Implementation of a Perinatal Dental Screening Tool in an Obstetric Practice

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Abstract

Background
Oral health is an important aspect of overall health and should be maintained during pregnancy. Due to complex physiological changes during pregnancy, the pregnant woman is at risk for developing periodontal disease and dental caries. This is associated with poor birth outcomes including pre-term births and low birth weight infants. Evidence-based guidelines developed by several professional organizations indicate that oral screening should be included in the first prenatal visit.

Local Problem
Pregnant women enrolled in Medicaid have dental coverage during pregnancy. Despite this, only 27% of these women utilized their dental benefits. The purpose of this quality improvement project was to implement a dental screening tool at an obstetrical practice. The screening tool was used to identify pregnant women with oral health needs and provide subsequent referral to a dentist.

Interventions
Implementation occurred over fourteen weeks. The screening tool included three maternal oral screening (MOS) questions. The first question was to determine if the patient had a dental cleaning in past twelve months and the other two questions were about dental concerns, pain and bleeding gums. The purpose of the screening was to identify oral health needs and refer to dental provider as appropriate. Patients from all practice locations were screened and received a referral to an existing dental home or one covered by their insurance.

Results
A total of 826 pregnant women were screened. Of all the pregnant women screened 36.3% (n= 300) had not had their teeth cleaned in the past twelve months. Greater than 30% of pregnant women (n=316) reported some type of dental problem, 244 (29.5%) were screened during the first prenatal visit, and 36.7% (n=303) were enrolled in Medicaid. At the completion of the implementation, the number of dental referrals issued was 616 (74.6%).

Conclusion
Conducting oral health screenings during the prenatal visit is important for identifying pregnant women at risk for oral health problems and improving birth outcomes. Performing the screening at the first prenatal visit allows the woman time to visit the dentist prior to delivery. Integration of an oral health screening and referral process can be successfully implemented to meet the needs of the pregnant population.

Oral health is an important component of overall health and should be maintained during pregnancy. Due to the physiological changes that occur during pregnancy, pregnant women are at risk for developing periodontal disease and dental caries. These changes have significant impact on the oral health of the pregnant woman, and the need to prevent, recognize and treat is essential to maintain good oral health in this population. Although good oral health is identified as important for the health of the pregnant women, primary care and obstetrical healthcare professionals do not usually address oral health care with this population (Bertness & Holt, 2017). This is further complicated by the fact that pregnant women often avoid obtaining oral health services during pregnancy. According to Bertness & Holt (2017), oral health screening is not regularly incorporated in perinatal care, even though a considerable portion of pregnant women show obvious signs and symptoms of oral disease. Furthermore, a 2013 report from The American College of Obstetricians and Gynecologists (ACOG) indicated that there is a direct link between access to dental care during pregnancy and income level.

Background and Significance

A growing body of evidence shows a positive association between periodontal disease and adverse pregnancy outcomes (George et al., 2016). Notwithstanding the importance of good prenatal oral health, the use of dental services during pregnancy is low, with only 23-49% of pregnant women accessing dental services in the United States (George et al., 2014). Improving oral health during pregnancy depends upon addressing systemic, provider and patient barriers to accessing antenatal dental care. Factors contributing to limited access to dental services include misunderstanding about the safety of dental care during pregnancy, lack of awareness among

antenatal care providers (ANC) about the importance of prenatal oral health and lack of training in oral health screening (George et al., 2016).

In Maryland, pregnant women with Medicaid have dental benefits for a nine-month period; however, only 27.3% of the women ages 14 years and older received dental services (Maryland Department of Health, Maryland Oral Health Plan, 2017). According to the 2014 Maryland Pregnancy Risk Assessment Monitoring System Report (PRAMS), 47% of pregnant women in Maryland did not have their teeth cleaned while pregnant (Maryland Department of Health, 2016).

Evidence suggests that there is an association between gum disease and adverse pregnancy outcomes such pre-term delivery and low birth weight (LBW) infants (Moore & Blair, 2017). Incorporation of oral health screenings, as part of perinatal care is important and crucial towards the promotion of a healthy pregnancy, particularly among low-income women.

Purpose Statement

The purpose of this quality improvement project was to implement a dental screening tool into an obstetrical practice to identify women with oral health needs and provide a referral to a dental provider as appropriate. The short-term goal of this project was to have 100% of pregnant women, presenting for a prenatal appointment receive dental screening and 100% of those with identified dental care needs receive a dental referral by the end of November 2018. The long-term goals of the project were to include dental screenings as a component of the prenatal visit, increase the awareness of the obstetric team and pregnant women that dental care is safe and important during pregnancy, and increase the number of pregnant women who are screened, referred and seen by a dental provider by spring 2019.

Theoretical Framework

The Knowledge-to-Action (KTA) Framework served as a guide to the implementation of a dental screening tool into the prenatal visit at an obstetrical practice. Graham et al. (2006) developed the KTA framework for addressing knowledge translation. There are two main components to the framework: 1) knowledge creation symbolized by a funnel and indicates the movement of knowledge through stages until accepted and used; and 2) the knowledge application, known as the action cycle (Straus, Tetroe & Graham, 2013). Knowledge creation consists of three components: knowledge inquiry, knowledge synthesis, and the development of knowledge tools. Knowledge inquiry is the beginning of inquiry to identify the problem and involves primary research. Next is knowledge synthesis, the use of existing evidence such as systematic reviews and the final component is the development of knowledge tools, practice guidelines and screening tools to apply the knowledge. At any point during this process, activities should be modified to meet the needs of the stakeholder. The knowledge application or action cycle refers to identifying the problem, identifying appropriate knowledge, applying the knowledge to the local context, assessment of barriers to knowledge use, developing and tailoring of interventions, monitoring knowledge, evaluation of outcomes and sustaining the use of knowledge (Centers for Disease Control and Prevention, 2014).

Despite Obstetricians having knowledge regarding the possible complications associated with poor oral health, oral health screenings are not being conducted as part of the prenatal visit. The KTA framework helped to facilitate the translation of this knowledge into action. The initial step in the framework began with problem identification and the search for supportive evidence. It was identified through the Maryland Office of Oral Health that 27.3% of pregnant women with

Medicaid received dental services and only 47% had their teeth cleaned during pregnancy (Maryland Department of Health, Maryland Oral Health Plan, 2017). The second step of the KTA model involved adapting the knowledge to the local context. For this quality improvement project, the obstetrical practice accepts patients enrolled in Medicaid and does not currently screen pregnant women for oral health problems. These characteristics were instrumental in selection of this site for implementation. In the third step of the model, barriers were assessed. Knowledge that dental care is safe, important and covered for pregnant women enrolled in Medicaid was recognized as a barrier. Step four of the KTA model was the selection and tailoring of an intervention to promote the use of the new knowledge. For this quality improvement project, a dental screening tool in the form a questionnaire adapted from the maternal oral assessment tool (George et al 2014) was introduced with forms during patient intake. The last three components of the model include, monitoring, evaluating and sustaining the knowledge. For this project, the DNP student monitored the implementation of the dental screening tool and referral and compared to the appointment schedule. Data for number of pregnant women identified with a dental problem and referred for dental services was collected and evaluated. Additional data collected included Medicaid enrollment status, dental home and first prenatal visit status. Sustaining the knowledge is the final step, the adoption of the dental screening tool by the practice to become part of the prenatal assessment.

