



Oral Health in Pregnancy

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ABSTRACT

Oral health is crucial to overall health. Because of normal physiologic changes, pregnancy is a time of particular vulnerability in terms of oral health. Pregnant women and their providers need more knowledge about the many changes that occur in the oral cavity during pregnancy. In this article we describe the importance of the recognition, prevention, and treatment of oral health problems in pregnant women. We offer educational strategies that integrate interprofessional oral health competencies.

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In the last decade, the importance of oral health during pregnancy has garnered the attention of policymakers, foundations, agencies, and health care providers who serve pregnant women and young children. The U.S. Surgeon General (U.S. Department of Health and Human Services, 2000), World Health Organization (Petersen, 2008), and American College of Obstetricians and Gynecologists (American College of Obstetricians and Gynecologists Women's Health Care Physicians & Committee on Health Care for Underserved Women, 2013) have all recognized that oral health is an integral part of preventive health care for pregnant women and their newborns. Three Institute of Medicine reports (2011, 2013; Institute of Medicine & National Research Council, 2011) highlighted the significance of addressing oral health as a population health issue for pregnant women. In 2012, the Oral Health Care During Pregnancy Expert Workgroup highlighted the importance of the provision of oral health care to pregnant women in their landmark document, *Oral Health During Pregnancy: A National Consensus Statement*. The U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA) released *Integration of Oral Health and Primary Care Practice* (2014), which outlines interprofessional oral health core clinical competencies appropriate for primary care providers including nurse practitioners (NPs), nurse-midwives (NMs), medical doctors (MDs), doctors of osteopathic medicine (DOs), and physician assistants (PAs).

During pregnancy, many changes occur in the oral cavity that can be linked to periodontal disease, which includes gingivitis and periodontitis. Studies have indicated that there is a connection between "increased plasma levels of pregnancy hormones and a decline in periodontal health status" (Wu, Chen, & Jiang, 2015, p. 8). Approximately 60% to 75% of pregnant women have gingivitis (American Dental Association Council on Access, Prevention, and Interprofessional Relations, 2006). Although various numbers have been reported for the prevalence of periodontitis in pregnancy, almost half of adults in the United States have this condition (Eke, Dye, Wei, Thornton-Evans, & Genco, 2012).

During pregnancy, a woman's oral health can affect her health and the health of her unborn child. The purpose of this article is to present information on the importance of women's health care providers in the recognition, prevention, and management of oral health problems during pregnancy. Strategies that integrate interprofessional oral health competencies into women's health care provider education and practice are provided.

Periodontal Disease in Pregnancy

Periodontal disease, including gingivitis and periodontitis, has been associated with pregnancy (Wu et al., 2015). According to the American Academy of Periodontology, *periodontal disease* is "an inflammatory disease that affects

Lack of oral health care during pregnancy can negatively affect mother and newborn.

the soft and hard structures that support the teeth” (n.d., “The Causes and Symptoms,” para. 2). *Gingivitis*, the early stage of periodontal disease, occurs when “the gums become swollen and red due to inflammation,” and *periodontitis*, the most serious form of periodontal disease, occurs when the “gums pull away from the tooth and supporting gum tissues are destroyed” (*American Academy of Periodontology*, n.d., “The Causes and Symptoms,” para. 2).

Gingivitis

Figuro, Carrillo-de-Albornoz, Martín, Tobías, and Herrera (2013) reported in their systematic review that the relationship between pregnancy and gingivitis confirmed “the existence of a significant increase in gingivitis throughout pregnancy and between pregnant versus post-partum or non pregnant women” (p. 457). *Ehlers, Callaway, Hortig, Kasaj, and Willershausen (2013)* compared the dental evaluation and gingival crevicular fluid from 40 pregnant women and 40 age-matched nonpregnant control subjects. They found that 80% of pregnant women had gingival inflammation compared with 40% of control subjects. *Gogeneni et al. (2015)* reported that pregnant women with gingivitis and pregnant women with gingivitis and gestational diabetes mellitus (GDM) had high levels of systemic C-reactive protein. These findings indicate that gingivitis is a problem in pregnant women.

Periodontitis

Recent studies have shown an association between periodontitis during pregnancy and low birth weight (LBW), very low birth weight (VLBW), preeclampsia, and GDM (*Corbella et al., 2016; Guimarães et al., 2012; Ha, Jun, Ko, Paik, & Bae, 2014; Xiong et al., 2009*). *Guimarães et al. (2012)* showed in their cross-sectional study of 1,206 postpartum women that “maternal periodontitis was associated with a decrease in mean birth weight, as well as LBW and VLBW” (p. 1024). *Corbella et al. (2016)* conducted a meta-analysis of studies in which researchers controlled for periodontitis as a risk factor associated with negative pregnancy outcomes. They chose 22 out of 422 studies, which included 17,053 subjects. They found that there was an association between periodontitis and

negative consequences in pregnancy; however, this association was weak (*Corbella et al., 2016*).

Xiong et al. (2009) found that periodontitis was associated with GDM (77.4% of pregnant women with GDM had periodontitis) with an adjusted odds ratio of 2.6 and a confidence interval of 95% in their case-control study of 53 pregnant women with GDM and 106 without GDM. *Ha et al. (2014)* found “a significant relationship between periodontitis and preeclampsia in never smokers” (p. 869) in their prospective cohort study of 283 pregnant women who had never smoked, 67 with periodontitis and 216 without periodontitis.

Although these studies did not show conclusive evidence of the link between periodontal disease and negative pregnancy outcomes, periodontal treatment is safe for pregnant women, avoids the adverse consequences of periodontitis (e.g., pain, tooth loss) for the mother, and is not associated with any negative infant or maternal outcomes (*Wrzosek & Einarson, 2009*).

Access to Care

Access to dental care is reported to be related to multiple factors and situations that may be concurrent. Examples of these factors and situations include the following: (a) race/ethnicity (*Azofeifa, Yeung, Alverson, & Beltrán-Aguilar, 2014; Hwang, Smith, McCormick, & Barfield, 2011*), (b) age and income level (*Azofeifa et al., 2014*), (c) personal stressors (*Le, Riedy, Weinstein, & Milgrom, 2009*), (d) lack of education (*Azofeifa et al., 2014*), (e) lack of perceived need (*Marchi, Fisher-Owens, Weintraub, Yu, & Braveman, 2010*), (f) insurance coverage (*Cigna Corporation, 2015*), and (g) sociodemographic differences (*Azofeifa et al., 2014; Hwang et al., 2011*).

Hwang et al. (2011) analyzed Pregnancy Risk Assessment Monitoring System data from 2004 through 2006 and found significant disparities in race and ethnicity in the oral health experiences of pregnant women. Black non-Hispanic and Hispanic women were significantly less likely to receive dental care during pregnancy than White non-Hispanic women. Through their use of data from the 1999 through 2004 National Health and Nutrition Examination Survey, *Azofeifa et al. (2014)* showed significant sociodemographic disparities in dental service use and self-reported oral health among U.S. women in general and between pregnant and nonpregnant women. The probability of having a dental visit within the year

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