

COMMITTEE OPINION

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Committee on Health Care for Underserved Women

Reviewed by the Oral Health Care During Pregnancy Advisory Committee. This committee is composed of representatives from the American College of Obstetricians and Gynecologists, the American Dental Association, and the Health Resources and Services Administration's Maternal and Child Health Bureau and coordinated by the National Maternal and Child Oral Health Resource Center at Georgetown University. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Oral Health Care During Pregnancy and Through the Lifespan

ABSTRACT: Oral health is an important component of general health and should be maintained during pregnancy and through a woman's lifespan. Maintaining good oral health may have a positive effect on cardiovascular disease, diabetes, and other disorders. In 2007–2009, 35% of U.S. women reported that they did not have a dental visit within the past year and 56% of women did not visit a dentist during pregnancy. Access to dental care is directly related to income level; the poorest women are least likely to have received dental care. Optimal maternal oral hygiene during the perinatal period may decrease the amount of caries-producing oral bacteria transmitted to the infant during common parenting behavior, such as sharing spoons. Although some studies have shown a possible association between periodontal infection and preterm birth, evidence has failed to show any improvement in outcomes after dental treatment during pregnancy. Nonetheless, these studies did not raise any concern about the safety of dental services during pregnancy. To potentiate general health and well-being, women should routinely be counseled about the maintenance of good oral health habits throughout their lives as well as the safety and importance of oral health care during pregnancy.

The 2000 Surgeon General's report *Oral Health in America*, stated that a "silent epidemic of oral diseases is affecting our most vulnerable citizens," including the poor and many members of racial and ethnic minority groups (1). Oral health, which includes health of the gums, teeth, and jawbone, is a "mirror for general health and well-being" (1). The World Health Organization Global Oral Health Programme emphasizes this interrelation and notes that oral health is a determining factor for quality of life (2). To prevent tooth decay, oral infections, and tooth loss, the American Dental Association recommends semiannual dental examinations and cleanings as well as daily brushing and flossing (3). The American Dental Association also affirms the importance of oral health care during pregnancy (4).

General Health

Oral health disorders, such as periodontitis, are associated with many disease processes, including cardiovascular diseases, diabetes, Alzheimer disease, respiratory infections, as well as osteoporosis of the oral cavity. These are all significant diseases that affect women across the lifespan (5–11). The prevention and treatment of these disorders are essential for general well-being.

The efficacy of endocarditis prophylaxis among patients who undergo dental procedures has been controversial based on published studies. However, the American Heart Association recommends that prophylaxis for dental procedures is reasonable only for patients with heart conditions that place them at the highest risk of adverse outcomes from endocarditis (12). For patients with these conditions, prophylaxis is reasonable for all dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa (12).

It is important for patients to discuss screening for oral cancer with their dentists. Although the U.S. Preventive Services Task Force concludes that there is insufficient evidence to recommend for or against routine screening for oral cancer, approximately 37,000

new cases of oral cancer are diagnosed each year with the resultant annual death of 8,000 individuals (13, 14). Human papillomavirus (HPV) infection is one of the causes of oral cancer and HPV can be transmitted through oral sex. Evidence suggests that an increase in HPV-related oral cancer exists; however, further research is warranted to understand the public health and clinical implications (15).

Pregnancy

Physiologic changes during pregnancy may result in noticeable changes in the oral cavity (16–18). These changes include pregnancy gingivitis, benign oral gingival lesions, tooth mobility, tooth erosion, dental caries, and periodontitis (see Table 1). It is important to reassure women about these various changes to the gums and teeth during pregnancy and to reinforce good oral health habits to keep the gums and teeth healthy.