Literature Review

The focus of this literature review is to examine the attitudes, beliefs, practices and knowledge gaps related to antenatal oral health promotion and screening by prenatal providers. Additionally, there will be review of evidence that supports the use of a prenatal screening tool

and referral process to increase the number of pregnant women having an oral health exam during pregnancy.

Attitudes and Beliefs of Prenatal Providers

A cross-sectional survey in New South Whales Australia, George et al. (2016) surveyed 393 ANC providers (general practitioners, obstetricians/gynecologists and midwives) to determine provider understanding about oral health care during pregnancy. Ninety-nine percent of the practitioners surveyed agreed that oral health during pregnancy was important; however, only 16-21% was discussing oral health and dental care with their prenatal patients. Survey findings also revealed serious knowledge deficits among ANC providers related to the impact of poor maternal oral health on birth outcomes, and the safety and appropriateness of using radiograph during pregnancy. The authors found that those providers with more knowledge and training about maternal oral health were more likely to engage in oral health promotion practices with their patients. These findings suggest a need to increase awareness among ANC providers and patients about the safety of dental care during pregnancy. Developing practice guidelines and educational training materials for providers could address this need and help eliminate provider barriers to delivering antenatal dental services. The low survey response rate is a notable limitation of the study.

Barriers to Access Dental Care

Barriers that contribute to a woman's ability to access dental care during pregnancy have been identified in the literature. A study by Amin and ElSalhy (2014), involved 423 pregnant attending a community clinic to have their infants and toddlers immunized. The women were

asked to complete a questionnaire on their perspective of barriers to receiving dental care while pregnant. The study concluded that there were three factors that affected their ability to obtain dental services: 1) an understanding of the importance of oral care, 2) history of seeing dentist prior to pregnancy, and 3) dental benefits. Several limitations exist with this study, first it is a retrospective in design and this could lead to bias in the outcomes. Additionally, the women that were included in the study had given birth 2 years prior, which would also potentially create bias.

Singhal et al (2014) conducted another study that addressed barriers to oral health in pregnancy. This study was based on the data from the Pregnancy Risk Assessment Monitoring System (PRAMS) for the Maryland during the years of 2001-2003. The study identified that less than half of the women had received dental care during pregnancy. Additionally, approximately one third of the participants had expressed a need to see a dentist but failed to because they lacked understanding that dental treatment was safe during pregnancy. The study concluded that the women received conflicting information regarding the safety of dental procedures during pregnancy and this affected their ability to address oral health needs. The study also concluded that efforts to promote an increase in dental visits during pregnancy should begin during the prenatal period. A limitation with this study was that data collected was self-reported which could contribute to bias from exaggeration in answering questions.

Maternal Oral Health Screening Tool

George et al. (2016) developed and tested a maternal oral screening tool (MOS) for use by midwives as part of a larger RCT. This study sought to further determine the sensitivity and specificity of the MOS, a two-item oral health-screening questionnaire administered by

midwives during the initial prenatal visit. The questions that appeared on the questionnaire are: 1) "Do you have bleeding gums, swelling, sensitive teeth, loose teeth, holes in your teeth, broken teeth, toothache or any other problems in your mouth?" and 2) "Have you seen a dentist in the last 12 months?" (George et al. 2016). Initial piloting of the MOS had good sensitivity but small sample size, warranting further testing and evaluation. Two hundred and eleven participants were recruited for the study and 207 completed the Oral Health Impact Profile (OHIP-14) and the MOS. The results of the midwife-administered tool (MOS) were compared to oral assessments completed by trained study dentists and the OHIP-14, both previously considered the gold standard for determining oral health problems. The MOS tool demonstrated high sensitivity, 88-94%, compared to both the OHIP-14 and dental screenings. Specificity remained low, 14-21%, even with the larger sample size. Low specificity might ordinarily be considered a limitation; however, it is worth noting that in this study, identifying women at risk for poor oral health is more important than identifying women with good oral health. The setting for the study was South West Sydney a possible limitation as results may differ across populations and socioeconomic levels.

Oral Health Guidelines

Two oral health guidelines were reviewed regarding content for oral health education and screening during pregnancy. No significant variation was noted among the guidelines. Each guideline recommended that pregnant women receive the educational message that oral care is important and safe during pregnancy (American College of Obstetricians and Gynecologists [ACOG], (2015), Maryland Office of Oral Health [MDOH], (2018), Furthermore, the guidelines also established that oral health screening and referral process should happen during the first

prenatal visit. The rationale for the screening at the first prenatal visit is to ensure that oral health needs are met prior to delivery.

Among the studies reviewed, there are consistent findings that although many ANC providers agree on the importance of good maternal oral health, they are not focusing on oral health with their prenatal patients. Most of the ANC providers felt they lacked the knowledge and skill needed to provide oral health education during pregnancy. Accordingly, providers with additional knowledge and training about prenatal oral health were more likely to engage in oral health promotion with their patients. There is a consensus among study findings that prenatal providers are well positioned to provide prenatal dental assessments and referral as part of antennal care. Inclusion of oral health education and screening in the prenatal will lead to the adoption of good oral health practices for the infant.

Implementation Plan

Project Type, Sample and Setting

The purpose of this quality improvement project was to implement a dental screening tool during the prenatal visit at an obstetrical practice to identify pregnant women with oral health needs and refer to a dental provider as appropriate. The patients were all pregnant women, regardless of gestational age, scheduled for a first obstetrical appointment or follow-up appointment.

The project implementation occurred at an obstetrical practice with office locations in east, west, and downtown neighborhoods of a major metropolitan city and affiliated with a large academic medical center. This practice was chosen because at least 35% of the pregnant women

were Medicaid enrollees and oral health screenings were not being performed. The practice staff includes the practice owner, who is certified in obstetrics and gynecology, six additional certified obstetrical doctors and a certified midwife (CNM), who is also the practice manager. A group of experienced staff including the office manager, patient service representatives (PSR), an obstetrical surgical coordinator and medical assistants, supports the practice. The practice is large and active, with an average of 1500 births per year.

