



## Oral Health During Pregnancy, MI PRAMS 2004-2008

### Overview

Oral health plays an important role in healthy pregnancy outcomes for both mother and infant.<sup>1</sup> Periodontal diseases remain prevalent during pregnancy, affecting 40% of all pregnant women.<sup>4</sup> Oral health problems during pregnancy are associated with poor birth outcomes including premature birth and low birth weight.<sup>3</sup> Furthermore, poor oral health may result in the transmission of cariogenic bacteria to infants,

resulting in children with a higher risk of caries.<sup>4</sup>

Receiving dental treatment during pregnancy helps prevent and treat periodontal disease. Nationwide, only 22-34% of women visit a dentist during pregnancy.<sup>3</sup> Moreover, only half of pregnant women experiencing oral health problems visit the dentist to treat them.

Barriers to dental care include a lack of dental insurance and fears among

patients, doctors, and dentists regarding safety of dental procedures during pregnancy. Furthermore, dentists often refuse to treat pregnant women because of liability concerns.<sup>1,3</sup> However, the American Dental Association and the American Academy of Pediatrics recommend that receiving dental care is safe during pregnancy.<sup>1</sup>

Because many low income pregnant women become qualified for Medicaid during their pregnancy, this is a unique

opportunity for them to seek dental care during their pregnancy even though access to dentists accepting new Medicaid patients is less than optimal.<sup>1,4</sup>

This issue of the MI PRAMS Delivery examines the prevalence of dental care needed and received among Michigan mothers in 2004-2008. It also examines the relationship between oral health and birth outcomes from 2004-2008. ◇

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### Status of oral health among PRAMS participants, MI PRAMS 2004-2008

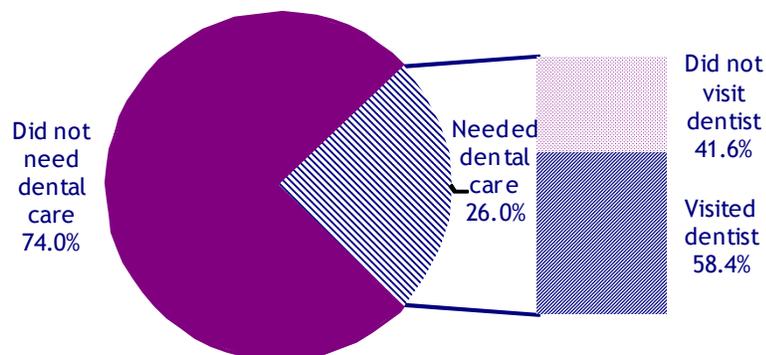
Michigan PRAMS obtained data regarding oral health need by asking participants whether they “needed to see a dentist for a problem” during their most recent pregnancy. Participants were then asked whether they

had their teeth cleaned by a dentist or dental hygienist during their most recent pregnancy.

Over a quarter of women reported that they needed

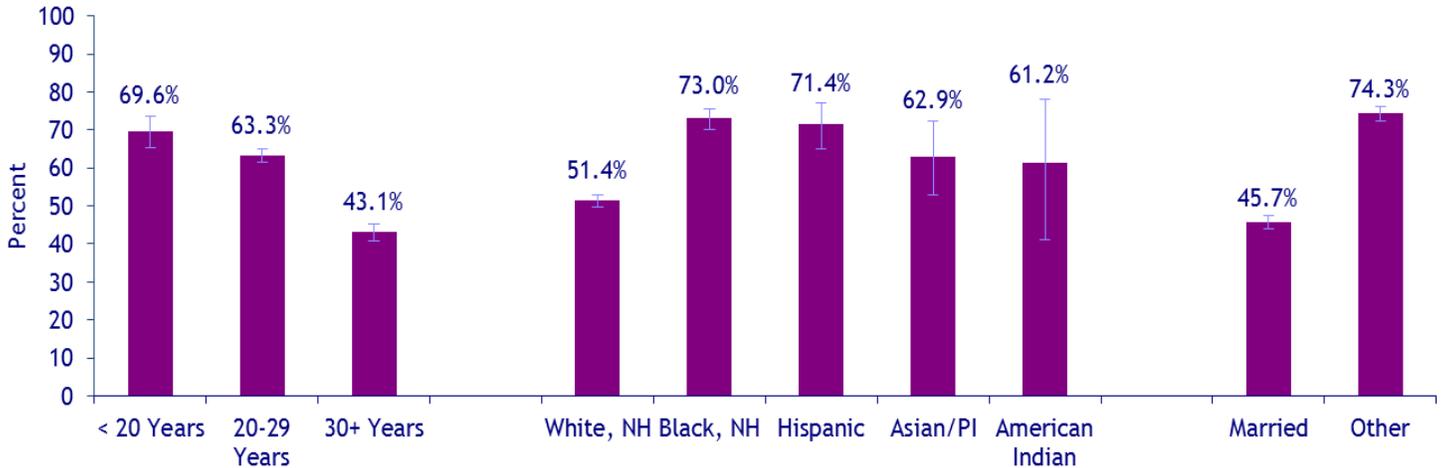
dental care during their pregnancy. Of the women who needed care, 58.4% sought dental care during their pregnancy, while 41.6% did not seek dental care (Figure 1). ◇