Periodontal Disease and Pregnancy Outcomes

Approximately 40% of pregnant women have some form of periodontal disease (19). Periodontal disease during pregnancy is most prevalent among women who are African American, cigarette smokers, and users of public assistance programs. A study conducted in 1996 showed an association between maternal periodontal disease and preterm birth (20). Since then, other studies have supported this conclusion (21, 22). Theoretically, bloodborne gram negative anaerobic bacteria or inflammatory

mediators, such as lipopolysaccharides and cytokines, may be transported to the placental tissues as well as to the uterus and cervix. This results in increased inflammatory modulators that may precipitate preterm labor, particularly in African Americans (23). However, recent meta-analyses and other large trials have not shown any benefit of periodontal therapy during pregnancy in the reduction of preterm birth and infant low birth weight (24–29). Similarly, there have been conflicting results with respect to the effect of periodontal disease on preeclampsia (30, 31). More research is needed in these areas. Randomized controlled trials of periodontal treatment during the preconception or interconception periods may better define whether prepregnancy treatment could reduce adverse pregnancy outcomes.

Despite the lack of evidence for a causal relationship between periodontal disease and adverse pregnancy outcomes, the treatment of maternal periodontal disease during pregnancy is not associated with any adverse maternal or birth outcomes. Moreover, prenatal periodontal therapy is associated with the improvement of maternal oral health (26–28).

Oral Health Assessment and Counseling During Pregnancy

Pregnancy is a "teachable" moment when women are motivated to adopt healthy behavior. For women of lower socioeconomic status, pregnancy provides a unique opportunity to obtain dental care because of Medicaid

Table 1. Common Oral Health Conditions During Pregnancy ←

Pregnancy gingivitis	An increased inflammatory response to dental plaque during pregnancy causes the gingivae to swell and bleed more easily in most women. Rinsing with saltwater (ie, 1 teaspoon of salt in 1 cup of warm water) may help with the irritation. Pregnancy gingivitis typically peaks during the third trimester. Women who have gingivitis before pregnancy are more prone to exacerbation during pregnancy.
Benign oral gingival lesions (known as pyogenic granuloma, granuloma gravidarum or epulis of pregnancy)	In approximately 5% of pregnancies, a highly vascularized, hyperplastic, and often pedunculated lesion up to 2 cm in diameter may appear, usually on the anterior gingiva. These lesions may result from a heightened inflammatory response to oral pathogens and usually regress after pregnancy. Excision is rarely necessary but may be needed if there is severe pain, bleeding, or interference with mastication.
Tooth mobility	Ligaments and bone that support the teeth may temporarily loosen during pregnancy, which results in increased tooth mobility. There is normally not any tooth loss unless other complications are present.
Tooth erosion	Erosion of tooth enamel may be more common because of increased exposure to gastric acid from vomiting secondary to morning sickness, hyperemesis gravidarum, or gastric reflux during late pregnancy. Rinsing with a baking soda solution (ie, a teaspoon of baking soda dissolved in a cup of water) may help neutralize the associated acid.
Dental caries	Pregnancy may result in dental caries due to the increased acidity in the mouth, greater intake of sugary snacks and drinks secondary to pregnancy cravings, and decreased attention to prenatal oral health maintenance.
Periodontitis	Untreated gingivitis can progress to periodontitis, an inflammatory response in which a film of bacteria, known as plaque, adheres to teeth and releases bacterial toxins that create pockets of destructive infection in the gums and bones. The teeth may loosen, bone may be lost, and a bacteremia may result.

Data from Silk H, Douglass AB, Douglass JM, Silk L. Oral health during pregnancy. Am Fam Physician 2008;77:1139–44; Pirie M, Cooke I, Linden G, Irwin C. Dental manifestations of pregnancy. The Obstetrician & Gynaecologist 2007;9:21–6; Boggess KA. Maternal oral health in pregnancy. Society for Maternal-Fetal Medicine. Obstet Gynecol 2008;111:976–86; and Polyzos NP, Polyzos IP, Zavos A, Valachis A, Mauri D, Papanikolaou EG, et al. Obstetric outcomes after treatment of periodontal disease during pregnancy: systematic review and meta-analysis. BMJ 2010;341:c7017.

insurance assistance with prenatal medical and dental coverage. However, most women do not seek dental care. According to postpartum survey data from the Pregnancy Risk Assessment Monitoring System in 10 states, 56% of mothers did not have dental care and 60% did not have their teeth cleaned during their most recent pregnancy (32). Black non-Hispanic women (24%) and Hispanic women (25%) were significantly less likely to have their teeth cleaned during pregnancy than white non-Hispanic women (44%) (32). Additionally, most women (59%) did not receive any counseling about oral health during pregnancy (32). Prenatal counseling about oral health care has been shown to be highly correlated with teeth cleaning during pregnancy (33).

