

Perinatal and Infant Oral Health Care

Review Council

Council on Clinical Affairs

Latest Revision

2016

Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that perinatal and infant oral health are the foundations upon which preventive education and dental care must be built to enhance the opportunity for a child to have a lifetime free from preventable oral disease. Recognizing that dentists, physicians, allied health professionals, and community organizations must be involved as partners to achieve this goal, the AAPD proposes guidelines for perinatal and infant oral health care, including caries risk assessment, anticipatory guidance, preventive strategies, and therapeutic interventions, to be followed by the stakeholders in pediatric oral health.

Method

Recommendations on perinatal and infant oral health care were developed by the Infant Oral Health Subcommittee of the Clinical Affairs Committee and adopted in 1986. The *Guideline on Perinatal Oral Health Care* was originally developed by the Infant Oral Health Subcommittee of the Council on Clinical Affairs and adopted in 2009. This document is a merger and an update of the previous versions, revised in 2014 and 2011 respectively. This revision included a search of the PubMed®/MEDLINE database using the terms: infant oral health, infant oral health care, early childhood caries, perinatal, perinatal oral health, and early childhood caries prevention; fields: all; limits: within the last 10 years, humans, English, and clinical trials. Papers for review were chosen from the resultant list of articles and from references within selected articles and hand searches of the literature. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

Dental caries, consequences, and management

The Centers for Disease Control and Prevention reports that dental caries is the most prevalent chronic disease in our nation's children.¹ More than 28 percent of children have caries by the time they reach kindergarten.² Epidemiologic data from a 2011-2012 national survey clearly indicate that early childhood caries (ECC) remains highly prevalent in poor and near poor U.S. preschool children. For the overall population of preschool children, the prevalence of ECC, as measured by decayed and filled tooth surfaces (dfs), is unchanged from

previous surveys, but the filled component (fs) has greatly increased indicating that more treatment is being provided.³

ECC and the more severe form of ECC (i.e., s-ECC) begin soon after tooth eruption, developing on all surfaces of primary teeth, progressing rapidly, and having a lasting detrimental impact on the dentition.^{4,5} 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.⁶⁻⁸ The consequences of ECC often include higher risk of new carious lesions in both the primary and permanent dentitions,^{5,9,10} hospitalizations and emergency room visits,^{11,12} high treatment costs,¹³ loss of school days,¹⁴ diminished ability to learn,¹⁵ and reduced oral health-related quality of life.¹⁶

It has been reported that 89 percent of children age one year had an office-based physician visit, compared with only 1.5 percent who had a dental office visit.¹⁷ In a recent study, 99 percent of Medicaid-enrolled children had well baby visits before age one, whereas only two percent had a dental visit.¹⁸ Since medical health care professionals see new mothers and infants earlier and more often than dentists, it is essential that they be aware of the multifactorial etiology and associated risk factors of ECC, give appropriate counseling regarding ECC prevention to pregnant women and caregivers, and facilitate the establishment of a dental home.¹⁹

Because restorative care to treat ECC often requires the use of sedation and general anesthesia with associated high costs and possible health risks,²⁰ and because there is high recurrence of lesions subsequent to the procedures,²¹ there is now more emphasis on prevention and arrestment of the disease processes to manage ECC. Approaches include methods that have been referred to as (1) chronic disease management, which includes parent engagement to facilitate preventive measures and temporary restorations to postpone advanced restorative care,²² (2) active surveillance, which emphasizes careful monitoring of caries progression and establishment of a prevention program in children with incipient lesions,²³ and (3) interim therapeutic restorations (ITR) that temporarily restore teeth

ABBREVIATIONS

AAPD: American Academy Pediatric Dentistry. **ECC:** Early childhood caries. **dfs:** Decayed and filled tooth surfaces. **ITR:** Interim therapeutic restorations. **MI:** Motivational interviewing.

in young children until a time when traditional cavity preparation and restoration is possible.²⁴

The perinatal period and anticipatory guidance

The perinatal period is defined as the period around the time of birth, beginning with the completion of the 20th to 28th week of gestation and ending one to four weeks after birth. The perinatal period plays a crucial role for the well-being of pregnant women.²⁵ Also, it is essential for the health and well-being of their newborn children. Yet, many women do not seek dental care during their pregnancy, and those who do often confront unwillingness of dentists to provide care.²⁶⁻²⁹ Many expectant mothers are unaware of the implications of poor oral health for their pregnancy and/or their unborn child.^{28,30,31}