Human Subject Protection

The project description was submitted to Mercy Medical Center's Institutional Review Board (IRB) and the University of Maryland School of Nursing Institutional Review Board (IRB) and was given a non-human subject research determination. Participation in this project by the pregnant women, obstetric providers, medical assistants (MA) and front office staff was voluntary but expected as oral health screening is the standard of care. A possible risk associated with this project was the potential for loss of patient confidentiality related to personal health information obtained during chart review for the project. To mitigate this risk, any paperwork pertaining to patients did not leave the project site and patient names were replaced with assigned numbers.

Procedures and Timeline

Prior to implementation, the project leader met with the practice owner and practice manager and both agreed to have the practice participate in the project. The project took place over a 14-week time frame. During the first week of implementation, a 30-minute educational presentation on the importance of oral health care during pregnancy was presented to the staff at

each site. The significance of oral health screening during pregnancy, review of Maryland oral health guidelines for prenatal providers, educational pamphlets, the dental screening tool and referral forms were included in the presentation (Appendix A). The project leader recruited an office staff member and MAs from each site as volunteer champions for the implementation project. The main role for the practice champions was to ensure that the screening tools were included in the prenatal chart, completed and a dental referral was generated as appropriate.

During week two, the implementation plan was piloted, and feedback was given at the end of the day. The project leader was present during the first two days to observe and provide additional instructions until the dental screening tool was implemented without error. Verbal feedback was provided to the group to inform what went well and areas for improvement.

During weeks, three through fourteen, an oral health-screening tool and a referral form from the Maryland Office of Oral Health (see Appendix A) was implemented. The process for the implementation included the following steps:

1. The patient arrived for the appointment and completed the dental screening

2) The MA places patient in exam room, reviews screening tool for completion and distributes a dental care package which included toothpaste, toothbrush, floss, and dental educational pamphlets after being placed in the exam room

3) The obstetric provider reviewed the screening tool responses, educated and provided assurance to patients that dental care is safe, important and covered if enrolled in MA, determined if a dental referral was appropriate with documentation in chart

4) If a referral was indicated, the front office desk completed the form (see Appendix B) to give to the patient and assisted with finding a dental provider from the qualified provider list if they did not have an established dental home.

The project leader met with the project champions at each site during the first week of full implementation to address any questions or concerns. A review of the medical records was performed to see if the screening tool was being utilized and if documentation was present in the chart. At the end of implementation, a summary report indicating the total number of screenings and referrals was provided to the practice. Additionally, feedback was elicited from the participants regarding the implementation process. The project leader provided the obstetrical practice with a summary report indicating the total number of screening tools and referrals collected. Additionally, feedback was elicited from the participants regarding the implementation process.

Data Collection

A dental screening tool was developed by the project leader for use by the obstetric providers to screen and identify pregnant women with oral health needs and generate a dental referral as appropriate (see Appendix A). The tool was based upon the recommendations found in the Maryland Oral Health guidelines (MDOH, 2018) and the study by George, et al (2014). The Maryland guideline served as a reference for perinatal and dental providers to use when providing oral health education and prevention techniques. In the study by George, et al (2014), a maternal oral screening tool (MOS) developed by midwives was tested for validity. It was

found to have a sensitivity of 0.83% and a specificity of 0.70%, which makes this tool valid and reliable.

The screening tool used for this project was a six-item dichotomous questionnaire (see Appendix A). The first three questions were adapted from the MOS tool (George et al, 2014). The first question, "Have you had your teeth cleaned in the past twelve months?", served as a prompt for the obstetric provider to educate and assure the pregnant woman that dental care is safe, important and covered if a Medicaid enrollee. If the response is "No", a referral to the dentist was generated. Although the second and third questions are combined on the original MOS tool (George et al, 2014), it was separated for this project. The second question served to inform the prenatal provider if a clinical exam was needed to assess for an urgent dental need and possible same day dental appointment. The third question was used to identify need for a dental referral. If an affirmative answer to either question, a dental referral was given. Additional data collection for reporting purposes included if it was the first visit for the pregnancy, if patient had an established dental home, and the Medicaid enrollment status.

Data were collected on 826 pregnant women from all three-practice sites, utilizing a paper collection method during the implementation period. The data was used to determine the number of pregnant women screened and identified with oral health needs, the number dental referrals, the number of patients who had not had teeth cleaned in past twelve months, first prenatal visit for pregnancy, and Medicaid enrollment status. Due to the short interval for implementation, data regarding completion of the dental visit was not captured. This was because many appointments to see a dental provider were left for the patient to self- schedule. Collection of data occurred at the end of weeks one, two, three, six, nine, twelve and fourteen.

An excel spreadsheet was used for recording and storing the data collected. An overview of the preliminary data was provided to the practice providers and practice manager.

Data Analysis

Analysis of the responses to the questions on the screening tool was performed. Question one, two, and three were the screening questions and determined if the pregnant woman receives a referral. If the answer to question one was "no", a dental referral was given. If the response to questions two and/or three was "yes", a dental referral was given. Questions four through six were additional questions for reporting purposes. These questions were used to identify the women who were being seen for the first prenatal visit and if they were Medicaid enrollees. An excel spreadsheet was utilized for managing the data collected from all the sites and to perform statistical analyses, and the development of graphs. Frequencies and percentages were calculated to describe and report the results.

Results

A run chart was used to analyze data relating to the number of pregnant women screened prior to implementation and at one, two, three, six, nine, twelve, and fourteen weeks. During weeks 6 and 8, the percentage of pregnant women screened for dental health concerns was 100 percent (see Figure 1). During the implementation, a consistent increase in screening for oral health needs was seen.

A total of 826 pregnant were screened for oral health problems during the 15 weeks implementation period. The sample size includes patients presenting for the first prenatal visit or a subsequent visit. Of all the women screened, 36.3% (n=300) did not have their teeth cleaned

in past 12 months. This is lower than the 47% reported by the Maryland Department of Oral Health (2017). Greater than 35% of pregnant women (n=316) reported some type of dental problem, 244 (29.5%) were screened during the first prenatal visit, and 36.7% (n=303) were enrolled in Medicaid. At the completion of the implementation, the number of dental referrals issued was 616 (74.6%).

The Maryland Department of Health, Office of Oral Health (2017) reports that a little more than 25% of women with Medicaid received dental services. This practice successfully screened women with Medicaid (36.7%) and referred to dental provider as appropriate (see Figure 2).