Dental and obstetric teams can be influential in helping women initiate and maintain oral health care during pregnancy to improve lifelong oral hygiene habits and dietary behavior for women and their families. For example, women with poor oral health may harbor high levels of Streptococcus mutans in their saliva. These bacteria can be transmitted to their infants during common parenting behavior, such as sharing spoons or licking pacifiers. Minimizing the number of cariogenic bacteria in pregnant mothers through good oral health may delay or prevent the onset of colonization of these bacteria in their infants, which results in less early childhood caries (34-37). Although most obstetricians acknowledged a need for oral health care during pregnancy, 80% did not use oral health screening questions in their prenatal visits, and 94% did not routinely refer all patients to a dentist (38). Most obstetricians and dentists agreed that pregnant women should undergo dental services but many dentists were concerned about the safety of dental procedures and medications during pregnancy (38). Obstetricians were more comfortable with their patients undergoing dental procedures during pregnancy but were less likely than dentists to recommend dental care to their patients (38). Improved training in the importance of oral health, recognition of oral health problems, and knowledge of procedure safety during pregnancy may make health care providers more comfortable with assessing oral health and more likely to address it with patients (39).

At the first prenatal visit, health care providers should assess a woman's oral health. A simple approach to prenatal assessment can be accomplished by using the questions provided in Box 1. As part of routine counseling, health care providers should encourage all women to schedule a dental examination if it has been more than 6 months since their last examination or if they have any oral health problems. Patients often need reassurance that prevention, diagnosis, and treatment of oral conditions, including dental X-rays (with shielding of the abdomen and thyroid) and local anesthesia (lidocaine with or without epinephrine), are safe during pregnancy. Conditions that require immediate treatment, such as extractions, root canals, and restoration (amalgam or composite) of untreated caries, may be managed at any

Box 1. Sample Oral Health Questions <

- 1. Do you have swollen or bleeding gums, a toothache, problems eating or chewing food, or other problems in your mouth?
- 2. When was your last dental visit?
- 3. Do you need help finding a dentist?

Data from National Maternal and Child Oral Health Resource Center, Georgetown University. Oral health care during pregnancy: a national consensus statement. Oral Health Care During Pregnancy Expert Work Group. Washington, DC: OHRC; 2012. Available at: http://www.mchoralhealth.org/PDFs/OralHealth PregnancyConsensus.pdf. Retrieved May 17, 2013.

time during pregnancy. Delaying treatment may result in more complex problems. Counseling should include reinforcement of routine oral health maintenance, such as limiting sugary foods and drinks, brushing twice a day with fluoridated toothpaste, flossing once daily, and dental visits twice a year. Dental providers often recommend the use of chlorhexidine and fluoridated mouth rinses, and xylitol-containing chewing gum to decrease oral bacteria. No adverse effects have been reported with these products during pregnancy but they have not been studied extensively. For patients with vomiting secondary to morning sickness, hyperemesis gravidarum, or gastric reflux during late pregnancy, the use of antacids or rinsing with a baking soda solution (ie, 1 teaspoon of baking soda dissolved in 1 cup of water) may help neutralize the associated acid. For additional information on oral health during the perinatal period, refer to Oral Health During Pregnancy: A National Consensus Statement, developed by the Health Resources and Services Administration's Maternal and Child Health Bureau in collaboration with the American College of Obstetricians and Gynecologists and the American Dental Association (40).

