Perinatal Oral Health Policy Statement
Association of State and Territorial Dental Directors (ASTDD)
Adopted: July 26, 2012

Problem

During the perinatal period, women experience complex physiological changes that can adversely affect their oral health. Changes in diet and oral hygiene practices, as well as morning sickness or esophageal reflux, can lead to tooth demineralization and an increase in caries risk if appropriate interventions are not provided.[1,2] Data from the 1999-2004 National Health and Nutrition Examination Survey (NHANES) indicate that one in four U.S. women of childbearing age (15-44 years) has at least one untreated carious tooth surface and the condition is more common among socioeconomically disadvantaged women.[3] Depending on the study, the prevalence of gingivitis during pregnancy ranges from 30 to 100 percent, and an estimated five to 20 percent of pregnant women manifest clinical signs of periodontitis.[1,4]

The first report suggesting maternal periodontal infection as a possible risk factor for preterm low birth weight was published in 1996.[5] Accumulated scientific evidence on the association between maternal periodontal disease and risk of preterm birth and low birth weight is mixed,[4,6, 7, 8, 9] but generally points to a positive association. Clinical intervention trials conducted during the past decade have shown conflicting results for the effect of periodontal therapy during pregnancy on reducing adverse birth outcomes with stronger study designs showing no effect.[4,6,10,11,12,13,14,15,16,17,18]

The perinatal period also is a critical time for the prevention of dental caries. The development of primary teeth begins by age 8 weeks in utero, and permanent molars and incisors begin to develop at around age 20 to 24 weeks in utero.[19] Fetal distress, adverse birth outcomes, and challenges in neonatal life increase the risk for craniofacial anomalies and developmental enamel defects,[20,21] which can also increase risk for dental caries.[22]

Dental caries is a diet-dependent multifactorial bacterial disease. It is well documented that cariogenic bacteria that cause dental caries can be transmitted from intimate caregivers to their children.[23,24] Studies show that maternal untreated caries increases the odds of children's caries experience.[25,26] Furthermore, maternal beliefs, self-efficacy and knowledge about appropriate oral health behaviors influence children's tooth brushing habits.[27,28] Dental caries during early childhood (Early Childhood Caries) imposes significant comorbidities affecting children, families, and communities: high treatment costs, lost work and school hours, psychosocial distress, and sometimes death when the appropriate intervention is delayed.[29]

In light of this evidence, promoting perinatal oral health, providing access to dental care, and improving oral health care knowledge and skills of mothers and other primary caretakers during the perinatal period, is an optimal approach for preventing early childhood caries. Research shows that routine dental treatment including periodontal therapy during pregnancy does not increase the incidence of adverse pregnancy outcomes.[30] Yet, despite heightened oral health needs and the apparent benefit of oral health education, many women do not seek and are not provided oral health care during pregnancy.

Data from the Pregnancy Risk Assessment Monitoring System (PRAMS) indicate that 19 to 53 percent of pregnant women utilize the oral health care system during pregnancy.[31,32,33,34,35,36] About one-half of those with perceived dental needs actually received oral health care during pregnancy.[32,36] Underutilization of the oral health care system during the perinatal period may be influenced by a number of interrelated factors. These factors include 1) the lack of or inadequate dental insurance coverage for low income women,[37] 2) dental providers' unwillingness to provide care for pregnant women because of providers' various perceived barriers and inadequate knowledge about evidence-based perinatal dental care,[38,39,40] 3) maldistribution of dental providers and shortages of oral health safety net clinics,[41,42] and 4) women's limited opportunities to be advised about oral health during pregnancy[31,32,36] and perceived barriers to receiving dental care during the perinatal period.[39]

Methods

Oral health promotion during the perinatal period has profound importance and benefit for a community's oral health. The following strategic framework for improving perinatal oral health was developed based upon fundamental public health activities set forth in Ten Essential Public Health Services[43,44,45] and the Maternal and Child Health Pyramid of Health Services[46] and described more in detail in the ASTDD Best Practice Approach Report on Perinatal Oral Health.[47] Public health agencies can use the framework to examine perinatal oral health systems, implement steps to improve perinatal oral health, and build broad community support for public policies, regulations, funding, and other means to improve perinatal oral health in the community.