Discussion

According to the literature and the oral health guidelines prenatal providers should include oral health screening as part of the initial obstetric visit. This includes screening for oral health needs by using the two maternal oral screening (MOS) questions, providing a referral to a dental provider based on the responses, and oral health education. Screening during the first visit will allow ample time for the pregnant women to see the dentist at least once prior to delivery. Pregnancy is a teachable moment and pregnant women are motivated to adopt healthy behaviors for a good pregnancy outcome.

Before implementing this quality improvement project, the practice did not formally screen for dental problems or provide oral health education. The run chart clearly demonstrated a steady increase in the number of pregnant women screened for oral health needs and in weeks six and nine, 100% of the pregnant women were screened for oral health needs. Although this

percentage decreased slightly in the thirteenth week, it returned to 100% the fourteenth and final week of implementation. Based upon the responses to the screening questions, all the women that reported they did not have their teeth cleaned in the past twelve months and/or had some type of dental problem received a referral to a dentist. This indicates that the tool was successfully implemented.

Limitations

There were several limitations associated with this project that could affect the results of the project. Initially, some of the screening tools from each site were incomplete or the amount collected did not match the number of patients scheduled and could not be included for analysis. This occurred early in the implementation period and on the days when the office was very busy. To decrease future occurrences of missing information, a checkbox to indicate completion was added to the form by the office manager. Addition of this extra process showed a large improvement in the completion of the tools for each of the sites.

Another limitation was implementing the tool at three practice sites at the same time. This made the collection and recording of the data somewhat difficult. Successful implementation at one site before disseminating to the other sites would have worked best for analyzing and reporting of the data. This would have ensured that the practice change process was thoroughly understood. A final limitation was the referring process to dental providers. Referrals were not made to one specific provider, but multiple providers according to patient's insurance (see Table 1).

Strengths

Several strengths were identified to help achieve success with the practice change. First, the practice providers reported that the ease of using the tool. Secondly, the positive outcomes indicated by the percentages of pregnant women identified with an oral health need and receiving a dental referral. A third strength was conducting this implementation at a large obstetric practice that provided obstetrical care to over 1,000 women per year. This provided access to varying population of pregnant women from different neighborhoods locations.

Facilitators and Barriers

As with any quality improvement project or practice change, one can encounter barriers and facilitators along the way. For this project, a major facilitator was the support and willingness to participate received from the OB providers, practice manager and staff. Another facilitator was the existence of a valid oral health screening in the literature. Conversely, a barrier encountered was the screening tool was implemented using paper format. If the screening tool had been embedded in the EHR, data reports would have been created to assist with analyses of the results. Another barrier identified was the pregnant woman was responsible for making the dental appointment.

To ensure the success of this project, the project lead would have done several things differently. First, the project would have been implemented at one practice site. This would allow for close monitoring of the process and provide corrective action immediately. Secondly, dental appointments would be scheduled by the office staff and allow for follow-up at the next visit.

Conclusion

Conducting oral health screenings during the prenatal visit is important for identifying pregnant women at risk for oral health problems and improving birth outcomes. According to the oral health guidelines, screening at the first prenatal visit is ideal (MDOH, 2018). This allows the pregnant woman time to visit the dentist prior to delivery if an oral health problem is identified. Of the 100% pregnant women screened, 29.5% was seen for their 1st prenatal visit.

A dental screening and referral process were successfully implemented at a large obstetrical practice. Screening for oral health problems can be initiated at other prenatal offices without difficulty. Integration of an oral health screening and referral process within an obstetrical practice will assist perinatal providers with identifying women at risk for oral health needs and improve birth outcomes.

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Figure 1. Graph of dental referrals for women with Medicaid based on response to screening questions.

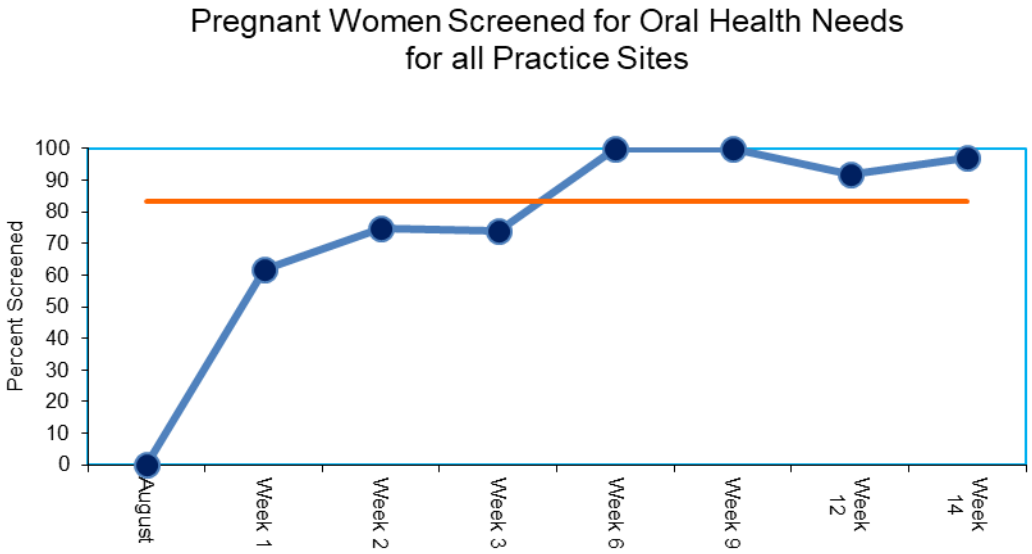


Figure 2. Graph of dental referrals for women with Medicaid based on response to screening questions.

