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The Impact of Dental Insurance and Medical Insurance on Dental Care Utilization During Pregnancy

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Abstract

Objective—To measure the association between dental and medical insurance with the receipt of dental cleaning during pregnancy.

Methods—We analyzed Pregnancy Risk Assessment Monitoring System (PRAMS) data from 2012 to 2015 on 145,051 women with a recent live birth from 36 states. We used adjusted prevalence ratios [aPR] from multivariable regression to examine the association of dental and medical insurance with receipt of dental cleaning during pregnancy, controlling for selected covariates that influence dental care utilization.

Results—Seventy-seven percent (77%) of all women reported having dental insurance during pregnancy. Receipt of dental cleaning before pregnancy was strongly associated with dental cleaning during pregnancy. Among women without pre-pregnancy dental cleaning who had dental insurance, those with Medicaid medical insurance had a significantly higher prevalence of dental cleaning during pregnancy [aPR = 1.42, 95% CI (1.32 – 1.52)], compared to those private medical insurance. Among women without pre-pregnancy dental cleaning, those without dental insurance but with Medicaid medical insurance were about 70% less likely to have dental cleaning during pregnancy compared to those with dental and private medical insurance.

Conclusions for Practice—With or without dental insurance, pre-pregnancy dental cleaning was strongly associated with dental cleaning during pregnancy. Dental insurance was an important determinant of dental utilization. Medical insurance had an independent and positive effect. This effect varied by private versus Medicaid medical insurance. Programs which provide women with dental insurance both before and during pregnancy could improve the oral health of maternal and infant populations.

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Disclaimer The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Compliance with Ethical Standards

Ethical Approval The PRAMS study protocol has been approved by CDC's Institutional Review Board (IRB) and local IRBs in each PRAMS participating site.

Keywords

Dental care; Pregnancy; Dental insurance; Medicaid

Introduction

Dental care during pregnancy is safe and beneficial. Guidelines advise pregnant women to continue “usual dental care” during pregnancy, including brushing and flossing, routine professional cleaning, and any necessary treatment for acute problems (Michalowicz 2008; American College of Gynecologists 2013; Oral Health During Pregnancy Expert Workgroup 2012). Regular dental care including professional teeth cleaning combined with daily oral hygiene are important measures to prevent common oral diseases including dental caries and periodontal diseases (US Department of Health and Human Services 2000). Pregnant women experience complex physiologic changes and are susceptible to oral diseases. Nearly 60–70% of pregnant women have gingivitis, an early stage of periodontal (gum) disease that occurs when the gums become red and swollen from inflammation that may be aggravated by changing hormones during pregnancy (American Dental Association 2006). Numerous studies have linked periodontal disease with systemic diseases, such as diabetes and heart disease (Liccardo et al. 2019) and with poor pregnancy outcomes, including pre-term birth and low birth weight (Ide and Papapanou 2013). Dental caries is also common in pregnant women, with nearly 30% having untreated decay (Azofeifa et al. 2016). In addition, dental care during pregnancy is an opportune time to educate women about preventing oral diseases for themselves and their children. Evidence suggests that mothers are a primary source of caries-causing bacteria colonization of children (Douglass et al. 2008). Maintaining usual dental care and oral hygiene minimize bacterial counts in mothers’ saliva and may delay or prevent the colonization by potential pathogens in their infants’ mouths, lowering the risk of early childhood dental decay (Cal Dental Assoc. 2010; Kohler et al. 1984).

Despite the health benefit of dental care during pregnancy for women and their children, previous studies from the Pregnancy Risk Assessment Monitoring System (PRAMS) have shown that only 23–44% of women accessed dental care during pregnancy (Gaffield et al. 2001; Hwang et al. 2011). Factors associated with low dental utilization during pregnancy include younger age, lower education, lower income, race/ethnicity other than non-Hispanic white, lack of perceived need, being unmarried, and having financial barriers (Hwang et al. 2011; Marchi et al. 2010). In addition, studies have shown that lack of routine dental care when not pregnant (Boggess et al. 2010; Amin and ElSalhy 2014), and lack of counseling on the importance of oral health care during pregnancy (Lydon-Rochelle et al. 2004; Le et al. 2009), are important predictors of not receiving dental care during pregnancy.