Figure 1. Prevalence of dental care needed and dental care sought



## Demographic Characteristics of Women Not Receiving Dental Care during Pregnancy, MI PRAMS 2004-2008

**Figure 2. Prevalence of not receiving dental care by maternal age and race**



PRAMS asks respondents whether they had their teeth cleaned before, during, and after their most recent pregnancy. Having teeth cleaned during pregnancy serves as an indicator of receiving dental care. Here, the prevalence of those who did not receive dental care is broken down by demographic characteristics.

Figure 2 reveals that mothers younger than 30 years old are significantly more likely not to

have received dental care during pregnancy than older women.

Non-Hispanic Black mothers and Hispanic mothers have a significantly higher prevalence of not receiving dental care during pregnancy than non-Hispanic White mothers (Figure 2).

Unmarried women have a significantly higher prevalence of not visiting the dentist during pregnancy than married women.

The prevalence of women who fail to get dental care during

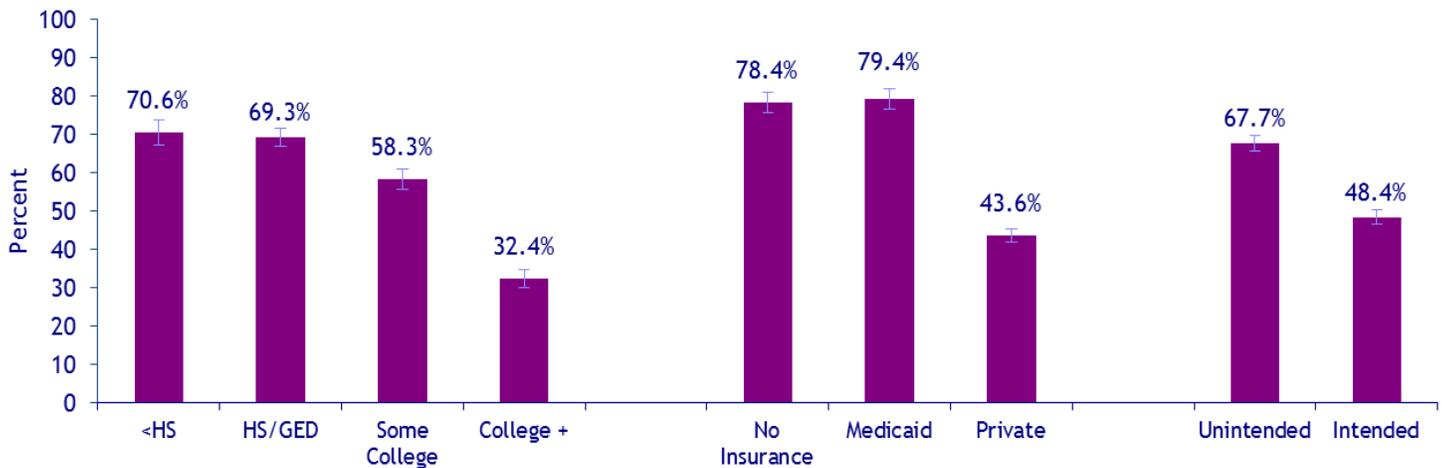
pregnancy decreases across education levels (Figure 3). Women with a high school degree or lower have a significantly higher prevalence of not going to the dentist during pregnancy than women with some level of college education.

