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RESEARCH

Perinatal Nurse Home Visiting Referral Patterns Among Women With Diabetes and Hypertension in Philadelphia

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ABSTRACT

Objective: To examine access to perinatal nurse home visiting services for high-risk pregnant women who have diabetes or hypertension.

Design: Secondary data analysis.

Setting: Philadelphia, PA.

Participants: Pregnant women who had a live birth during 2012 and those referred to a community-based agency for perinatal nurse home visiting because of their diagnosis of diabetes or hypertension.

Methods: Access to services was measured by examining referral information (dosage, diagnosis, gestational age at time of referral, and insurance type) retrieved from administrative logs of the community-based organization that provides perinatal home visiting to high-risk pregnant women. The population-based prevalence rates of hypertension and diabetes were calculated from birth record data provided by the Philadelphia Department of Public Health.

Results: During 2012, 595 pregnant women were referred for perinatal nurse home visiting services. The mean gestational age when referred for services was 24.9 weeks (standard deviation = 8.5) with a mean number of 8.8 authorized visits (standard deviation = 8). Associated with more authorized visits was having Medicaid as the insurance type and medical diagnoses that included hypertension ($p < .01$). Philadelphia prevalence rates for diabetes and hypertension varied by race and ethnicity ($p < .001$); Asian mothers had the greatest rates for diabetes and Black mothers the greatest rates for hypertension.

Conclusion: Various models of home visiting programs exist to improve maternal and child health outcomes. Because maternal morbidity and mortality rates are rising in the United States, further research about perinatal nurse home visiting programs for pregnant women with diabetes and hypertension is warranted.

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Increased rates of maternal mortality in the United States (Kilpatrick, 2015; Louis, Menard, & Gee, 2015; Lu, Highsmith, de la Cruz, & Atrash, 2015) and the prevalence of diabetes and hypertension (Bardenheier et al., 2015; Grobman et al., 2014; Lo, Mission, & Caughey, 2013), especially among women who live in socioeconomically disadvantaged communities, underscore the importance of perinatal nurse home visiting tailored to pregnant women with hypertension and diabetes. Concurrently, an increasing number of maternal and child health (MCH) home visiting services have emerged nationally and internationally as a key strategy to improve population-level health among socioeconomically disadvantaged mothers and their families (Cowley et al., 2015). Because pregnancy and the first 3 years of life are crucial in determining an infant's life course, the Affordable Care Act of 2010 allocated increased funding for MCH home visiting services. In addition, the national Maternal, Infant and Early Childhood Home Visiting (MIECHV) program, through the Maternal and Child Health Bureau of the Health Resources and Services Administration (HRSA), provides funding for evidence-based home visiting programs in communities with high rates of infant morbidity and mortality, often in low-income areas with diverse ethnic and racial marginalized minority populations (Adirim & Supplee, 2013; Center for Medicaid & CHIP Services & HRSA, 2016).

Specifically, public health MCH models of home visiting that are well studied and that provide

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programs (e.g., Nurse-Family Partnership, Healthy Beginnings, Healthy Families America) that focus on reduction of psychosocial risk (Hayes et al., 2014; Issel, Forrestal, Slaughter, Wiencrot, & Handler, 2011; Olds et al., 2014; Wen et al., 2015) are now eligible for increased funding through the Affordable Care Act. They are listed on MIECHV's Web site (HRSA, 2016). However, the evidence-based transitional care model (TCM) of perinatal home visiting that was developed decades ago by Brooten and colleagues (Brooten, Brooks, Madigan, & Youngblut, 1998; Brooten et al., 2001; Brooten et al., 2007; Brooten et al., 2012) for pregnant women with medical complications is absent from MIECHV's list of eligible programs. However, upon closer examination of eligibility, federally funded MCH home visiting programs have expectations for evidence of improvement in a broad array of outcomes in at least four of six benchmark maternal, child, and family health domains (Minkovitz, O'Neill, & Duggan, 2016). The TCM has evidence of improved outcomes in only two benchmark domains: maternal and newborn health and coordination of community resources.

The original TCM model was designed to deliver holistic perinatal nursing care via home visits for childbearing women with medical complications who were undergoing multiple physiologic, psychological, and social transitions of pregnancy. The occurrence of medical complications during childbearing necessitates more complex and increased antenatal surveillance, testing, and self-management. Women with high-risk pregnancies receive more frequent prenatal care as measured by the Kotelchuck Index and are more than eight times (odds ratio = 8.5, 95% confidence interval [8.3, 8.6]) more likely to have a preterm birth than those who are not considered high risk (VanderWeele, Lantos, Siddique, & Lauderdale, 2009). Thus, these pregnant women present crucial challenges to the interdisciplinary health care team, and adherence to health care provider recommendations can be particularly challenging.

Before the publication of the randomized clinical trial by Brooten et al. (2001), the standard of care for many high-risk pregnant women with diabetes and hypertension was hospitalization. In their seminal work, these researchers implemented in-home nurse interventions for high-risk women with pregnancy-related complications that entailed careful monitoring with tailored nursing interventions that incorporated teaching, guidance, counseling, and activating appropriate referrals for transdisciplinary clinical and community resources (Brooten et al., 2002; Brooten et al., 2007; Brooten et al., 2012). The frequent, long antenatal hospitalizations for pregnant women with hypertension and diabetes no longer exists as a result of these researchers' findings, which changed practice and showed that perinatal nurse home visiting was cost effective (Brooten et al., 2001). However, little is known about the use, processes, and outcomes of perinatal nurse home visiting services that evolved from the original TCM. Advancing this knowledge within nursing and the larger public health context of maternal infant health and MCH home visiting is important to guide future perinatal nursing teaching, practice, and research.

Background

Maternal Mortality and Morbidity

Rates of maternal mortality and morbidity have dramatically increased in the United States (Creanga et al., 2015; Lu et al., 2015). Although a wealthy and developed nation, the United States continues to experience poor maternal and infant mortality rates greater than those of some developing nations (Institute of Medicine, 2013). In the United States, cardiovascular disease (CVD) in women has been identified as the lead cause of the increase in maternal mortality rates and in maternal–child health care costs, surpassing the previous lead cause of maternal mortality, hemorrhage. The long-term sequelae of CVD among childbearing women are preterm birth, chronic and gestational hypertension, preeclampsia, placental abruption, and intrauterine growth restriction. Other significant contributors to increasing maternal morbidity and mortality from CVD include advanced maternal age, the epidemic rates of obesity throughout the United States, and the increased rates of chronic hypertension and diabetes among childbearing women (Creanga et al., 2014).

In contrast to the availability of statistics on maternal mortality, there are no formal criteria to report and monitor rates of population-based severe maternal morbidity or illness in