Identifying mothers with high levels of dental caries and poor oral health and educating them on the importance of their own oral health and the future health of their unborn child can help change their trajectory of oral health. Timely delivery of educational information and preventive therapies to these parents may reduce the incidence of ECC, prevent the need for dental rehabilitation, and improve the oral health of their children.³²⁻³⁴ Physicians, nurses, and other health care professionals are far more likely to see expectant or new mothers and their infants than are dentists. Therefore, it is essential that these providers be aware of oral anomalies and associated risk factors of dental caries in order to make appropriate decisions regarding timely and effective interventions for pregnant women and facilitate the establishment of a dental home for the child.³⁵⁻³⁷

Caries-risk assessment for infants determines the patient's relative risk for dental disease and allows for the institution of appropriate strategies as the primary dentition begins to erupt. Its goal is to prevent disease by identifying and minimizing causative factors (e.g., dietary habits, plaque accumulation, lack of topical or systemic fluoride, frequent use of sugar containing medications) and optimizing protective factors (e.g., fluoride exposure, oral hygiene practices, sealants).³⁸ Caries-risk assessment also allows health care professionals to identify and refer high caries-risk patients for appropriate dental management.²³

Even the most judiciously designed and implemented caries-risk assessment can fail to identify all infants at risk for developing ECC. The early establishment of a dental home, including ECC prevention and management, is the ideal approach to infant oral health care.^{39,40} The inclusion of oral health education into the curriculum of medical, dental, nursing, and allied health professional programs can facilitate the acceptance of the age one dental visit.^{41,42} Recent studies, noting that a majority of pediatricians and general dentists were not advising patients to see a dentist by one year of age, point to the need for increased infant oral health care education in the medical and dental communities.⁴³⁻⁴⁵

Anticipatory guidance to reduce the risk of dental caries should include counseling regarding brushing of child's teeth twice daily with the appropriate amount of fluoridated

toothpaste, diet analysis, and counseling to reduce the consumption of sugar-containing beverages.³⁸ The use of fluoride for the prevention and control of caries is documented to be both safe and effective.^{46,47} Optimal exposure to fluoride is important to all dentate infants and children.⁴⁸ Systemically-administered fluoride should be considered for all children who do not receive fluoride by consuming fluoridated water (less than 0.7 part per million) in after determining all other dietary sources of fluoride exposure.⁴⁷ The correct amount of fluoridated toothpaste should be used twice daily by all children regardless of risk. No more than a smear or rice-sized amount of fluoridated toothpaste should be used for children under age three.⁴⁹ Professionally-applied fluoride varnish should be considered for children at risk for caries.²³

Practitioners should counsel parents that high frequency consumption of sugars by bottle-feeding, sippy cup use, or between meal consumption of sugars increases the risk of caries.⁵⁰ The American Academy of Pediatrics has recommended children one through six years of age consume no more than four to six ounces of 100 percent fruit juice per day, from a cup (i.e., not a bottle or covered cup).⁵¹ Epidemiological research shows that human milk and breast-feeding of infants provide general health, nutritional, developmental, and psychological advantages while significantly decreasing risk for a large number of acute and chronic diseases.⁵² Frequent night-time bottle-feeding with milk and ad libitum breast-feeding are associated, but not consistently implicated, with ECC.⁵³

Parents also should be counseled that prolonged non-nutritive oral habits may contribute to deleterious changes in the child's occlusion and facial development and that there are serious health consequences of tobacco use and exposure to secondhand smoke.³⁸ Furthermore, practitioners should provide age-appropriate injury prevention counseling for oro-facial trauma.³⁸

Management of perinatal and infant oral health

Oral health care for pregnant and lactating women. The perinatal period is an opportune time to educate and perform dental treatment on expectant mothers.⁵⁴⁻⁵⁶ Pregnancy care visits provide a teachable moment for physicians, dentists, and nurses to educate women about the following:

- diet including the adequate quality and quantity of nutrients for the mother-to-be and the unborn child. This education also should include information regarding the caries process and food cravings that may increase the mother's caries risk.
- comprehensive oral examination, dental prophylaxis, and treatment during pregnancy. Dental treatment during pregnancy, including dental radiographs with proper shielding and local anesthetic, is safe in all trimesters and optimal in the second trimester. Due to possible patient discomfort, elective treatment sometimes may be deferred until after delivery.
- proper oral hygiene, using a fluoridated toothpaste, chewing sugar-free gum, and eating small amounts of

nutritious food throughout the day to help minimize their caries risk.