Access to Dental Care

The greatest burden of oral disease lies in disadvantaged and poor populations where considerable unmet need for dental care is observed. In 2007-2009, 35% of U.S. women reported that they did not have a dental visit within the past year and 56% did not visit a dentist during pregnancy (37). Access to dental care was directly related to income level; the poorest women were least likely to have received dental care. Aside from financial constraints and lack of insurance coverage, barriers to dental care among those underserved include lack of education, lack of access to transportation, and lack of dental providers. Additional factors that complicate oral health among the underserved include poor nutrition and higher rates of tobacco, alcohol, and illicit drug use. These factors also are apparent during pregnancy. It is important for obstetricians to be aware of their patients'

health coverage for dental services during pregnancy so that referrals to an appropriate dental provider can be made. Also, each state's Medicaid coverage of oral health during pregnancy may vary considerably. Advocacy for broader oral health coverage of women before, during, and after pregnancy will optimize their general and oral health. Although Medicaid often covers dental visits during pregnancy, additional barriers to care include lack of awareness by health care and dental providers and women about the safety of dental care during pregnancy. Obstetric providers should refer women for dental care in a timely manner with a written note or call, as would be the practice with referrals to any medical specialist. Establishing relationships between prenatal care and oral health providers in the community facilitates a collaborative approach to women's oral health needs (40).

Conclusion

Regular dental care is a key component to good oral and general health. Despite the lack of evidence that prenatal oral health care improves pregnancy outcomes, ample evidence shows that oral health care during pregnancy is safe and should be recommended to improve the oral and general health of the woman. Improved oral health of the woman may decrease transmission of potentially cariogenic bacteria to infants and reduce children's future risk of caries (34–37). For many women, obstetrician—gynecologists are the most frequently accessed health care professional, which creates a unique opportunity to educate women throughout their lifespan, including during pregnancy, about the importance of dental care and good oral hygiene.

Recommendations

- Discuss oral health with all patients, including those who are pregnant or in the postpartum period.
- Advise women that oral health care improves a woman's general health through her lifespan and may also reduce the transmission of potentially caries-producing oral bacteria from mothers to their infants.
- Conduct an oral health assessment during the first prenatal visit.
- Reassure patients that prevention, diagnosis, and treatment of oral conditions, including dental X-rays (with shielding of the abdomen and thyroid) and local anesthesia (lidocaine with or without epinephrine), are safe during pregnancy.
- Inform women that conditions that require immediate treatment, such as extractions, root canals, and restoration (amalgam or composite) of untreated caries, may be managed at any time during pregnancy. Delaying treatment may result in more complex problems.

- For patients with vomiting secondary to morning sickness, hyperemesis gravidarum, or gastric reflux during late pregnancy, the use of antacids or rinsing with a baking soda solution (ie, 1 teaspoon of baking soda dissolved in 1 cup of water) may help neutralize the associated acid.
- Be aware of patients' health coverage for dental services during pregnancy so that referrals to the appropriate dental provider can be made. Note that each state's Medicaid coverage for oral health may vary considerably.
- Develop a working relationship with local dentists. Refer patients for oral health care with a written note or call, as would be the practice with referrals to any medical specialist.
- Advocate for broader oral health coverage of women before, during, and after pregnancy. Pregnancy is a unique time when women may gain access to oral health coverage.
- Reinforce routine oral health maintenance, such as limiting sugary foods and drinks, brushing twice a day with fluoridated toothpaste, flossing once daily, and dental visits twice a year.