One of the primary predictors of dental care utilization is dental insurance, yet having dental insurance does not ensure use of dental care (Skaret et al. 2001; Manski et al. 2017; Wall et al. 2012). Data on the influence of dental and medical insurance on dental utilization during pregnancy are not available from large, population-based studies. In studies where the prevalence of dental insurance was unknown, there was a lower prevalence of dental cleaning before pregnancy (Umer et al. 2016) and fewer dental visits during

pregnancy (Gaffield et al. 2001) for women with Medicaid medical insurance compared to women with private medical insurance. Another study showed increased odds of receiving dental cleaning pre-pregnancy and during pregnancy among women with dental insurance compared to those with no dental insurance (Naavaal et al. 2019). These studies were limited to either one or a few states.

Medicaid is a cooperative program between the federal and state governments to pay for health care for certain low-income persons. All women covered by Medicaid medical insurance during pregnancy are eligible for Medicaid dental benefits. Most states provide some level of dental benefits to pregnant women, though the services offered vary widely across states (MSDA 2015). For pregnant women with Medicaid dental benefits, pregnancy may be the only opportunity for dental care access. Pregnant women may face unique barriers to dental care, such as misconceptions about the safety of dental care during pregnancy, fear of harm to the fetus, inability to find providers who treat pregnant women or providers who accept Medicaid dental insurance (California Dental Association Foundation 2010).

This study used the Pregnancy Risk Assessment Monitoring System (PRAMS) data from 36 states; (1) to describe oral health experiences during pregnancy and other maternal characteristics among women with a recent live birth; and, (2) in a multivariable regression analysis, to examine the association of dental and medical insurance coverage with receipt of dental cleaning during pregnancy, controlling for selected covariates that influence dental care utilization.

Methods and Materials

Data Source

The Pregnancy Risk Assessment Monitoring System (PRAMS), administered by the Centers for Disease Control and Prevention (CDC) in partnership with state health departments, is a population-based surveillance system that collects data on selected maternal behaviors and experiences that occur before, during and shortly after pregnancy. In each state, approximately 1000 to 3000 women are sampled annually between 2 and 6 months after the birth of a live infant. Details about PRAMS methodology have been described elsewhere (Shulman et al. 2018). The PRAMS study protocol has been approved by CDC's Institutional Review Board (IRB) and local IRBs in each PRAMS participating site. We included 2012–2015 PRAMS data from states that collected data and met the response rate threshold (60% for 2012–2014; 55% for 2015) for at least one of the study years. The states are Alabama, Alaska, Arkansas, Colorado, Connecticut, Delaware, Georgia, Hawaii, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming.

Variable Selection

From 2012 to 2015, the PRAMS questionnaire (Phase 7) included a core question (used by all states) assessing five aspects of oral health during pregnancy, including dental insurance. We used responses from these five items to describe women's oral health experiences during pregnancy.

PRAMS Phase 7 (2012–2015) core dental care question:

This question is about the care of your teeth *during your most recent* pregnancy. For each item, check No if it is not true or does not apply to you or Yes if it is true.

- a. I knew it was important to care for my teeth and gums during my pregnancy
- b. A dental or other health care worker talked with me about how to care for my teeth and gums
- c. I had my teeth cleaned by a dentist or dental hygienist
- d. I had insurance to cover dental care during my pregnancy
- e. I needed to see a dentist for a problem

The outcome variable was dental cleaning during pregnancy obtained from the response to the statement, "I had my teeth cleaned by a dentist or dental hygienist" (yes/no). Responses to the four other statements were used as independent variables in the analysis. A separate core question was used to assess receipt of dental cleaning in the 12 months *before* pregnancy and medical insurance coverage during pregnancy for prenatal care. The primary independent variable was a composite of women's dental and medical insurance coverage during pregnancy. The composite variable was defined by combining medical insurance status during pregnancy (private or Medicaid) with dental insurance during pregnancy (yes/no). The composite variable had four mutually exclusive categories; dental insurance and private medical insurance (dental/private medical), no dental insurance and private medical insurance (no dental/private medical), dental insurance and Medicaid medical insurance (dental/Medicaid medical), and no dental insurance with Medicaid medical insurance (no dental/Medicaid medical).