- continued breast-feeding along with complementary foods for a period of one year or longer.⁵² The transfer of drugs and therapeutics into breastmilk should be considered, especially in infants younger than six months of age.⁵⁷

Oral health care for the infant. Parents should be encouraged establish a dental home for infants by 12 months of age that includes the following:

- an initial visit with thorough medical (infant) and dental (parent and infant) histories, a thorough oral examination, performance of an age-appropriate tooth and gum cleaning demonstration, and fluoride varnish treatment if indicated.³⁸
- assessing the infant's risk of developing caries and determining a prevention plan, anticipatory guidance regarding the effects of diet on the dentition, use of fluoride, and interval for periodic re-evaluation.
- caries management of infants and toddlers with known risk factors for ECC. This should be provided by practitioners who have the training and expertise to manage both the young child and the disease process.
- injury prevention counseling to prevent orofacial trauma. Discussions should include play objects, pacifiers, car seats, and electric cords.³⁸
- counseling regarding teething. While many children have no apparent difficulties, teething can lead to intermittent localized areas of discomfort, irritability, and excessive salivation. Treatment of symptoms includes oral analgesics and chilled teething rings for the child.⁵⁸ Use of topical anesthetics, including over-the-counter teething gels, to relieve discomfort should be avoided due to potential toxicity of these products in infants.⁵⁹
- discussion regarding atypical frenum attachments that may be associated with problems with breast-feeding. In some cases, frenuloplasty or frenectomy may be a successful approach to facilitate breast-feeding; however, there is a need for more evidence-based research to determine indications for treatment.⁶⁰
- counseling regarding non-nutritive oral habits (e.g., digit or pacifier sucking, bruxism, abnormal tongue thrust) which 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.³⁸

The desired goal of oral health counseling is for improved oral health behaviors. Motivational interviewing techniques (MI) has been successful in promoting change in health behaviors.⁶¹ MI is a personalized approach that raises caregiver and child awareness of the problems, setting oral health goals, and co-evaluating if current behaviors are consistent with the goals.

References

1. U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, Md.: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
2. National Institute of Dental and Craniofacial Research. Dental caries (tooth decay) in children (Age 2 to 11). May 2014. Available at: "<http://www.nidcr.nih.gov/DataStatistics/FindDataByTopic/DentalCaries/DentalCariesChildren2to11.htm>". Accessed July 1, 2016.
3. Dye BA, Hsu KL, Afful J. Prevalence and measurement of dental caries in young children. *Pediatr Dent* 2015; 37(3):200-1.
4. Skeie MS, Raadal M, Strand GV, Espelid I. The relationship between caries in the primary dentition at 5 years of age and permanent dentition at 10 years of age - A longitudinal study. *Int J Paediatr Dent* 2006;16(3):152-60.
5. O'Sullivan DM, Tinanoff N. The association of early dental caries patterns with caries incidence in preschool children. *J Public Health Dent* 1996;56(2):81-3.
6. Drury TF, Horowitz AM, Ismail AA, et al. Diagnosing and reporting early childhood caries for research purposes. *J Public Health Dent* 1999;59(3):192-7.
7. Mobley C, Marshall TA, Milgrom P, Coldwell SE. The contribution of dietary factors to dental caries and disparities in caries. *Acad Pediatr* 2009;9(6):410-4.
8. Edelstein B, Chinn C. Update on disparities in oral health and access to dental care for America's children. *Acad Pediatr* 2009;9(6):415-9.
9. Al-Shalan TA, Erickson PR, Hardie NA. Primary incisor decay before age 4 as a risk factor for future dental caries. *Pediatr Dent* 1997;19(1):37-41.
10. Ghazal T, Levy SM, Childers NK, et al. Prevalence and incidence of early childhood caries among African-American children in Alabama. *J Public Health Dent* 2015;75(1):42-8.
11. Ladrillo TE, Hobdell MH, Caviness C. Increasing prevalence of emergency department visits for pediatric dental care 1997-2001. *J Am Dent Assoc* 2006;137(3):379-85.
12. Griffin SO, Gooch BF, Beltran E, Sutherland JN, Barsley R. Dental services, costs, and factors associated with hospitalization for Medicaid-eligible children, Louisiana 1996-97. *J Public Health Dent* 2000;60(3):21-7.
13. Rohde F. Dental Expenditures in the 10 Largest States, 2010. Statistical Brief #415. June 2013. Agency for Healthcare Research and Quality, Rockville, Md. Available at: "http://www.meps.ahrq.gov/mepsweb/data_files/publications/st415/stat415.pdf". Accessed July 1, 2016.
14. Edelstein BL, Reisine S. Fifty-one million: A mythical number that matters. *J Am Dent Assoc* 2015;146(8):565-6.
15. Blumenshine SL, Vann WF, Gizlice Z, Lee JY. Children's school performance: Impact of general and oral health. *J Public Health Dent* 2008;68(2):82-7.