References

- Department of Health and Human Services. Oral health in America: a report of the Surgeon General. Rockville (MD): National Institute of Dental and Craniofacial Research; 2000. Availableat: http://silk.nih.gov/public/hcklocv.@www. surgeon.fullrpt.pdf. Retrieved May 17, 2013. ←
- 2. Petersen PE. World Health Organization global policy for improvement of oral health—World Health Assembly 2007. Int Dent J 2008;58:115–21. [PubMed] ←
- 3. For the dental patient: basic oral care. J Am Dent Assoc 2000; 131:1095. ←
- 4. For the dental patient: oral health during pregnancy. J Am Dent Assoc 2011;142:574. [PubMed] [Full Text] ←
- 5. Gurav A, Jadhav V. Periodontitis and risk of diabetes mellitus. J Diabetes 2011;3:21–8. [PubMed] [Full Text] ←
- 6. Martinez-Maestre MA, Gonzalez-Cejudo C, Machuca G, Torrejon R, Castelo-Branco C. Periodontitis and osteoporosis: a systematic review. Climacteric 2010;13:523–9. [PubMed] [Full Text] ←
- 7. Teles R, Wang CY. Mechanisms involved in the association between periodontal diseases and cardiovascular disease. Oral Dis 2011;17:450−61. [PubMed] [Full Text] ←
- 8. Zoellner H. Dental infection and vascular disease. Semin Thromb Hemost 2011;37:181−92. [PubMed] ←
- 9. Sanossian N, Gatto NM, Ovbiagele B. Subpar utilization of dental care among Americans with a history of stroke. J Stroke Cerebrovasc Dis 2011;20:255–9. [PubMed] ←
- Kamer AR, Craig RG, Dasanayake AP, Brys M, Glodzik-Sobanska L, de Leon MJ. Inflammation and Alzheimer's disease: possible role of periodontal diseases. Alzheimers Dement 2008;4:242–50. [PubMed] ←

- 11. Scannapieco FA. Role of oral bacteria in respiratory infection. J Periodontol 1999;70:793−802. [PubMed] ←
- 12. Wilson W, Taubert KA, Gewitz M, Lockhart PB, Baddour LM, Levison M, et al. Prevention of infective endocarditis: guidelines from the American Heart Association: a guideline from the American Heart Association Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and the Quality of Care and Outcomes Research Interdisciplinary Working Group [published erratum appears in Circulation. 2007;116:e376−7]. Circulation 2007;116:1736−54. [PubMed] [Full Text] ←
- 13. U.S. Preventive Services Task Force. Screening for oral cancer. Recommendation Statement. Rockville (MD): USPSTF; 2004. Available at: http://www.uspreventiveservicestask-force.org/3rduspstf/oralcan/oralcanrs.pdf. Retrieved May 17, 2013. ←
- 14. Howlader N, Noone AM, Krapcho M, Neyman N, Aminou R, Altekruse SF, et al, editors. SEER cancer statistics review, 1975-2009 (vintage 2009 populations). Bethesda (MD): National Cancer Institute; 2012. Available at: http://seer.cancer.gov/csr/1975_2009_pops09. Retrieved May 17, 2013. ←
- 15. Chaturvedi AK, Engels EA, Pfeiffer RM, Hernandez BY, Xiao W, Kim E, et al. Human papillomavirus and rising oropharyngeal cancer incidence in the United States. J Clin Oncol 2011;29:4294–301. [PubMed] [Full Text] ←
- 16. Silk H, Douglass AB, Douglass JM, Silk L. Oral health during pregnancy. Am Fam Physician 2008;77:1139–44. [PubMed] [Full Text] ←
- 17. Pirie M, Cooke I, Linden G, Irwin C. Dental manifestations of pregnancy. The Obstetrician & Gynaecologist 2007;9: 21–6. ←
- Boggess KA. Maternal oral health in pregnancy. Society for Maternal-Fetal Medicine. Obstet Gynecol 2008;111: 976–86. [PubMed] [Obstetrics & Gynecology] ←
- 19. Lieff S, Boggess KA, Murtha AP, Jared H, Madianos PN, Moss K, et al. The oral conditions and pregnancy study: periodontal status of a cohort of pregnant women. J Periodontol 2004;75:116−26. [PubMed] ←
- 20. Offenbacher S, Katz V, Fertik G, Collins J, Boyd D, Maynor G, et al. Periodontal infection as a possible risk factor for pre-erm low birth weight. J Periodontol 1996;67:1103–13. [PubMed] ←
- 21. Jeffcoat MK, Geurs NC, Reddy MS, Cliver SP, Goldenberg RL, Hauth JC. Periodontal infection and preterm birth: results of a prospective study. J Am Dent Assoc 2001;132: 875–80. [PubMed] ←
- 22. Offenbacher S, Lieff S, Boggess KA, Murtha AP, Madianos PN, Champagne CM, et al. Maternal periodontitis and prematurity. Part I: Obstetric outcome of prematurity and growth restriction. Ann Periodontol 2001;6:164−74. [PubMed] ←
- 23. Horton AL, Boggess KA, Moss KL, Jared HL, Beck J, Offenbacher S. Periodontal disease early in pregnancy is associated with maternal systemic inflammation among African American women. J Periodontol 2008;79:1127–32. [PubMed] ←