Age, race/ethnicity, marital status, smoking in the third trimester of pregnancy, dental need during pregnancy, and state of residence were included as covariates because of their association with dental utilization (Marchi et al. 2010; Hwang et al. 2011). Race/ethnicity was defined as non-Hispanic white, non-Hispanic black, Hispanic and non-Hispanic other. Non-Hispanic other was comprised of all other individuals not included in the previous categories (American Indian, Alaskan Native, Asian, other race, and mixed race). Dental need was defined as a "yes" response to the statement, "I needed to see a dentist for a problem." Other covariates included education, participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) during pregnancy, parity, pregnancy intention, prenatal care utilization, pre-pregnancy chronic health condition (hypertension, diabetes, or depression), and any health care visit during the 12 months before pregnancy.

Statistical Analysis

Descriptive analysis consisted of prevalence and 95% Confidence Interval (CI) estimates for the outcome and all covariates. The bivariate analysis consisted of Chi-square tests to examine relationships between the outcome and each covariate. A priori, covariates with a Chi-square p-value < 0.30 were selected as potential covariates in the regression model (not shown). We used multivariable logistic regression to describe the association between the main independent variable (dental/medical insurance during pregnancy) and the outcome (dental cleaning during pregnancy) while controlling for other covariates in the model. We calculated adjusted prevalence ratios (aPR) and associated 95% confidence intervals (CI) as the measure of effect. SAS-callable SUDAAN 11 software was used for all analyses to take into account the PRAMS complex survey design. Covariates that were not significant in the adjusted regression model are not included Tables 1 and 2 and excluded from discussion of the results.

Because pre-pregnancy dental cleaning is strongly associated with dental cleaning during pregnancy, we stratified our regression analysis into two groups; women who received and women who did not receive dental cleaning in the 12 months before pregnancy. Income was excluded as a covariate because it was highly correlated with type of health insurance.

Results

The survey population from 36 states and years combined totaled 147,747 women. The study population for the study was 145,051, excluding women with missing information on dental cleaning during pregnancy, women who reported dental insurance but no medical insurance, and women with neither dental nor medical insurance.

Characteristics of the Study Population

The majority of women in the analysis were 25 – 34 years of age [57.2%, 95% CI (56.7 – 57.6)], non-Hispanic white [60.3%, 95% CI (60.0 – 60.6)], married [61.4%, 95% CI (61.0 – 61.8)], and nonsmokers during pregnancy [90.2%, 95% CI (90.0 – 90.5)] (Table 1). Approximately three-fourths of women reported having dental insurance coverage during pregnancy [76.5%, 95% CI (76.2 – 76.9)]. When combined with medical insurance coverage, half reported having dental and private medical insurance during pregnancy [50.6%, 95% CI (50.2 – 51.0)], one quarter reported dental and Medicaid medical insurance [26.0% 95% CI (25.6 – 26.3)], one-tenth reported no dental coverage, but had private medical insurance [9.7%, 95% CI (9.4 – 9.9)], and 14 percent [13.8%, 95% CI (13.5 – 14.1)] reported no dental coverage, but had Medicaid medical insurance. Regarding oral health care experiences, almost 3 in 5 of the women reported having a dental cleaning in the 12 months before pregnancy [57.8%, 95% CI (57.4 – 58.2)], 9 in 10 knew it was important to care for their teeth and gums during pregnancy [88.9%, 95% CI (88.6 – 89.2)], over half received dental care counseling by a dental or health care provider [50.9%, 95% CI(50.5 – 51.3)], and eighty percent [80.3%, 95% CI (80.0 – 80.6)] reported they had no need to see a dentist for a problem during pregnancy (Table 1).