16. Filstrup SL, Briskie D, daFonseca M, Lawrence L, Wandera A, Inglehart MR. The effects on early childhood caries (ECC) and restorative treatment on children's oral health-related quality of life (OHRQOL). *Pediatr Dent* 2003;25(5):431-40.
17. National Children's Oral Health Foundation. Facts about tooth decay. Available at: "<http://www.ncohf.org/resources/tooth-decay-facts>". Accessed July 18, 2016.
18. Chi DL, Momany ET, Jones MP, et al. Relationship between medical well baby visits and first dental examinations for young children in Medicaid. *Am J Public Health*. 2013;103(2):347-54.
19. American Academy of Pediatric Dentistry. Policy on the dental home. *Pediatr Dent* 2015;37(special issue):24-5.
20. Sinner B, Beck K, Engelhard K. General anesthetics and the developing brain: An overview. *Anesthesia* 2014;69(9):1009-22.
21. Berkowitz RJ, Amante A, Kopycka-Kedzierawski DT, Billings RJ, Feng C. Dental caries recurrence following clinical treatment for severe early childhood caries. *Pediatr Dent* 2011;33(7):510-4.
22. Edelstein BL, Ng MW. Chronic disease management strategies of early childhood caries: Support from the medical and dental literature. *Pediatric Dentistry* 2015;37(3):281-7.
23. American Academy of Pediatric Dentistry. Guideline on caries-risk assessment and management for infants, children, and adolescents. *Pediatr Dent* 2016;38(special issue):142-9.
24. American Academy of Pediatric Dentistry. Policy on interim therapeutic restorations (ITR). *Pediatric Dentistry* 2016;38(special issue):50-1.
25. Brown A. Access for Oral Health Care During the Perinatal Period: A Policy Brief. National Maternal and Child Oral Health Resource Center. Georgetown University, Washington, D.C.; 2008. Available at: "<http://www.mchoralhealth.org/PDFs/PerinatalBrief.pdf>". Accessed July 1, 2016.
26. Gaffield ML, Gilbert BJ, Malvitz DM. Oral health during pregnancy: An analysis of information collected by the pregnancy risk assessment monitoring system. *J Am Dent Assoc* 2001;132(7):1009-16.
27. Huebner CE, Milgrom P, Conrad D, Lee RS. Providing dental care to pregnant patients: A survey of Oregon general dentists. *J Am Dent Assoc* 2009;140(2):211-22.
28. Keirse MJ, Plutzer K. Women's attitudes to and perceptions of oral health and dental care during pregnancy. *J Perinat Med* 2010;38(1):3-8.
29. Kerpen SJ, Burakoff R. Improving access to oral health care for pregnant women. A private practice model. *NY State J* 2009;75(6):34-6.
30. Dimitrova MM. A study of pregnant women's knowledge of children's feeding practice as a risk factor for early childhood caries. *Folia Med (Plovdiv)* 2009;51(4):40-5.
31. Fadavi S, Sevandal MC, Koerber A, Punwani I. Survey of oral health knowledge and behavior of pregnant minority adolescents. *Pediatr Dent* 2009;31(5):405-8.
32. Lucey SM. Oral health promotion initiated during pregnancy successful in reducing early childhood caries. *Evid Based Dent* 2009;10(4):100-1.
33. Meyer K, Geurtsen W, Gunay H. An early oral health care program starting during pregnancy: Results of a prospective clinical long-term study. *Clin Oral Investig* 2010;14(3):257-64.
34. Plutzer K, Spencer AJ. Efficacy of an oral health promotion intervention in the prevention of early childhood caries. *Community Dent Oral Epidemiol* 2008;36(4):335-46.
35. Harrison R. Oral health promotion for high-risk children: Case studies from British Columbia. *J Can Dent Assoc* 2003;69(5):292-6.
36. Lewis CW, Grossman DC, Domoto PK, Deyo RA. The role of the pediatrician in the oral health of children: A national survey. *Pediatrics* 2000;106(6):E84.
37. Nowak AJ, Warren JJ. Infant oral health and oral habits. *Pediatr Clin North Am* 2000;47(5):1043-66.
38. American Academy of Pediatric Dentistry. Guideline on periodicity of examination, preventive dental services, anticipatory guidance/counseling, and oral treatment for infants, children, and adolescents. *Pediatr Dent* 2016;38(special issue):132-41.
39. American Academy of Pediatrics, Section on Pediatric Dentistry and Oral Health. A policy statement: Preventive intervention for pediatricians. *Pediatrics* 2008;122(6):1387-94.
40. Davey AL, Rogers AH. Multiple types of the bacterium *Streptococcus mutans* in the human mouth and their intra-family transmission. *Arch Oral Biol* 1984;29(6):453-60.
41. Douglass JM, Douglass AB, Silk HJ. Infant oral health education for pediatric and family practice residents. *Pediatr Dent* 2005;27(4):284-91.
42. Fein JE, Quiñonez RB, Phillips C. Introducing infant oral health into dental curricula: A clinical intervention. *J Dent Educ* 2009;73(10):1171-7.
43. Brickhouse TH, Unkel JH, Kancitis I, Best AM, Davis RD. Infant oral health care: A survey of general dentists, pediatric dentists, and pediatricians in Virginia. *Pediatr Dent* 2008;30(2):147-53.
44. Malcheff S, Pink TC, Sohn W, Inglehart MR, Briskie D. Infant oral health examinations: Pediatric dentists' professional behavior and attitudes. *Pediatr Dent* 2009;31(3):202-9.
45. Köhler B, Andréen I, Jonsson B. The effects of caries-preventive measures in mothers on dental caries and the oral presence of the bacteria *Streptococcus mutans* and lactobacilli in their children. *Arch Oral Biol* 1984;29(11):879-83.