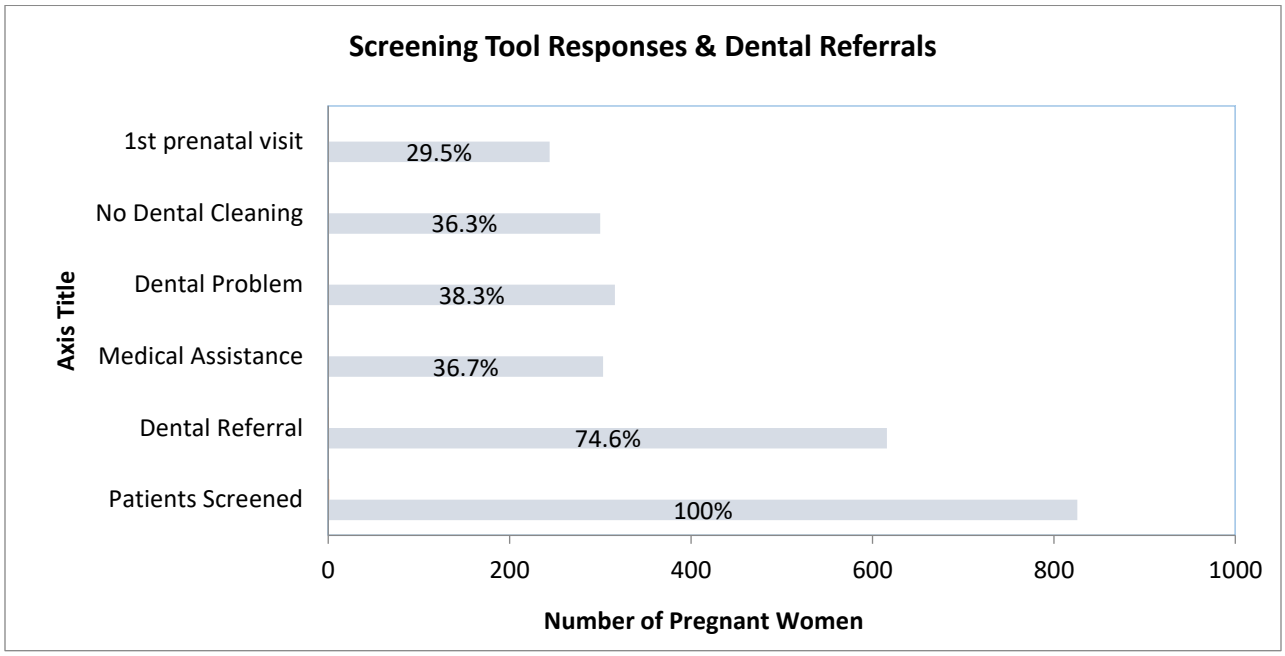


Table 1 Responses to Dental Screening Tool: September 2018 – November 2018

	Site 1 (East)	Site 2 (Downtown)	Site 3 (West)	Overall

	N=233 (percent)	N= 344 (percent)	N=249	N= 826
Teeth cleaned in past 12 months				
Yes	147 (63.1%)	214 (62.2%)	165 (66.3%)	526 (63.7%)
No	86 (36.9%)	130 (37.8 %)	84 (33.7%)	300 (36.3%)
Dental Problems				
Yes	89 (38.2%)	121 (35.2%)	106 (42.6%)	316 (38.3%)
No	144 (61.8%)	223 (64.8%)	143 (57.4%)	510 (61.7%)
1st prenatal appointment				
Yes	60 (25.8 %)	93 (27.0%)	91 (36.5%)	244 (29.5%)
No	173 (74.2%)	251 (73.0%)	158 (63.5%)	582 (70.5%)
Medicaid Enrollee				
Yes	72 (30.9%)	127 (36. %)	83 (33.3 %)	282 (34.1%)
No	161 (69.1%)	217 (63.1%)	166 (66.6%)	544 (65.9%)

Note: *Dental problems include toothache, missing/loose teeth, cavities, bleeding gums, teeth that do not look right, or any other problems.*

Appendix A

Questions to be complete by the patient or

asked by the Medical Assistant during the intake process

Oral Health Screening Questions	Yes	No
1. Have you seen a dentist in the past 12 months? *If no, a dental referral is given		
2. Do you have any dental problems or pain? Do have any dental concerns? If so, explain _____ *If yes, dental referral to a participating provider is generated		
3. Do your gums bleed when you brush your teeth, *If yes, a referral for dental exam is given		
4. Do you have a dental provider? If so, name_____		
5. Is this your first prenatal appointment?		
6. Do you have Medicaid insurance?		

Dental Referral Form for Pregnant Women (Maryland Department of Health, 2018)

Dental Referral Form for Pregnant Women

SECTION A: PRENATAL PROVIDER TO COMPLETE (SEND TO DENTAL PROVIDER)

Patient Referred to: _____ **Referral Date:** _____
(Dentist Name | Practice)

Patient Information:

Name: _____ _____
(Last) (First)

DOB: ____ / ____ / _____ **Estimated Delivery Date:** ____ / ____ / _____
mm dd yyyy mm dd yyyy

Known Allergies and Precautions: *(Specify, if any)*

The following are considered safe during pregnancy:

Dental Procedures:
- Oral Examination
- Dental Prophylaxis
- Scaling and Root Planing
- Extraction
- Dental X-ray with Lead Shielding
- Local Anesthetic with Epinephrine
- Root Canal
- Restorations | Fillings

Medications:
- Amoxicillin
- Cephalosporins
- Clindamycin
- Metronidazole
- Penicillin
- Acetaminophen
- Acetaminophen with Codeine, Hydrocodone, or Oxycodone

Patient may NOT have: *(Specify)*

REFERRING PRENATAL PROVIDER

Name: _____ Signature: _____
(Please Print)

Date: _____ Phone #: ( ) -

Email: Fax #: ( ) -

SECTION B: DENTAL PROVIDER TO COMPLETE (RETURN TO PRENATAL PROVIDER)

Diagnosis:

Treatment Plan:

DENTAL PROVIDER

Name: _____ Signature: _____
(Please Print)

Date: Phone #: ( ) -

Published: February 2018

Oral health care is covered by Medicaid for pregnant women in Maryland.
To find a dentist who accepts Medicaid, visit: **OralHealth4BetterHealth.com**

Provided By: MARYLAND Department of Health

*Permission is given to use this form, which can be found at: **OralHealth4BetterHealth.com***

Tips for Good Oral Health During Pregnancy

The health of your teeth and gums is **important** because it affects the health of you and your child. Getting dental care while you are pregnant is **safe** and **covered** by Maryland Medicaid during pregnancy. If your mouth is healthy, you will be giving your baby a healthy start! Doing the following will help keep you and your baby healthy.

Practice Good Oral Hygiene

- Brush teeth twice a day with fluoride toothpaste.
- Floss once a day to prevent red, puffy gums.
- If you vomit, rinse your mouth with a teaspoon of baking soda in a cup of water to stop acid from attacking your teeth. Delay toothbrushing for about an hour.

Get Dental Care

- Tell the dentist and dental hygienist that you are pregnant and your due date.
- All dental treatment should be completed before delivery.
- Dental care, including the use of X-rays, most pain medications, and local anesthesia, is safe during pregnancy.
- Changes to your body when you are pregnant may make your gums sore or puffy and may make them bleed. This problem is called gingivitis (inflammation of the gums). If gingivitis is not treated, it may lead to periodontal (gum) disease, which can cause tooth loss.