Characteristics of Women Who Received Dental Cleaning During Pregnancy

Half of the study population [50.0%, 95% CI (49.6 – 50.5)] received dental cleaning during pregnancy. Most women were non-Hispanic white [65.9%, 95% CI (65.4 – 66.4)], nonsmokers during pregnancy [93.5%, 95% CI (93.3 – 93.8)], and had received a dental cleaning before pregnancy [85.4%, 95% CI (85.0 – 85.8)]. Over 9 in 10 women who received dental cleaning during pregnancy had dental insurance coverage during pregnancy [90.9%, 95% CI (90.5 – 91.2)]. Specifically, almost two-thirds of these women had both dental and private medical insurance [65.1%, 95% CI (64.6 – 65.7)] and one-fourth had both dental and Medicaid medical insurance coverage during pregnancy [25.7%, 95% CI (25.2 – 26.3)]. Five percent of women had no dental insurance, but private medical insurance [5.4%, 95% CI (5.1 – 5.6)], and four percent of women had no dental insurance, but Medicaid medical insurance [3.8%, 95% CI (3.5 – 4.0)] (Table 1).

Factors Associated with Dental Cleaning During Pregnancy

The regression analysis results for dental cleaning during pregnancy were stratified by pre-pregnancy dental cleaning (Table 2). Among women who received pre-pregnancy dental cleaning, there was a slight (less than 5% difference in the upper 95% confidence interval from 1.00) or no significant difference by age, race/ethnicity, and marital status in the prevalence of dental cleaning during pregnancy. Comparing groups of women with dental insurance, those with Medicaid medical insurance showed a slightly lower prevalence of dental cleaning during pregnancy [aPR = 0.95, 95% CI (0.94 – 0.97)] than those with private medical insurance.

Among groups of women with private medical insurance, those with no dental insurance showed a significantly lower prevalence of dental cleaning during pregnancy [aPR = 0.67, 95% CI (0.65 – 0.70)] than those with dental insurance. Prevalence of the outcome was also significantly lower for those who smoked during pregnancy [aPR = 0.90, 95% CI (0.87 – 0.93)], and for those who reported having no awareness of the importance of care of teeth and gums during pregnancy [aPR = 0.65, 95% CI (0.62 – 0.69)]. Prevalence of dental cleaning during pregnancy was significantly higher for those needing to see a dentist for a problem [aPR = 1.14, 95% CI (1.12 – 1.15)] compared to those who reported no need.

Among women without pre-pregnancy dental cleaning, there was no difference in prevalence of dental cleaning during pregnancy by age and marital status. Racial/ethnic differences were observed between non-Hispanic whites and Hispanics, with the latter showing a significantly higher prevalence of dental cleaning during pregnancy [aPR = 1.38, 95% CI (1.27 – 1.50)]. There were no significant differences in the outcome for non-Hispanic black or non-Hispanic women of other races compared to non-Hispanic whites. Among women without pre-pregnancy dental cleaning and with dental insurance, the prevalence of dental cleaning during pregnancy was higher for those with Medicaid medical insurance [aPR = 1.42, 95% CI (1.32 – 1.52)], compared to those with private medical insurance. Among women with no pre-pregnancy dental cleaning, those with no dental insurance but with Medicaid medical insurance had a lower prevalence of dental cleaning during pregnancy [aPR = 0.27, 95% CI (0.23 – 0.31)] compared to those with dental insurance and private medical insurance. The prevalence of dental cleaning during pregnancy was significantly

lower for those who smoked [aPR = 0.71, 95% CI (0.65 – 0.79)], and for those who were not aware of the importance of caring of teeth and gums during pregnancy [aPR = 0.45, 95% CI (0.40 – 0.51)]. The prevalence of the outcome was significantly higher for women reporting the need to see a dentist for a problem [aPR = 2.02, 95% CI (1.91 – 2.15)], compared to those who reported no need.

Discussion

Three-quarters of pregnant women reported having dental insurance during pregnancy and it was an important determinant of dental cleaning during pregnancy. Overall, half of women reported having dental insurance and private medical insurance, and about one quarter reported having dental insurance and Medicaid medical insurance. The association between dental and medical insurance coverage with the outcome of dental cleaning during pregnancy varied by the receipt of pre-pregnancy dental cleaning, by maternal characteristics and by type of medical insurance. Regardless of pre-pregnancy dental cleaning status, women without dental insurance, women who smoked during pregnancy, women who were not aware of the importance of oral health care during pregnancy and women with no need to see a dentist for a problem during pregnancy were less likely to report a dental cleaning during pregnancy. Lack of awareness of the importance of caring for teeth and gums had a negative impact on dental cleaning during pregnancy. Awareness is a modifiable risk factor and can be increased through oral health education. This indicates that oral health education should be included in programs designed to improve maternal and infant health.