References continued on next page.

46. Centers for Disease Control and Prevention. Recommendations for using fluoride to prevent and control dental caries in the United States. *MMWR Recomm Rep* 2001;50(RR-14):1-42. Available at: "<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm>". Accessed July 1, 2016.
47. American Academy of Pediatric Dentistry. Guideline on fluoride therapy. *Pediatr Dent* 2016;38(special issue): 181-4.
48. Milgrom PM, Huebner CE, Ly KA. Fluoridated toothpaste and the prevention of early childhood caries: A failure to meet the needs of our young. *J Am Dent Assoc* 2009;140(6):628, 630-1.
49. American Dental Association Council on Scientific Affairs. Fluoride toothpaste use for young children. *J Am Dent Assoc* 2014;145(2):190-1.
50. Tinanoff NT, Kanellis MJ, Vargas CM. Current understanding of the epidemiology, mechanism, and prevention of dental caries in preschool children. *Pediatr Dent* 2002;24(6):543-51.
51. American Academy of Pediatrics Committee on Nutrition. Policy statement: The use and misuse of fruit juices in pediatrics. *Pediatrics* 2001;107(5):1210-3. Reaffirmed October, 2006.
52. American Academy of Pediatrics. Policy statement: Breast-feeding and the use of human milk. *Pediatrics* 2012;129(3):e827-41.
53. Reisine S, Douglass JM. Psychosocial and behavioral issues in early childhood caries. *Commun Dent Oral Epidem* 1998;26(suppl):32-44.
54. Silk H, Douglass AB, Douglass JM, Silk L. Oral health during pregnancy. *Am Fam Physician* 2008;77(8): 1139-44.
55. Boggess KA, Society for Maternal-Fetal Medicine Publications Committee. Maternal oral health in pregnancy. *Obstet Gynecol* 2008;111(4):976-86.
56. dela Cruz GG, Rozier RG, Slade G. Dental screening and referral of young children by pediatric primary care providers. *Pediatrics* 2004;114(5):e642-52.
57. Sachs HC, Committee On Drugs. The transfer of drugs and therapeutics into human breast milk: An update on selected topics. *Pediatrics* 2013;132(3):e796-809. Available at: "<http://pediatrics.aappublications.org/content/pediatrics/early/2013/08/20/peds.2013-1985.full.pdf>". Accessed July 1, 2016.
58. Tinanoff N. The oral cavity. In: Kliegman RM, Stanton BF, St Geme JW, Schor N, eds. *Nelson Textbook of Pediatrics*, 20th ed. Philadelphia, Pa.: Elsevier; 2015: 307-17.
59. U.S. Food and Drug Administration. FDA drug safety communication: Reports of a rare, but serious and potentially fatal adverse effect with the use of over-the-counter (OTC) benzocaine gels and liquids applies to the gums or mouth. Available at: "<http://www.fda.gov/drugs/drugsafety/ucm250024.htm>". Accessed July 1, 2016.
60. American Academy of Pediatric Dentistry. Guideline on management considerations for pediatric oral surgery and oral pathology. *Pediatr Dent* 2016;38(special issue): 315-24.
61. Douglass JM, Clark MB. Integrating oral health into overall health care to prevent early childhood caries: Need, evidence, and solutions. *Pediatr Dent* 2015;37(3): 266-74.