1. Assess and Monitor Perinatal Oral Health:

Establishment of state/community-based perinatal oral health surveillance is essential for monitoring, timely communication of findings, and the use of data to initiate and evaluate perinatal oral health programs. As recognized by the Affordable Care Act, perinatal oral health data should be integrated with other health-assessment and data-collection efforts conducted by public health systems (e.g., PRAMS, BRFSS).

2. Enhance Infrastructure and Build Partnerships:

The perinatal period offers women additional opportunities to access health care systems and preventive, educational, and counseling services. Opportunities and constraints of perinatal oral health systems must be evaluated to better plan for sustainable, accountable, and coordinated oral health services. Common opportunities in the community to enhance infrastructure and partnerships for perinatal oral health include: a) community perinatal, Early Head Start and maternal and child health (MCH) programs and/or chronic disease prevention programs, b) non-governmental institutions/organizations (e.g., managed care organizations, mother-to-mother networks, and academic institutions), and c) health professional and community networks. In addition, Medicaid coverage for pregnant women and women of childbearing age that meets their needs should be ensured (e.g., inclusion of dental benefits in "pregnancy-related" services).

3. Inform and Empower the Public to Mobilize Support:

To make perinatal oral health a priority, all stakeholders (perinatal and women's health providers, policy makers, dental providers and women in the community) must be informed, empowered, and "buy into" the importance and significance of perinatal oral health. State and community oral health programs should: a) adopt, endorse, and promote perinatal oral health guidelines and recommendations to all professionals and agencies engaged in perinatal health, social, and educational services; b) mobilize communities to advocate for policies and activities that will improve perinatal oral health (e.g., Medicaid dental coverage during the perinatal period); c) engage a broad group of stakeholders to set priorities for perinatal oral health and disseminate the goals in state oral health plans; d) improve perinatal oral health information systems to be appropriate for pregnant women's cultural and literacy levels; and e) disseminate perinatal oral health success stories.

4. Ensure Adequate Oral Health Workforce and Systems:

A competent oral health workforce and an integrated systems approach to oral health interventions are essential to facilitate changes in women's oral health behavior during the perinatal period and to improve oral health outcomes. Collaborative efforts by academic institutions and state agencies are necessary to educate dental, perinatal and women's health providers and ensure that local perinatal oral health care and financing systems are functioning and adequate.

5. Promote and Support Research and Evidence-Based Practices:

Data from research and program evaluation improve the way we educate the oral health workforce, motivate women about oral health, coordinate referrals and consultations, treat oral diseases, and promote oral health during the perinatal period. State and community oral health programs are encouraged to utilize research- and surveillance-based data: a) to define perinatal oral health needs and disparities and to address barriers to perinatal oral health, b) to develop more effective perinatal oral health services and

workforce models, and c) to improve quality and effectiveness of perinatal oral health care (e.g., use effective motivational interviewing for pregnant women and treatment protocols for periodontal disease during the perinatal period that are effective and safe).

6. Integrate Perinatal Oral Health Program into Patient-Centered Medical Home:

The Patient Centered Medical Home (PCMH) is an approach to providing comprehensive primary care for children, youth and adults that is promoted by many organizations.[48,49] The PCMH is a whole person oriented approach to health care; therefore, perinatal healthcare providers should facilitate partnerships between women, other health care providers including oral health professionals, and when appropriate, their family, personal and professional social support systems in order to assist their clients' attainment of optimal perinatal health outcomes. Perinatal care health professionals should assess their clients' oral health status and provide advice about oral health care. Oral health care providers in the community should work with perinatal care providers to deliver timely, comprehensive, evidence-based and safe dental care and oral health guidance for women during the perinatal period. As an outcome of these community-based organized efforts, women will be educated and motivated about oral health during the perinatal period to improve self-management skills and be better prepared to manage the oral health of their offspring.