For women with pre-pregnancy dental cleaning who had dental insurance, there was marginal to no difference on receipt of a dental cleaning during pregnancy between private medical insurance and Medicaid medical insurance. The strength of the association between dental cleaning before and during pregnancy may reflect women who are routine dental care users who sought preventive dental care regardless of type of medical insurance. This finding is supported by a previous study showing that the most important predictor of dental care during pregnancy was receipt of routine dental care before pregnancy (Boggess et al. 2010). Previous PRAMS studies have also shown that having a pre-pregnancy dental cleaning is the strongest predictor of dental cleaning during pregnancy (Thompson et al. 2013; Hayes et al. 2015; Umer et al. 2016).

For women without pre-pregnancy dental cleaning who had dental insurance, prevalence of dental cleaning during pregnancy was higher for those with Medicaid medical insurance than for those with private medical insurance. This may suggest that some women who became eligible for Medicaid medical insurance due to pregnancy and acquired associated dental benefits were more highly motivated to use it than privately insured women with dental coverage. Greater utilization during the first year of dental insurance coverage compared to subsequent years has been reported (Manning et al. 1985). In addition, women's knowledge that Medicaid dental benefits acquired by pregnancy eligibility for Medicaid would be available only during pregnancy and immediately post-partum may have resulted in increased utilization (Kloetzel et al. 2011).

Among those without pre-pregnancy dental cleaning, the prevalence of the outcome of dental cleaning during pregnancy was higher in Hispanics than in non-Hispanic whites. This finding is different from previous studies among pregnant women in PRAMS and in other populations that have shown the highest level of dental utilization was in non-Hispanic whites (Timothe et al. 2005; Hwang et al. 2011; Azofeifa et al. 2014). A possible reason for this difference is that our study stratified analysis by pre-pregnancy dental cleaning status, thus highlighting potential unmet dental care needs before pregnancy. A PRAMS study in 29 states showed that Hispanics were more likely than other race/ethnicities to be uninsured before pregnancy and then transition to Medicaid for prenatal care and delivery (D'Angelo et al. 2015). Another possible explanation for higher utilization in Hispanics could be a higher prevalence of dental need among Hispanics. A national survey found that Hispanic and non-Hispanic black women were less likely than non-Hispanic white women to report having very good or good mouth and teeth condition and to have their last dental visit being for preventive care (Azofeifa et al. 2014).

Smoking during pregnancy was associated with lower prevalence of receiving a dental cleaning during pregnancy among both women with and without a pre-pregnancy dental cleaning. This finding corroborates findings from other studies that have shown that smokers have fewer regular dental visits. This group has also been found to have more periodontal disease and dental care needs and could benefit from dental care during pregnancy (Bloom et al. 2012; Umer et al. 2016).

Needing to see a dentist for a problem was a strong determinant of receipt of dental cleaning during pregnancy both among women with and without a pre-pregnancy dental cleaning, with a stronger association among those without pre-pregnancy dental cleaning. This latter group of women may not have had the habit of routine preventive care and as a result had greater dental need. Studies in pregnant women have found that perceived dental need was a strong determinant of utilization (Amin and ElSalhy 2014), while having no perceived need was the most common reason for non-utilization (Al Habashneh et al. 2005).