- 24. Polyzos NP, Polyzos IP, Zavos A, Valachis A, Mauri D, Papanikolaou EG, et al. Obstetric outcomes after treatment of periodontal disease during pregnancy: systematic review and meta-analysis. BMJ 2010;341:c7017. [PubMed] [Full Text] ←
- 25. Fogacci MF, Vettore MV, Leao AT. The effect of periodontal therapy on preterm low birth weight: a meta-analysis. Obstet Gynecol 2011;117:153–65. [PubMed] [Obstetrics & Gynecology] ←
- 26. Offenbacher S, Beck JD, Jared HL, Mauriello SM, Mendoza LC, Couper DJ, et al. Effects of periodontal therapy on rate of preterm delivery: a randomized controlled trial. Maternal Oral Therapy to Reduce Obstetric Risk (MOTOR) Investigators. Obstet Gynecol 2009;114:551−9. [PubMed] [Obstetrics & Gynecology] ←
- 27. Michalowicz BS, Hodges JS, DiAngelis AJ, Lupo VR, Novak MJ, Ferguson JE, et al. Treatment of periodontal disease and the risk of preterm birth. N Engl J Med 2006;355: 1885–94. [PubMed] [Full Text] ←
- 28. Newnham JP, Newnham IA, Ball CM, Wright M, Pennell CE, Swain J, et al. Treatment of periodontal disease during pregnancy: a randomized controlled trial. Obstet Gynecol 2009;114:1239–48. [PubMed] [Obstetrics & Gynecology] ←
- 29. Macones GA, Parry S, Nelson DB, Strauss JF, Ludmir J, Cohen AW, 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; 202:147.e1−147.e8. [PubMed] [Full Text] ←
- 30. Boggess KA, Lieff S, Murtha AP, Moss K, Beck J, Offenbacher S. Maternal periodontal disease is associated with an increased risk for preeclampsia. Obstet Gynecol 2003;101:227–31. [PubMed] [Obstetrics & Gynecology] ←
- 31. Khader YS, Jibreal M, Al-Omiri M, Amarin Z. Lack of association between periodontal parameters and preeclampsia. J Periodontol 2006;77:1681–7. [PubMed] ←
- 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;15:722−9. [PubMed] ←
- 33. Thompson TA, Cheng D, Strobino D. Dental cleaning before and during pregnancy among Maryland mothers. Matern Child Health J 2013;17:110−8. [PubMed] [Full Text] ←
- 34. Kohler B, Andreen I, Jonsson B. The effect of cariespreventive measures in mothers on dental caries and the oral presence of the bacteria Streptococcus mutans and lactobacilli in their children. Arch Oral Biol 1984;29:879−83. [PubMed] ←
- 35. Gomez SS,Weber AA. Effectiveness of a caries preventive program in pregnant women and new mothers on their offspring. Int J Paediatr Dent 2001;11:117−22. [PubMed] ←
- 36. 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;14:257–64. [PubMed] ←

- 37. Oral health during pregnancy and early childhood: evidence-based guidelines for health professionals. California Dental Association Foundation, American College of Obstetricians and Gynecologists District IX. J Calif Dent Assoc 2010;38:391–403, 405–40. [PubMed] ←
- 39. Morgan MA, Crall J, Goldenberg RL, Schulkin J. Oral health during pregnancy. J Matern Fetal Neonatal Med 2009;22:733–9. [PubMed] [Full Text] ←
- 40. National Maternal and Child Oral Health Resource Center, Georgetown University. Oral health care during pregnancy: a national consensus statement. Oral Health Care During Pregnancy Expert Work Group. Washington, DC: OHRC; 2012. Available at: http://www.mchoralhealth.org/PDFs/ OralHealthPregnancyConsensus.pdf. Retrieved May 17, 2013. ←

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