Eat Healthy Foods

- Eat a balanced and nutritious diet.
- Avoid foods high in sugar. Also avoid beverages high in sugar like juice, fruit-flavored drinks, and soda.
- If you have problems with nausea, eat small amounts of healthy foods throughout the day.
- Drink fluoridated water throughout the day, especially between meals. Most tap water in Maryland contains fluoride which prevents cavities. Most water filters do not remove fluoride.

Practice Other Healthy Behaviors

- Attend prenatal classes.
- Stop use of all tobacco products and recreational drugs. Avoid secondhand smoke.
- Do not drink alcohol.
- Take folic acid and iron supplements as recommended by your prenatal doctor or nurse.

To find a Medicaid dentist, visit: OralHealth4BetterHealth.com

Take Care of Your Mouth When You are Pregnant

Brush

Brush twice a day with fluoride toothpaste. Fluoride prevents cavities.

Floss

Floss once a day to prevent red, puffy gums.

Drink Water

Drinking water is healthy for you and your baby. Most tap water in Maryland contains fluoride. Fluoride prevents cavities.

Choose Healthy Foods and Drinks

Eat fruits, vegetables, whole-grain bread or crackers and dairy products. Avoid sweets like candy, cookies, cake and sugary drinks.

Visit the Dentist

Make an appointment to see a dentist as soon as you know you are pregnant. It is just as important as going to the doctor. Tell your dentist you are pregnant and about any changes in your mouth.

Three Reasons to See a Dentist During Pregnancy

Getting dental care while you are pregnant is:

1. Important. The health of your teeth and gums affects the health of you and your baby. If your mouth is healthy, you'll be giving your baby a healthy start!

2. Safe. Getting dental care while you are pregnant is safe. That includes x-rays, fillings and having your teeth cleaned.

3. Covered. Medicaid pays for dental care during pregnancy.

To find a dentist visit:
HealthyTeethHealthyKids.org

Healthy Teeth Healthy Kids

Guidance for Prenatal Providers

Assess Pregnant Women's Oral Health Status

During the first prenatal visit:

- Take an oral health history (see Box 1).
- Assess frequency of consuming foods, beverages, and medications that contain sugar and use of tobacco, alcohol, and recreational drugs.
- Check the mouth for problems such as swollen or bleeding gums, untreated dental caries, mucosal lesions, signs of infection (e.g., abscess), or trauma.
- Document findings in woman's medical record.

Advise Pregnant Women About Oral Health

- Assure women that there is no need to postpone or avoid oral health care during pregnancy. Oral health care, including the use of X-rays, pain medication, and local anesthesia, is **safe**, **important**, and **covered** by Medicaid throughout pregnancy.
- Advise women to schedule an appointment with a dentist as early in the pregnancy as possible. If urgent care is needed or if the woman does not have a dentist, write and facilitate a formal referral to a dentist with whom you maintain a collaborative relationship. ***See sample dental referral form in the Additional Resources section.***
- Encourage good oral health behaviors during pregnancy (see Box 2).
- Explain to women that caries-causing bacteria can be passed from mother to child after birth. Restoring active carious lesions before delivery may reduce the child's risk of dental caries.

1 Oral Health Questions to Ask Pregnant Women

Do you have any dental problems or concerns?

Do you have swollen or bleeding gums, a toothache (pain), problems eating or chewing food, or other problems in your mouth?

Since becoming pregnant, have you been vomiting? If so, how often?

Do you have any questions or concerns about getting oral health care while you are pregnant?

When was your last dental visit? Do you need help finding a dentist?

2 Oral Health Tips to Share with Pregnant Women

See a dentist as early in your pregnancy as possible.

Brush teeth twice a day with fluoridated toothpaste.

Floss once a day.

Choose healthy snacks and avoid foods and drinks containing sugar.

Drink water with fluoride. About 94% of Marylanders served by a community water system (as opposed to a private well) receive fluoridated water from their tap. Most water filters do not remove fluoride.

If you vomit, rinse your mouth with a teaspoon of baking soda in a cup of water and delay toothbrushing for about an hour.

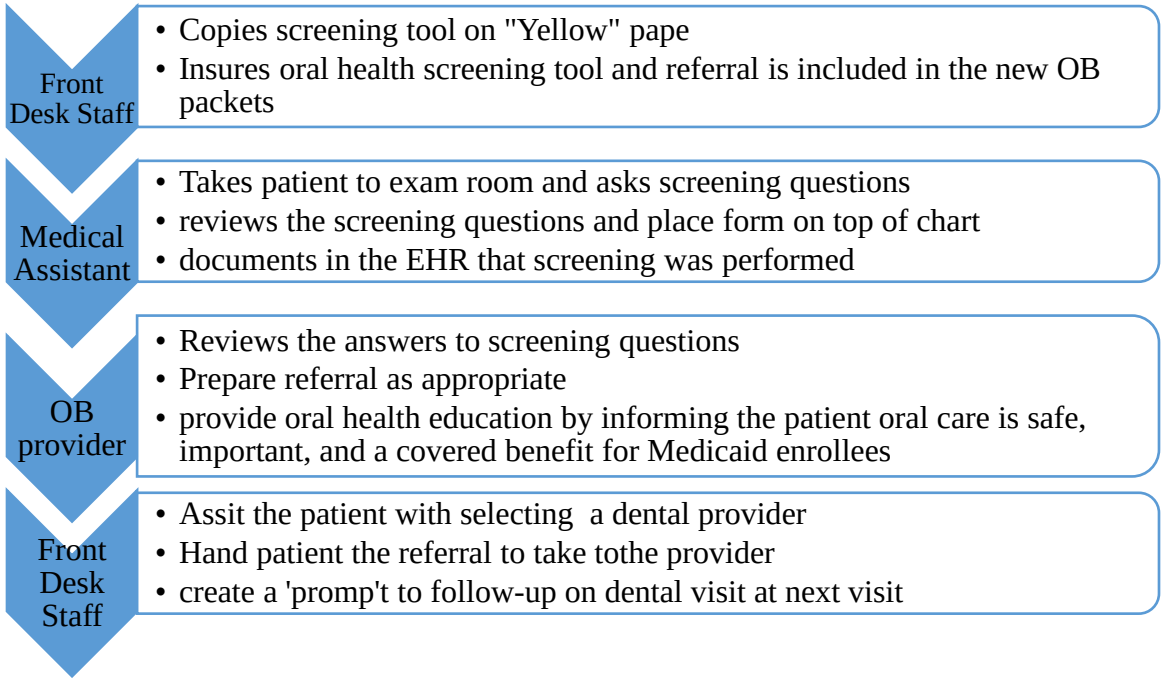
Appendix A

Presentation Plan

Learning Objective	Content Outline	Method of Instruction	Time Spent	Method of Evaluation
1. Educate the OB providers, MAs, and office staff on the importance of oral health care during pregnancy 2. To identify pregnant at risk for dental needs in first trimester 3. To correctly generate a referral to a dental provider based on screening results. 4. To incorporate an oral health dental screening tool in an OB practice successfully	• Background and significance of problem • Oral Screening tool - 2 item questions • Three key messages to communicate about oral care: - It is important - It is safe - It is covered by Medicaid • Dental referral form and process for referral. • Oral Health Education resources for the women • How to find a dental provider from the approved list and on the MDOH website	1. Oral presentation 2. Discussion 3. Discussion and demonstration	1. 30 minutes 2. 15 minutes 3. 15 minutes	1. Verbal feedback 2. Verbal feedback 3. Verbal feedback