Women with no insurance or Medicaid enrollment prior to their pregnancy have a significantly higher prevalence of not receiving dental care during their pregnancies than women with private insurance (Figure 3).

Women with unintended pregnancies have a significantly higher prevalence of not going to the dentist during their pregnancies than women with intended pregnancies.

A logistic regression model containing all six demographic variables showed that, after controlling for the other factors, maternal age, race, education, and insurance status are significant predictors of receiving dental care during pregnancy. ◊

**Figure 3. Prevalence of not receiving dental care by maternal education and pre-pregnancy insurance status**



## Associations Between Not Receiving Dental Care during Pregnancy and Adverse Birth Outcomes, MI PRAMS 2004-2008

Past research reveals that 50-70% of pregnant women experience gingivitis during pregnancy due to fluctuating hormone levels, changes in immune response, and differing oral flora.<sup>2,3</sup> Furthermore, half of American women with a dental problem during pregnancy do not receive treatment.<sup>3</sup> Oral health problems increase the risk of poor birth outcomes, including preterm birth.<sup>1</sup> MI PRAMS data were used from 2004-2008 to determine whether a lack of dental care during pregnancy was associated with poor birth outcomes: whether the infant was admitted to the NICU at birth, preterm labor, and low birth weight. The data were stratified by whether a woman had her teeth cleaned by a dentist or dental hygienist during pregnancy.

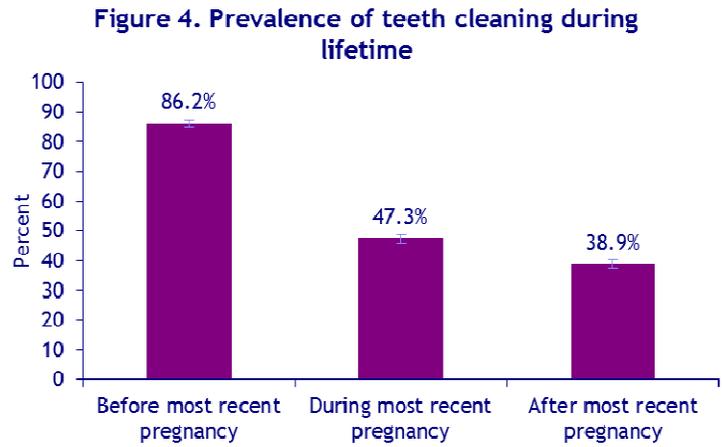
PRAMS asks women whether they had their “teeth cleaned by a dentist or dental hygienist” before their most recent pregnancy, during their most recent pregnancy, and after their most recent pregnancy. The majority of respondents reported having dental care before pregnancy, but

fewer than half received care during or after their pregnancy (Figure 4).

PRAMS respondents were also asked whether their infants were put into an intensive care unit (NICU) after birth and whether they experienced labor pains more than 3 weeks before the baby was due (preterm or early labor). Babies with a weight less than 2,500 grams on their birth certificate were classified as having a low birth weight.

Three multivariate logistic regression models were constructed to assess the relationship between infant NICU admission at birth, preterm labor, and low birth weight and dental care during pregnancy. The models were selected to control for possible confounders including maternal age, education, race, pre-pregnancy insurance status, marital status, and pregnancy intention.

Figure 5 illustrates that women who did not have their teeth cleaned during

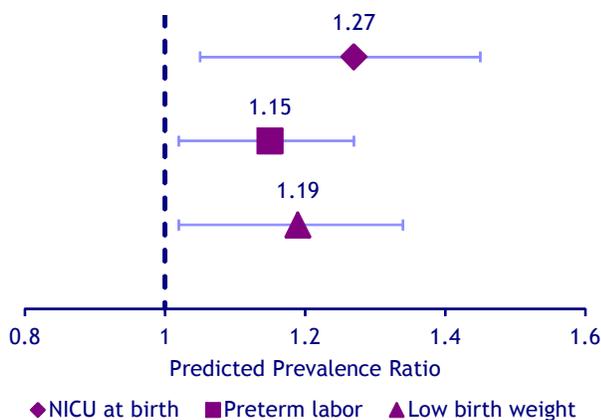


pregnancy experienced a significantly higher prevalence of poor birth outcomes. This group of women had a 27% higher prevalence of infants admitted to the NICU at birth, 15% higher prevalence of preterm labor, and a 19% higher prevalence of having an infant with low birth weight.