Strengths and Limitations

The strengths of this study are the large population-based sample and standard information collected by PRAMS that enabled us to control for important covariates. In addition, this study is the largest to date on the influence of medical and dental insurance on dental utilization during pregnancy. Our study has several limitations. First, because PRAMS data are not available from all states, our results are not generalizable to the entire United States. The study uses a complex sample design and the data are cross-sectional. Interpretation is limited to descriptions of associations using adjusted prevalence ratios and this precludes any causal inference between the outcome and the independent variables. Regression analysis was limited to variables available in the PRAMS study and could not control for other factors that might impact dental cleaning during pregnancy, such as barriers to dental services (transportation, financial, language or cultural barriers), availability of providers who accept pregnant patients, and personal beliefs about safety of dental procedures during pregnancy. The information on receipt of a dental cleaning and insurance coverage status was self-reported by respondents several months after delivery. The risk of recall bias is

likely to be small because Medicaid enrollees have been found to be accurate reporters of insurance status and type of coverage (Call et al. 2008). Lastly, data were not available for the type of dental insurance (private versus public) during pregnancy, and there was insufficient sample size to assess the dental care utilization of women who reported neither medical nor dental insurance.

We identified the role that dental and medical insurance can play in increasing dental cleaning during pregnancy. Dental insurance was positively associated with receiving a dental cleaning during pregnancy for women with private medical insurance or Medicaid medical insurance. The study is strengthened by the large population-based sample and suggests that PRAMS continues to be an important source of information on factors associated with dental care utilization during pregnancy among women with a live birth. These findings may serve to inform initiatives aimed at understanding ways to improve oral health of maternal and infant health populations.

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Significance Statement

This study fills a data gap in the current literature by using a large, population-based sample of women with a recent live birth to examine the relationship of dental and medical insurance coverage with dental care utilization during pregnancy. In past studies of pregnant women, medical insurance was often used as a proxy for dental insurance because information on dental insurance was not available. Our study shows that use of medical insurance as a proxy underestimates dental utilization. Dental insurance was positively associated with receipt of dental cleaning during pregnancy. Medical insurance had an independent and positive effect.

Prevalence of maternal characteristics and select oral health experiences, among women with a recent live birth, Pregnancy Risk Assessment Monitoring System, 36 sites*, 2012–2015

Table 1

Maternal characteristics	Total		Women who received dental cleaning during pregnancy	
	N [‡]	% [†] (95% CI)	N [‡]	% [†] (95% CI)
Overall	145,051	100.0	71,676	50.0 (49.6 – 50.5)
Age in years				
19	9798	6.0 (5.8 – 6.2)	4491	5.3 (5.1 – 5.6)
20–24	31,069	20.8 (20.4 – 21.1)	12,152	16.1 (15.6 – 16.5)
25–34	81,229	57.2 (56.7 – 57.6)	41,837	59.9 (59.4 – 60.5)
35	22,951	16.1 (15.8 – 16.4)	13,195	18.6 (18.2 – 19.1)
Race				
Non-Hispanic white	74,254	60.3 (60.0 – 60.6)	39,601	65.9 (65.4 – 66.4)
Non-Hispanic black	23,598	13.3 (13.0 – 13.5)	10,393	11.1 (10.7 – 11.4)
Hispanic	24,152	17.2 (17.0 – 17.5)	10,964	14.7 (14.3 – 15.1)
Non-Hispanic other	22,357	9.2 (9.0 – 9.4)	10,359	8.3 (8.1 – 8.6)
Marital status				
Married	85,711	61.4 (61.0 – 61.8)	47,456	68.9 (68.3 – 69.4)
Unmarried	58,778	38.6 (38.2 – 39.0)	24,029	31.1 (30.6 – 31.7)
Smoked during the third trimester of pregnancy				
No	127,396	90.2 (90.0 – 90.5)	65,877	93.5 (93.3 – 93.8)
Yes	16,477	9.8 (9.5 – 10.0)	5228	6.5 (6.2 – 6.7)
Insurance coverage				
Any dental insurance during pregnancy				
No	31,221	23.5 (23.1 – 23.8)	10,574	9.1 (8.8 – 9.5)
Yes	100,269	76.5 (76.2 – 76.9)	65,870	90.9 (90.5 – 91.2)
Dent. and med. insurance during pregnancy				
Dental-private medical	63,033	50.6 (50.2 – 51.0)	41,454	65.1 (64.6 – 65.7)
Dental-Medicaid medical	37,236	26.0 (25.6 – 26.3)	19,230	25.7 (25.2 – 26.3)
No dental-private medical	11,891	9.7 (9.4 – 9.9)	3391	5.4 (5.1 – 5.6)