Policy Statement

The Association of State and Territorial Dental Directors fully supports and endorses a strategic framework for promoting best practices for state and community oral health programs to optimize the oral health of pregnant women, mothers and children. Public health agencies should address the following six essential services for improving perinatal oral health in the community: 1) assess and monitor perinatal oral health, 2) enhance infrastructure and build partnerships, 3) inform and empower the public to mobilize support, 4) ensure adequate oral health workforce and systems for perinatal oral health, 5) promote and support research and evidence-based practices, and 6) integrate perinatal oral health program into the Patient-Centered Medical Home.

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[1] Gajendra S, Kumar JV. Oral health and pregnancy: A review. *N Y State Dent J*. 2004;70(1):40-44.
[2] New York State Department of Health. *Oral Health Care During Pregnancy and Early Childhood Practice Guidelines*. Albany, NY: New York State Department of Health; 2006.
[3] Iida H, Kumar JV, Kopycka-Kedzierawski DT, Billings RJ. Effect of tobacco smoke on the oral health of U.S. women of childbearing age. *J Public Health Dent*. 2009;69(4):231-241.
[4] Offenbacher S, Boggess KA, Murtha AP, et al. Progressive periodontal disease and risk of very preterm delivery. *Obstet Gynecol*. 2006;107(1):29-36.
[5] Offenbacher S, Katz V, Fertik G, et al. Periodontal infection as a possible risk factor for preterm low birth weight. *J Periodontol*. 1996;67(10s):1103-1113.
[6] CDA Foundation. *Oral Health During Pregnancy and Early Childhood: Evidence-Based Guidelines for Health Professionals.* Sacramento, CA: CDA Foundation; 2010.
[7] Bobetsis YA, Barros SP, Offenbacher S. Exploring the relationship between periodontal disease and pregnancy complications. *J Am Dent Assoc*. 2006;137(suppl):7S-13S.
[8] Srinivas SK, Sammel MD, Stamilio DM, et al. Periodontal disease and adverse pregnancy outcomes: is there an association? *Am J Obstet Gynecol*. 2009;200(5):497.e1-8.
[9] Albert DA, Begg MD, Andrews HF, et al. An examination of periodontal treatment, dental care, and pregnancy outcomes in an insured population in the United States. *Am J Public Health*. 2011;101(1):151-156.
[10] Michalowicz BS, Hodges JS, Novak MJ, et al. Changes in periodontitis during pregnancy and the risk of pre-term birth and low birthweight. *J Clin Periodontol*. 2009;36(4):308-314.
[11] Offenbacher S, Beck JD, Jared HL, et al. Effects of periodontal therapy on rate of preterm delivery: a randomized controlled trial. *Obstet Gynecol*. 2009;114(3):551-559.
[12] Macones GA, Parry S, Nelson DB, et al. Treatment of localized periodontal disease in pregnancy does not reduce the occurrence of preterm birth: results from the Periodontal Infections and Prematurity Study (PIPS). *Am J Obstet Gynecol*. 2010;202(2):147.e1-8.
[13] Jeffcoat M, Parry S, Sammel M, Clothier B, Catlin A, Macones G. Periodontal infection and preterm birth: successful periodontal therapy reduces the risk of preterm birth. *BJOG*. 2011;118(2):250-256.