Appendix B

Flow chart for implementation of oral health screening tool



Appendix C

Summary of Proposal

Oral health is considered as one of the most important elements of general health that should be maintained during pregnancy. This unique period in a woman's life is associated with complex physiological changes that can significantly impact the oral health of pregnant women. Although oral health is recognized as an important for the pregnant women, primary care and obstetrical (OB) professionals do not routinely provide this care. In Maryland, pregnant women with Medicaid have dental coverage. Despite this, 27.3% of the women utilized this benefit. Many pregnant women lack the understanding and knowledge that dental care is important and safe during pregnancy and fail to see the connection between oral care and healthy birth outcomes. The incorporation of oral health screenings, as part of perinatal care is important and crucial towards the promotion of a healthy pregnancy.

The purpose of this quality improvement project is to implement a perinatal dental screening tool in an obstetric practice to identify women with oral health needs, specifically women with Medicaid having their first prenatal visit. This project will be implemented in all female OB practice. The implementation will take place over 13 weeks. The first week will involve providing an hour-long oral health presentation to the OB practice. The content will include physiological changes of pregnancy on oral health, barriers, and guidelines for oral health care in the perinatal setting. Next a discussion about the oral health screening tool and the process for implementation will be presented. The process flow for implementation involves the front desk staff, MAs, OB providers. The front office staff will ensure that the screening tool is printed on yellow paper so that it is easily recognized. The MA will ask the screening questions, review the results and provide a notation in the chart. The OB provider will review the answers and generate a referral as required. If a referral is generated, the front desk staff will assist the patient in making an appointment to a dental provider from the list provided by the MDOH.

During weeks two and three, the implementation will be piloted to determine what works well and areas for improvement. During weeks four through twelve, the project will be fully implemented. Data will be collected at three weeks, six weeks, and eight weeks. Data collection will include number of women screened, number of women receiving first prenatal visit, number of women identified with oral health needs, number of women referred to a dental provider. Additional data to collect will be Medicaid enrollment status and some demographic data. Analysis of the data will come from retrospective chart reviews and calculation of proportions for the answers to the screening tool. The two screening questions are, 'Do you have bleeding, swelling, lose or broken teeth, pain or any other dental problems?' and 'Have you seen a dentist in the last 12 months?' The short-term goal for this project will be that by the end of November 2018, 100% of pregnant women with Medicaid in this OB practice will receive an oral health screen and 100% of those with identified dental care needs receive a referral to a qualifying dental provider. The long-term goal of the

project is to include oral health screening as a component of the perinatal assessment, increasing the OBs awareness of the safety of dental care during pregnancy, increasing the number of pregnant women who are screened, referred and seen by a dental provider by spring 2019.

Appendix 1

Evidence Review Table

Integrating Oral Health Guidelines in an OB practice

Author, year	Study objective/intervention or exposures compared	Design	Sample (N)	Outcomes studied (how measured)	Results	*Level and Quality Rating
American College of Obstetricians and Gynecologists (2017)	A committee that included representatives from the American College Obstetricians and Gynecologists (ACOG), the American Dental Association (ADA), and the Health Resources and Services Administration's Maternal and Child	Opinion report	N/A	N/A	It was determined by the committee that regular dental care is important to oral and general well-being. They concluded that enough evidence exist that shows oral health care during pregnancy is safe and should be recommended. Several recommendations were provided: oral health assessment at first prenatal visit; discuss oral health with all women (pregnant/postpartum); reassure women that x-rays and invasive treatments can be performed	VII B

	Health Bureau formed an opinion report about the provision of oral health care during pregnancy.				during pregnancy; establish a relationship with dental provider that cares for pregnant women; create a referral process; educate women on oral hygiene practices. Limitation: An opinion report which may lead to bias	
Chalmers, et al., (2005)	To determine the validity and reliability of Oral Health Assessment Tool (OHAT)	Experimental pre/post design conducted in 3 phases	N=455 residents at a nursing facility	-outcome was the ability to predict oral health by using natural toot status, dry mouth, report of oral pain as dental measures. Utilizes a questionnaire	The OHAT tool is better suited for use in residential settings. It is reliable and valid in the determination of oral health status. Comparison of the OHAT tool to an oral exam by dental provider, the tool was 86.7% accurate with decayed tooth status, 92.3% accurate in need for denture assessment, 42, 9% accurate with plaque measurement, and 85.7% accurate with general oral health issues. Limitation: only used in residential setting. Need further research to determine its	III B

					applicability to perinatal setting. Use of tool involves extra time and may interfere with other tasks	
George et al., (2014)	This study aimed to create and test oral screening tool for midwives to use to identify and refer pregnant women at risk or dental problems	Randomized Control Trials	N=300 pregnant women 23 midwives administered the tool	-the efficacy of a dental screening tool used by midwives was measured by comparing it to the Dental Oral Assessment by dentists (Gold Standard)	Results indicate that midwives diagnosed a dental problem in 84% of pregnant women using the screening tool. Sensitivity of tool was 83% and specificity was 90% Limitations: Small sample size because of elevated attrition rate that curbed the ability to efficiently test screening items validity, particularly specificity; low specificity for screening tools can be an issue a result in unnecessary follow-up	II B
George et al., (2016)	This study aimed to examine New South Wales (NSW) general practitioners, midwives, and OB/GYNs knowledge, attitudes and practices and	Cross-sectional survey	N=408 OB/GYNs and midwives	-A survey was utilized to measure perinatal oral health knowledge, attitude and practices for oral health promotion, and barriers to care. A true/false questionnaire was used to assess knowledge.	Findings indicate that 66% of the antenatal providers had basic knowledge of oral care for pregnant women. Only 16% of the providers indicated “always discuss the importance of oral health” and 21.5% recommended their patients for a dental service at the beginning of pregnancy. Less than 10%	III A

