
- Fluoride: Optimal exposure to fluoride is important to all dentate infants and children. The use of fluoride for the prevention and control of caries is documented to be both safe and effective.[55-59] Twice-daily brushing with fluoridated toothpaste is recommended for all children as a preventive procedure.[55,60] Professionally-applied fluoride, as well as at-home fluoride treatments, should be considered for children at high caries risk based upon caries risk assessment.[55,58,59,61,62] Systemically-administered fluoride should be considered for all children drinking fluoride deficient water (<0.6 ppm).[63] Caution is indicated in the use of all fluoride-containing products. Fluorosis has been associated with cumulative fluoride intake during enamel development, with the severity dependent on the dose, duration, and timing of intake.[58] Decisions concerning the administration of additional fluoride are based on the unique needs of each patient.[43-45]
- Injury prevention: Practitioners should provide age-appropriate injury prevention counseling for orofacial trauma. Initially, discussions would include play objects, pacificers, car seats, and electric cords.[64]
- 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.[64]

Recommendations

The AAPD recommends that:

1. All primary health care professionals who serve mothers and infants provide parent/caregiver education on the etiology and prevention of ECC. Oral health counseling and referral for a comprehensive oral examination and treatment during pregnancy is especially important for the mother.
2. The infectious and transmissible nature of bacteria that cause ECC and methods of oral health risk assessment,

anticipatory guidance, and early intervention be included in the curriculum of all medical, nursing, and allied health professional programs.

3. Every infant 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 visit should consist of the following:
   - assessing the patient's risk of developing oral disease using a caries risk assessment;
   - providing education on infant oral health; and
   - evaluating and optimizing fluoride exposure.
4. Parents or caregivers establish a dental home for infants by 12 months of age. The following should be accomplished at that visit:
   - recording thorough medical (infant) and dental (mother or primary caregiver and infant) histories;
   - completing a thorough oral examination;
   - assessing the infant's risk of developing caries and determining an appropriate prevention plan and interval for periodic reevaluation based upon that assessment;
   - 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;
   - planning for comprehensive care in accordance with accepted guidelines and periodicity schedules for pediatric oral health;
   - referring patients to the appropriate health professional if intervention is necessary.
5. Health care professionals and all other stakeholders in children's oral health should support the identification of a dental home for all infants at 12 months of age.
6. Legislators, policy makers, and third party payors be educated about the benefits of early interventions in order to support efforts that improve access to oral health care for infants and children.

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