[14] Xiong X, Buekens P, Goldenberg RL, Offenbacher S, Qian X. Optimal timing of periodontal disease treatment for prevention of adverse pregnancy outcomes: before or during pregnancy? *Am J Obstet Gynecol*. 2011;205(2):111-116. Epub 2011 Mar 16.
[15] Polyzos NP, Polyzos IP, Zavos A, et al. Obstetric outcomes after treatment of periodontal disease during pregnancy: systematic review and meta-analysis. *BMJ*. 2010;341:c7017.
[16] Uppal A, Uppal S, Pinto A, et al. The effectiveness of periodontal disease treatment during pregnancy in reducing the risk of experiencing preterm birth and low birth weight: a meta-analysis. *J Am Dent Assoc*. 2010;141(12):1423-1434.
[17] Jeffcoat M, Parry S, Gerlach RW, Doyle MJ. Use of alcohol-free antimicrobial mouth rinse is associated with decreased incidence of preterm birth in a high-risk population. *Am J Obstet Gynecol*. 2011;205(4):382.e1-6.
[18] Chambrone L, Pannuti CM, Guglielmetti MR, Chambrone LA. Evidence grade associating periodontitis with preterm birth and/or low birth weight: II. A systematic review of randomized trials evaluating the effects of periodontal treatment. *J Clin Periodontol*. 2011;38(10):902-914.
[19] Nowak AJ, ed. *The Handbook: Pediatric Dentistry*. 2nd ed. Chicago, IL: American Academy of Pediatric Dentistry; 1999.
[20] Seow WK, Humphrys C, Tudehope DI. Increased prevalence of developmental dental defects in low birth-weight, prematurely born children: a controlled study. *Pediatr Dent*. 1987;9(3):221-225.
[21] Lai PY, Seow WK, Tudehope DI, Rogers Y. Enamel hypoplasia and dental caries in very-low birthweight children: a case-
[22] Pascoe L, Seow WK. Enamel hypoplasia and dental caries in Australian aboriginal children: prevalence and correlation between the two diseases. *Pediatr Dent*. 1994;16(3):193-199.
[23] Berkowitz RJ. Causes, treatment and prevention of early childhood caries: a microbiologic perspective. *J Can Dent Assoc*. 2003;69(5):304-307.
[24] Li Y, Caufield PW. The fidelity of initial acquisition of mutans streptococci by infants from their mothers. *J Dent Res*. 1995;74(2):681-685.
[25] Dye BA, Vargas CM, Lee JJ, Magder L, Tinanoff N. Assessing the relationship between children's oral health status and that of their mothers. *J Am Dent Assoc*. 2011;142(2):173-183.
[26] Weintraub JA, Prakash P, Shain SG, Laccabue M, Gansky SA. Mothers' caries increases odds of children's caries. *J Dent Res*. 2010;89(9):954-958.
[27] Huebner CE, Riedy CA. Behavioral determinants of brushing young children's teeth: implications for anticipatory guidance. *Pediatr Dent*. 2010;32(1):48-55.
[28] Finlayson TL, Siefert K, Ismail AL, Sohn W. Maternal self-efficacy and 1-5-year-old children's brushing habits. *Community Dent Oral Epidemiol*. 2007;35(4):272-281.
[29] Casamassimo PS, Thikkurissy S, Edelstein BL, Maiorini E. Beyond the dmft: The human and economic cost of early childhood caries. *J Am Dent Assoc*. 2009;140(6):650-657.
[30] Michalowicz BS, DiAngelis AJ, Novak MJ, et al. Examining the safety of dental treatment in pregnant women. *J Am Dent Assoc*. 2008;139(6):685-695.
[31] Iida H, Kumar JV, Radigan AM. Oral health During Perinatal Period in New York State: Evaluation of 2005 Pregnancy Risk Assessment Monitoring System Data. *N Y State Dent J*. 2009;75(6):43-47.
[32] Hwang SS, Smith VC, McCormick MC, Barfield WD. Racial/ethnic disparities in maternal oral health experiences in 10 states, pregnancy risk assessment monitoring system, 2004-2006. *Matern Child Health J*. 2011;15(6):722-729.
[33] Collins JL, Lin M, Mosley MJ, Garikapaty V. *Missouri Pregnancy Risk Assessment Monitoring System (PRAMS) 2007-2008 Data Report.* Jefferson City, MO: Missouri Department of Health and Senior Services, Division of Community and Public Health, Section of Epidemiology for Public Health Practice; November 2010. http://www.health.mo.gov/data/prams/pdf/prams_report.pdf. Accessed July 2, 2012.
[34] Hawai'i PRAMS. *Hawai'i PRAMS Trend Report 2000-2008.* Honolulu, HI: Hawai'i Department of Health, Family Health Services Division; August 2010. http://hawaii.gov/health/doc/pramstrendreport2010.pdf. Accessed July 2, 2012.
[35] Centers for Disease Control and Prevention. Perceived Health Needs and Receipt of Services During Pregnancy - Oklahoma and South Carolina, 2004-2007. *MMWR Morb Mortal Wkly Rep*. 2010;59(23):710-714. http://www.cdc.gov/mmwr/pdf/wk/mm5923.pdf. Accessed July 2, 2012.
[36] Junhie OH, Leonard L, Fuller D, Miller K. Less than optimal oral health care during pregnancy in Rhode Island women: Oral health care as a part of prenatal care. *Health By Numbers.* 2011;94(5):141-143. http://www.rimed.org/medhealthri/2011-05/2011-05-141.pdf. Accessed July 2, 2012.
[37] McGinn-Shapiro M. Medicaid coverage of adult dental services. *State Health Policy Monitor*. Portland, ME: National Academy for State Health Policy. October 2008;2(2). http://nashp.org/sites/default/files/Adult%20Dental%20Monitor.pdf?q=files/Adult%20Dental%20Monitor.pdf. Accessed July 2, 2012.
[38] 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):211-222.
[39] Strafford KE, Shellhaas C, Hade EM. Provider and patient perceptions about dental care during pregnancy. *J Matern Fetal Neonatal Med*. 2008;21(1):63-71.
[40] Da Costa EP, Lee JY, Rozier RG, Zeldin L. Dental care for pregnant women: an assessment of North Carolina general dentists. *J Am Dent Assoc*. 2010;141(8):986-994.
[41] Mertz E, Mouradian WE. Addressing children's oral health in the new millennium: trends in the dental workforce. *Acad Pediatr*. 2009;9(6):433-439.
[42] Institute of Medicine and National Research Council. *Improving Access to Oral Health Care for Vulnerable and Underserved populations*. Washington, DC: The National Academies Press. 2011.
[43] Center for Disease Control and Prevention. National Public Health Performance Standards Program (NPHPSP). *10 Essential Public Health Services*. http://www.cdc.gov/nphpsp/essentialservices.html. Accessed July 2, 2012.