	barriers towards oral health promotion during pregnancy			A 5-item Likert scale was used to assess attitudes, barrier to practice.	counsel women about dental health and implications and 15% asked about health Limitation: Study conducted in Wales and may not be generalizable to United States	
George et al., (2016)	The aim of this study was to assess the effectiveness of a midwifery initiated oral health (MIOH) education program to improve dental health knowledge in midwives	Experimental, pre-test and post-test design	N=50 midwives	-primary outcome was pre and post- test questionnaire consisting of 24 knowledge related items; it also examined confidence in oral health promotion	Results showed a 21.5% improvement in oral health knowledge after MIOH education program; majority of improvement was seen in understanding the prevalence of dental concerns in pregnancy and fetal/infant outcomes. 82% of the participants reported an increased confidence in introducing oral health care into their practice and 77% of the providers were willing to refer for dental services; Limitations: Study conducted in Australia	II A
Reedy et al., (2015)	Examined the effects of prenatal and postnatal motivational interviewing (MI)	Multi-site, single-blind RCT Four groups:	N= 349 -motivational interview (n=171)	-Maternal dental visits during pregnancy and preventive dental visits by 18 months for the child. These	94 % of pregnant women that received prenatal HE had an increase in dental visits compared to the MI group which had 92%. Postnatal MI vs HE	II B

	and prenatal and postnatal health education (HE) to increase dental visits among low-income women and children from 4 rural counties in Oregon	(1) Prenatal MI followed by postnatal MI, (2) Prenatal MI followed by postnatal HE, (3) Prenatal HE followed by postnatal MI (4) Prenatal HE followed by postnatal HE.	-health education (n=178)	measurements were obtained from Oregon Division of Medical Assistance Claims Data (DMAP) and self-report. Oral health practices adopted to prevent tooth decay in the pregnant women children	groups showed no significant difference, 54% and 52% respectively. 9 Greater than 85% of the mothers reported checking their children's mouths for tooth decay Limitations; although motivational interviewing (MI) is behavior change, this study showed no differences between MI and HE for improving dental attendance in low-income mothers and their children. Bias with selection, because the women were volunteers, and this may	

Schramm et al., (2016)	The aim of this study was to assess the knowledge, attitude and practice behaviors of dental hygienists that provided care to pregnant women	Quasi experimental	N=1047 members of Michigan Dental Hygiene Association,	An anonymous online survey via Survey Monkey was administered to all the members to measure response to 4 items Likert Scale questions about knowledge, attitudes and practice behaviors of dental hygienists.	Only a 14.4%response rate. Results indicated that 90% of the hygienists indicated they would care for a pregnant patient. 85% indicated they would accept referral to treat a pregnant woman. Despite the years of experience and degree level, majority of the respondent (64%) desired more education about providing care to pregnant women. According to the results pregnant women (76.3%) agreed that periodontal treatment should be provided during pregnancy. Limitations: low response rate-14.4%. Use of an online survey. Additionally, this survey was a modification of survey used to examine dentists' knowledge, attitudes and practice behaviors and not tested for validity	III B
Tsukada et al., 2016	This study aim was to develop a dental screening tool, Oral Health Screening Tool for Nursing	Experimental design	N=66	-The major outcome for this study was the ability to accurately identify the need for a dental referral based	There was a large discrepancy between nurse and caregiver need for dental referrals compared to dentists' gold standard. The dentist-nurse and	

	Personnel (OHSTNP) to identify a need for referral to a dentist			on the results from the OHSTNP questionnaire compared to dental exams. The questionnaires consisted of 12 questions about oral hygiene (status of natural teeth, saliva, tongue, dentures, and gum tissue)	dentist-care-giver pair was statistically significant, and the sensitivity was high >0.67-nurses; >0.71 caregivers regarding oral function. However, the sensitivity for screening by nursing and caregivers was low (0.05, 0.23), accuracy (0.25, (0.39). If the nursing staff was prompted to request a referral the sensitivity increased to 0.86 for nurses and 0.91for caregivers. Limitations: Study setting is long-term care facility. Time commitment by the staff to perform oral assessment may cause exam not to be performed. Due to low sensitivity, additional training is needed.	
Vamos et al., (2015)	Identify evidence that examines of the impact of oral health interventions during pregnancy	Systematic review	7 articles that identified interventions delivered in perinatal setting and focused on education	Outcomes measured include attitudes, beliefs, and self-reported compliance with oral health care.	All but one study showed an increase in one of the outcomes after the intervention. Additionally, the results showed that there were few interventions that targeted pregnant women, and few addressed systemic complications, oral hygiene behaviors.	II B

					Limitations: Did not include studies with interventions that addressed prenatal oral system health problems; Only included peer –reviewed articles with an evaluation. Only interventions with positive result reported which could lead to bias.	
Wilson et al. (2017)	Experimental research design.	Experimental research design	146 respondents (66 certified nurse midwife and 80 obstetrician-gynecologist	80 percent of the participants acknowledged that perinatal dental health is crucial for optimal prenatal care, while 53 percent had an answered question regarding dental health	80 % of the participants acknowledged that perinatal dental health is crucial for optimal prenatal care, while 53 % had an answered question regarding dental health Limitation: Samples size was small; providers who finished the survey do not reflect the actual opinion or practice; data covers only Michigan	III B

Rating System for Hierarchy of Evidence

Level of the Evidence	Type of the Evidence
I (1)	Evidence from systematic review, meta-analysis of randomized controlled trails (RCTs), or practice-guidelines based on systematic review of RCTs.
II (2)	Evidence obtained from well-designed RCT

III (3)	Evidence obtained from well-designed controlled trials without randomization
IV (4)	Evidence from well-designed case-control and cohort studies
V (5)	Evidence from systematic reviews of descriptive and qualitative studies
VI (6)	Evidence from a single descriptive or qualitative study
VII (7)	Evidence from the opinion of authorities and/or reports of expert committees

Melnyk, B.M. & Fineout-Overholt, E. (2014). *Evidence-based practice in nursing & healthcare: A guide to best practice* (3rd ed.). New York: Lippincott, Williams & Wilkins.

Rating Scale for Quality of Evidence

A: High – consistent results with enough sample, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific literature

B: Good – reasonably consistent results; enough sample, some control, with definitive conclusions; reasonably consistent recommendations based on comprehensive literature review that includes some reference to scientific evidence

C: Low/major flaw – Little evidence with inconsistent results; insufficient sample size; conclusions cannot be drawn

Newhouse, R.P. (2006). Examining the support for evidence-based nursing practice. *Journal of Nursing Administration, 36*(7-8), 337-40.