Neglecting oral care may significantly increase the risk of adverse outcomes after controlling for confounding effects. Maternal dental health may be related to fetal health because of the affects of oral pain, medication use, and dental infection. Pain may

result in poor nutritional intake, adversely affecting the fetus.<sup>1</sup> Intense oral pain may also influence mothers to take over-the-counter pain medications without consulting a doctor to determine a safe method to combat pain during pregnancy.<sup>1</sup> Finally, maternal infections, including periodontal infections, are associated with poor birth outcomes. This analysis reveals that future research is needed to assess the importance of oral health care during pregnancy and demonstrates the need to educate women about the importance of getting dental care during pregnancy.

**Figure 5. Predicted prevalence ratio of birth outcomes among those not seeking dental care during pregnancy**



*The Michigan Department of Community Health-Oral Health Program conducted a Perinatal Oral Health Conference on August 7-8, 2013 at the Delta Dental Corporate Headquarters in Okemos. Over 60 Michigan healthcare leaders, listened to national expert presenters and then collaborated on developing Michigan-specific Perinatal Oral Health Guidelines and a statewide action plan for implementation. Conference proceedings and full report will be published in 2014. More information can be found at <http://michigan.gov/oral>, by clicking the “Perinatal Oral Health” link.*

Past and present editions of the *MI PRAMS Delivery* newsletter are available electronically at: [www.michigan.gov/prams](http://www.michigan.gov/prams)

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## Epi Corner: Survey Questions with Multiple Responses

Survey questions often ask a participant questions with one possible response. These allow for simple analysis, as the total percentage of respondents choosing a particular option sum to 100%. However, survey questions may be designed to allow participants to choose all possible responses that apply to them. Some participants may have many options apply to them, while others will choose none. Therefore, the sum of all responses will likely differ from 100%. While this complicates analysis, survey questions with multiple responses can provide additional insight on survey topics and more informative results.

An example of a survey question with multiple responses is explained on Page 3. PRAMS participants were asked to check if they had their teeth cleaned by a dentist or

dental hygienist before, during, and after their most recent pregnancy. Figure 4 reveals that the total percentage of women responding exceeds 100%. This occurs because many women responded that they had their teeth cleaned in more than one of the given time intervals.

Multiple response questions are valuable because they simplify the process of filling out the survey to participants. Instead of reading multiple questions and answering yes/no, participants can simply check which responses apply to them, simplifying the survey process. Furthermore, multiple response questions can provide more insightful data because they allow us to determine the ranked frequencies of responses, the number of responses per participant, and common patterns in combination of responses.

Unlike single-response questions, multiple response question results can be ranked in order of prevalence and prevalence of combinations of responses. Therefore, they allow us to examine whether there are associations among people choosing certain combinations of responses and differences between groups of participants selecting different combinations of responses. Furthermore, we can look at differences between the total number of responses chosen by participants. For example, in the dental data, we can look at differences between women who only went to the dentist before, during, or after pregnancy with women who received dental care during more than one of those intervals to look for predictors of more frequent dental care.◇

## About MI PRAMS

The Pregnancy Risk Assessment Monitoring System (PRAMS), a population based survey, is a collaborative between CDC and MDCH that provides data about risk factors for infant mortality.

It is a combination mail/telephone survey designed to monitor selected self-reported maternal behaviors and experiences of mothers that occur before and during pregnancy, as well as in the early postpartum period. Information regarding the health of the infant is also collected for analysis.

Annually, over 2,000 Michigan women who deliver a live birth are selected at random to participate from a frame of eligible birth certificates. Women who deliver a low birth weight infant and black mothers are oversampled in order to ensure adequate representation. The results are weighted to represent resident mothers who delivered a live birth in Michigan during the specified calendar year. ◇

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