[44] American Association for Community Dental Programs. *A model framework for community oral health programs based upon the ten essential public health services.* 2006. http://www.aacdp.com/docs/Framework.pdf. Accessed July 2, 2012.
[45] The Association of State and Territorial Dental Directors (ASTDD). *Guidelines for State and Territorial Oral Health Programs*. Sparks, NV: Association of State and Territorial Dental Directors. 2010 Revision. http://www.astdd.org/state-guidelines/. Accessed July 2, 2012.
[46] U.S. Department of Health and Human Services Health Resources and Services Administration, Maternal and Child Health Bureau. *Rethinking MCH: The Life Course Model as an Organizing Framework.* Concept Paper. November, 2010. http://www.hrsa.gov/ourstories/mchb75th/images/rethinkingmch.pdf. Accessed July 2, 2012.
[47] The Association of State and Territorial Dental Directors (ASTDD), Best Practices Committee. Best practice approach: perinatal oral health. *Best Practice Approaches for State and Community Oral Health Programs*. Sparks, NV: Association of State and Territorial Dental Directors. 2012. In press.
[48] Patient-Centered Primary Care Collaborative. Joint Principles of the Patient Centered Medical Home. February 2007. http://www.pcpcc.net/content/joint-principles-patient-centered-medical-home. Accessed July 2, 2012.
[49] Roudebush JR, Kaufman J, Johnson BH, Abraham MR, Clayton SP. Patient- and family-centered perinatal care: partnerships with childbearing women and families. *J Perinat Neonatal Nurs*. 2006;20(3):201-209.