

A quality improvement initiative to increase identification of oral disease and dental care in pregnancy

By Carrie J. Kamp, DNP, APRN, FNP-C, and Sandi M. Tenfelde, PhD, APRN, WHNP-BC

Carrie J. Kamp is a family nurse practitioner at Planned Parenthood of Indiana & Kentucky. Sandi M. Tenfelde is Assistant Professor and Director, Women's Health Nurse Practitioner Program at Loyola University Chicago Marcella Niehoff School of Nursing in Maywood, Illinois. The authors state that they do not have a financial interest in or other relationship with any commercial product named in this article.



Oral health is an essential aspect of overall health. Preventing and treating oral diseases (eg, dental cavities, periodontal disease) and increasing access to oral healthcare are objectives of the Healthy People 2020 initiative.¹ Oral disease, specifically chronic periodontitis, is associated with multiple chronic diseases including diabetes and heart disease.² Pregnant women with periodontitis are at risk for poor pregnancy outcomes including preterm birth, low-birth-weight infants, and pre-eclampsia.³ Treatment of oral disease during pregnancy is safe and improves maternal health.³

Despite this, oral health is not routinely addressed during pregnancy. According to 2015 data from the Pregnancy Risk Assessment Monitoring System, less than 50% of patients had their teeth cleaned during their pregnancy.⁴ National guidelines developed by the American College of Obstetricians and Gynecologists as well as the American Dental Association are in place to outline safe care during pregnancy.⁵

Purpose

The purpose of this project was to develop an effective intervention to identify pregnant women at risk for oral dis-

ease, refer them to dental care, and increase the number of pregnant women who receive dental care.

Method

The evidence-based project was implemented at a federally qualified health center (FQHC) in the Midwest near a large metropolitan area. The FQHC has five locations and provides both obstetric (OB) and dental care. The state Medicaid program provides dental coverage for pregnant women, and women are assisted in enrolling for Medicaid when they present for OB care at the FQHC. The organization incorporates oral health into its prenatal program, but patient education and referral to dental care are inconsistent between locations and providers. The project was implemented in 2 of 5 FQHC locations that offer OB services. It was given exempt status by Loyola University Health Sciences Division Institutional Review Board. Implementation of this quality improvement project was guided by the Oral Health Delivery Framework and Donabedian's Quality Framework.

A three-part intervention was developed. First, a 20-minute educational presentation was created based on the Smiles for Life curriculum and presented at a mandatory nursing staff meeting.⁶ The presentation reviewed tooth anatomy, effects of poor oral health on overall health and pregnancy outcomes, risk factors and preventive measures for oral disease, and safety of dental care during pregnancy. A pre-test and post-test were administered to all presentation attendees. Participants were 45 nursing staff (nurses and MAs, 96% attendance) who worked in family practice, pediatrics, ob/gyn, and/or urgent care.

Second, the two-question Maternal Oral Screening (MOS) tool was integrated into the electronic medical record for all OB patients at their initial OB visit.⁷ The first screening question asked about any oral pain or problems with the teeth and/or gums. The second question asked whether the patient had visited the dentist within the past 6 months. A clinical decision support tool alerted providers of the patient's risk and need for a dental referral.

Third, dental visit reminders were sent to OB patients through the organization's pre-existing reminder system. The system used both SMS and email messaging based on patient preference, and patients were automatically enrolled into the reminder system when they consented to care within the organization. Patients could opt out of messages at any time. Three reminder messages were sent throughout the 4-month intervention period to all OB patients who had their initial visit during the intervention. Messages contained information regarding the

importance and safety of oral health during pregnancy as well as contact information to schedule an appointment. Of all messages, 40% were confirmed as read.

Results

After the nursing education session, median test scores improved from 40% to 80%, a statistically significant improvement (Mann Whitney U test: $U = 225$, $Z = 6.53$, $P < .0005$). Of all participants, 96% agreed that the presentation met the stated objectives and would recommend the presentation to their coworkers. The percentage of participants who agreed that oral health is an important part of overall health increased from 95% to 98%, and those who agreed that they were confident in their ability to discuss the importance of oral health with pregnant patients increased from 82% to 98%.

During the implementation period, 142 initial OB visits were recorded at the two intervention clinics. Of these, 98% were screened for oral disease, 88% screened positive, and 47% of at-risk women received a dental referral. In total, 40% of initial OB patients from the intervention clinics and 3% of patients from the comparison clinics received referrals. This was a statistically significant difference (Fisher's exact test, $P < .0005$, $\phi = -.492$). Only 3% of patients from the intervention clinics were referred in the previous year during the same time frame, resulting in a statistically significant increase (Fisher's exact test, $P < .0005$, $\phi = -.464$).

Dental visits improved from 10% of initial OB patients in 2018 to 20% in 2019 in the intervention clinics and decreased from 16% to 15% in the comparison clinics. Although there was no statistically significant association between clinics and dental visits ($\chi^2 = 2.083$, $P = .149$), this was a clinically significant result. In the intervention clinics and in the comparison clinics, 11% and 8%, respectively, reported visiting a dentist outside of the FQHC during their pregnancies. These visits were not included in the statistical analysis due to lack of comparison data. Patients who received scheduled reminders did not have a higher rate of dental visits than those who did not receive reminders during the brief intervention period.

Implications

Four lessons were learned through implementing this evidence-based project. First, a brief education session was an effective way to educate nursing staff regarding oral health in pregnancy. Second, the MOS tool was a simple and effective way of identifying at-risk women. Third, provider participation varied, resulting in less than half of at-risk patients receiving a dental referral. Increased education of

providers regarding the importance of dental referrals or implementation of a standing order for a dental referral for all new OB patients may improve referral rates. Fourth, use of referrals increased dental visits among pregnant women in the intervention clinics.

Conclusion

Limitations of the project included a short implementation period and the refusal of some providers to generate referrals due to time constraints. All patients received oral health education from nursing staff, however, and many patients still visited the dentist without a referral.

Oral healthcare is safe and important during pregnancy. Identifying at-risk pregnant women and helping them access dental care are important steps in maintaining a healthy pregnancy. This evidence-based project resulted in an increase in nursing knowledge and identification of at-risk pregnant women as well as an increased number of dental visits among pregnant women. ●

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