Maternal characteristics	Total		Women who received dental cleaning during pregnancy	
	N [‡]	% [†] (95% CI)	N [‡]	% [†] (95% CI)
No dental-Medicaid medical	19,330	13.8 (13.5 – 14.1)	2838	3.8 (3.5 – 4.0)
Oral health care experiences				
Teeth cleaned in 12 months before pregnancy				
No	62,370	42.2 (41.8 – 42.6)	10,756	14.6 (14.2 – 15.0)
Yes	81,823	57.8 (57.4 – 58.2)	60,618	85.4 (85.0 – 85.8)
Aware of teeth/gum care during pregnancy				
No	16,210	11.1 (10.8 – 11.4)	2883	3.9 (3.7 – 4.1)
Yes	128,576	88.9 (88.6 – 89.2)	68,680	96.1 (95.9 – 96.3)
Dental counseling by dental/other health worker				
No	69,727	49.1 (48.7 – 49.5)	14,505	21.1 (20.6 – 21.6)
Yes	74,915	50.9 (50.5 – 51.3)	56,927	78.9 (78.4 – 79.4)
Need to see dentist for problem during pregnancy				
No	114,003	80.3 (80.0 – 80.6)	54,928	78.6 (78.1 – 79.1)
Yes	29,804	19.7 (19.4 – 20.0)	15,768	21.4 (20.9 – 21.9)

* States included: Alabama, Alaska, Arkansas, Colorado, Connecticut, Delaware, Georgia, Hawaii, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming

[‡] Unweighted sample size

[†] Weighted percent

Table 2

Factors associated with receipt of dental cleaning during pregnancy, stratified by dental cleaning status in the 12 months before pregnancy, Pregnancy Risk Assessment Monitoring System, 36 sites*, 2012 – 2015

Characteristics	Adjusted Prevalence Ratios (aPR) for teeth cleaning during pregnancy	
	Received pre-pregnancy dental cleaning (n = 81,823) aPR (95% CI)	Did not receive pre-pregnancy dental cleaning (n = 62,370) aPR (95% CI)
Age in years		
19	0.93 (0.90 – 0.97)	1.10 (0.94 – 1.28)
20–24	0.92 (0.90 – 0.94)	1.00 (0.90 – 1.12)
25–34	0.97 (0.96 – 0.99)	1.02 (0.93 – 1.12)
35	-	-
Race		
Non-Hispanic white	-	-
Non-Hispanic black	0.93 (0.91 – 0.95)	1.01 (0.93 – 1.11)
Hispanic	0.99 (0.96 – 1.00)	1.38 (1.27 – 1.50)
Non-Hispanic other	0.96 (0.94 – 0.98)	1.04 (0.95 – 1.14)
Marital status		
Married	-	-
Unmarried	1.04 (1.02 – 1.06)	1.02 (0.95 – 1.09)
Smoked cigarettes during pregnancy		
No	-	-
Yes	0.90 (0.87 – 0.93)	0.71 (0.65 – 0.79)
Dental and medical insurance coverage during pregnancy		
Dental-private medical	-	-
Dental-Medicaid medical	0.95 (0.94 – 0.97)	1.42 (1.32 – 1.52)
No dental-private medical	0.67 (0.65 – 0.70)	0.32 (0.27 – 0.38)
No dental-Medicaid medical	0.56 (0.53 – 0.59)	0.27 (0.23 – 0.31)
Aware of importance of care of teeth/gums during pregnancy		
No	0.65 (0.62 – 0.69)	0.45 (0.40 – 0.51)
Yes	-	-
Needed to see dentist for a problem during pregnancy		

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Characteristics	Adjusted Prevalence Ratios (aPR) for teeth cleaning during pregnancy	
	Received pre-pregnancy dental cleaning (n = 81,823)	Did not receive pre-pregnancy dental cleaning (n = 62,370)
	aPR (95% CI)	aPR (95% CI)
No	-	-
Yes	1.14 (1.12 – 1.15)	2.02 (1.91 – 2.15)

* States included: Alabama, Alaska, Arkansas, Colorado, Connecticut, Delaware, Georgia, Hawaii, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming