Exploring the Roles of Community Health Workers and Patient Navigators to Improve Birth Outcomes: A Literature Review

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The following review of literature has been completed for the Maryland Health Care Commission, pursuant to legislation (2018 Md. Laws, Chap. 83), requiring the Commission to conduct a study of infant mortality rates for African American infants and infants in rural area, which includes "thorough literature reviews on innovative and effective programs to reduce infant mortality with a specific focus on programs targeting rural and African American infants, and **the use of pregnancy navigators and community health workers**."

Patient navigators serve a critical role in improving health outcomes in a variety of settings, including primary care, specialty care for chronic conditions, and community outreach. Beyond health outcomes, working with navigators may improve overall health by promoting self-efficacy and health literacy, which enables patients to become more independent in decisions related to their health and utilization of the health care system.[1] Furthermore, patient navigation has been shown to reduce health disparities related to income and race/ethnicity.[2]

The patient navigation workforce is comprised of both professional and lay workers, to include nurses, social workers, and community health workers. In the literature, in addition to being called patient navigators, individuals filling this role may also be referred to as Community Health Workers/Liaisons/Advisors, Case Managers, Promotoras, Guided Care Nurses, or Health Advocates. Regardless of the title or who is filling the role of navigator, the goals of patient navigation include working with patients to identify gaps and barriers to accessing health care, connecting patients to appropriate services, ensuring timely utilization of care, and providing health education and social support.[3,4] This profession is distinct from others that link patients to care because service connection is typically linked to specific, measurable outcomes, such as ensuring patients attend appointments. For example, patient navigators in Maternal and Child

Health might ensure that women who have recently given birth attend a postpartum OB/GYN appointment.[5]

A recent review highlighted the ways in which patient navigation may be applied to women's health to reduce disparities and improve birth outcomes,[1] but few published studies provide examples of patient navigation in pregnancy. In the Community Health Access Program (CHAP), which targeted African American women in Urban Ohio who were at high risk for poor birth outcomes, community health workers (CHWs) connected women to social and health services.[6] After connecting clients to services, CHWs tracked each identified issue to measurable completion, ensuring clients received the appropriate social services, or attended medical appointments. Women enrolled in CHAP had lower odds of having a low birth weight infant than comparable women who were not enrolled in the program.[6]

In a patient navigation program that addresses health during the postpartum period, "Navigating New Motherhood" recruited racial/ethnic minority women attending an urban clinic.[5] These women received services related to scheduling post-partum appointments, mental health needs, and connection to social services like transportation and nutritional resources. In comparison to those not enrolled, women enrolled in the program were more likely to remain in post-partum care, receive depression screenings, and utilize contraception.[5] Contraceptive use may prevent short interpregnancy intervals, which are associated with higher risk for maternal and infant mortality.[7,8]

To date, there are no other peer-reviewed studies on the efficacy of patient navigation programs in pregnancy, but the effectiveness of patient navigation has been well-established for other health outcomes, and many of the same principles may apply. Patient navigator programs are critically important in fulfilling the health care needs of individuals with chronic health

conditions in areas of high poverty or limited access to health services.[9] Many navigator programs have been established to specifically address the needs of medically underserved communities as well as consequent racial and ethnic health disparities.[10] In terms of cancer-related care in Federally Qualified Health Centers, patient navigation and community health worker programs have been linked to increased referral and completion of cancer screening, reduced time to diagnosis, and completion of diagnostic resolution.[10] In a review of these types of programs, navigators or CHWs identified and addressed barriers to care, scheduled appointments and facilitated referrals, ensured attendance to appointments, provided health education, arranged or provided social services like transportation, and encouraged/supported patients.[10]

Programs have also been developed to address the needs of patients with chronic conditions, like HIV/AIDS, diabetes, cardiovascular disease, and chronic kidney disease, who all experience similar barriers to managing their disease and accessing services.[11] Evaluations of these programs have provided mixed results, but generally, patient navigation improved processes of care, like disease screenings and adherence to follow-up procedures.[11] Most often in these interventions, lay workers were trained to be patient navigators, with primary roles being care facilitation, addressing patient attitudes and beliefs, support with health literacy issues, and tangible support, such as connecting patients to childcare providers, transportation services, and public services to help with financial needs.[11]

Finally, patient navigation programs have been integrated in some primary care settings to address the unmet social needs of patients.[12] While this model is not commonly used, addressing the social determinants of health has been widely accepted as a critical component to achieving health equity.[13] Patient navigators in this type of primary care setting assist patients

with accessing and adhering to care, system navigation, insurance issues, transitions between providers or care settings, mental illness, substance use, and specific issues related to the social determinants of health, like housing concerns, food insecurity, legal issues, employment and financial concerns, and lack of social support.[12] Each of these types of programs measures outcomes differently, and few have been formally evaluated, making it challenging to make definitive statements with regard to efficacy. However, a scoping review of these types of programs highlights the importance of tailoring navigation programs to specific patient populations.[12]

Given the success of patient navigation programs, it is likely that this model has been adapted to improve outcomes in communities with traditionally poor birth outcomes, like African American or rural communities. However, the published literature has not caught up with this transition. In evidence of this point, the search for relevant literature surrounding patient navigation, CHWs, and birth outcomes among African Americans produced a conference abstract for a presentation given at this year's Annual Meeting of the American College of Obstetricians and Gynecologists.[14] The abstract details results of an evaluation of "Safe Start," a program targeting low-income women with chronic conditions, most of whom were African American and substance users. After receipt of intensive patient navigation and systematic case review with health care providers and insurers, program participants were more likely to have adequate prenatal care, attend postpartum appointments, and utilize postpartum contraception, while being less likely to require inpatient care or utilize emergency departments during pregnancy.[14]

Despite the lack of published evaluation results for patient navigation in pregnancy, a relatively small group of studies has been published discussing the efficacy of home visiting

programs for these communities. While home visiting programs are distinct from patient navigation programs in that they typically measure success in terms of birth outcomes, as opposed to service utilization outcomes, CHWs perform functions that are similar to patient navigators. As mentioned previously, CHAP is a program directed toward improving birth outcomes among urban African American women.[6] CHWs in the program developed health and social "pathways" of care through an intensive home visiting program, which measures success in terms of both birth outcomes and measurable objectives, including connection to a medical home, maintenance of prenatal care, and utilization of referred social services. Furthermore, CHWs were salaried employees, but received bonus payments upon pathway completion.[6]

The U.S. Department of Health and Human Services maintains a database of evidence-based home-visiting models, highlighting those that meet their criteria for an effective intervention.[15] Using sources identified on this website, and after an extensive search of PubMed and EMBASE, six published evaluations were identified for programs utilizing CHWs to address birth outcomes among African American women. There were no evaluations published that utilized CHWs to exclusively address birth outcomes in rural areas in the U.S., though one state-wide program included women in rural areas.[16] There are also other programs that have been utilized but not evaluated within rural counties, including Parents as Teachers, Oklahoma's Community-Based Family Resource and Support (CBFRS) Program, and Health Access Nurturing Development Services (HANDS) Program.[15]

Of the evaluations identified for African Americans, two evaluated Healthy Start programs,[17,18] one evaluated a Resources, Education, and Care in the Home (REACH)-futures program,[19] one evaluated a county-level program,[20] one included information on a state-based initiative to reduce infant mortality,[16] and the final evaluated the previously-discussed CHAP

intervention.[6] Across all interventions, CHWs were individuals who were hired from within the community and trained to conduct home visits and connect clients with services. In Kalamazoo, Michigan, the Black to White infant mortality ratio is higher than the national average, prompting the implementation of a Healthy Start Program.[17] Program participants were recruited through obstetric clinics and had monthly, in-person visits with community case managers, who developed individualized care plans in conjunction with the client's health care provider. Case managers referred clients to community resources, provided education on maternal and infant health, and ensured clients had continuous access to prenatal care.[17] Despite being more likely to smoke than non-users of the Healthy Start program, African American participants delivered higher birth weight infants than nonparticipants. There was no difference in birth weight for white participants vs. nonparticipants.[17]

In another study, researchers evaluated the "dose" of a Healthy Start program in St. Louis, MO.[18] In this program, nurses provided in-home prenatal care, while CHWs provided education and service referrals to participants, who were all African American. In this evaluation, participants with more prenatal case management visits were less likely to deliver a preterm infant, though this association varied across levels of prenatal care (adequate vs. inadequate), and receiving in-home case management increased the odds of having adequate prenatal care.[18]

The Resources, Education and Care and the Home program (REACH-futures) in inner city Chicago was an adaptation of the original national REACH program that utilized nurses for home visiting.[19] In REACH-futures, CHWs work as part of a nurse-led team, where nurses accompanied CHWs on some home visits (one prenatal, and three post-partum). CHWs visited clients monthly to provide social support, identify problems, provide education and problem-

solving, assist with goal-setting for parenthood and preventing future pregnancies, and connecting clients with community resources.[19] The results of this evaluation indicated that using CHWs was as effective at improving birth outcomes as using nurse-only teams, which had reduced infant mortality in the regions targeted by the program.[19]

In Genessee County, Michigan, the Racial and Ethnic Approaches to Community Health (REACH) Project is a multi-component initiative to reduce infant mortality among African American women.[20] Community Health Advocates connect women to resources to help them address their health care, housing, and nutritional needs, working with clients through pregnancy and up to two years old. In addition to case management, CHWs host monthly support groups and annual baby showers.[20] While the rate of infant mortality in Genessee County has been at a historic low since the implementation of the program, it is likely the decline has occurred as a result of multiple components of the program, and cannot be directly attributed to the contributions of CHWs.[21]

Finally, the Ohio Infant Mortality Reduction Initiative utilizes CHWs to conduct home visits for African American women with the purpose of reducing infant mortality among African Americans in the state, some of whom live in rural areas.[16] CHWs visit clients on a weekly or monthly basis, depending on their need, and provide education, social support, and referrals to community services and health care. In addition, they evaluate risk factors and address immediate needs of the client, such as housing insecurity, transportation barriers, mental health, and substance abuse issues.[16] While birth outcomes have not yet been evaluated, findings indicate that this CHW-led program has influenced access to prenatal care by removing barriers, improved health care utilization, and increased maternal empowerment and self-efficacy, which may influence health behaviors.[16] The findings of this study also indicate that transportation

barriers are more prevalent for clients living in rural areas, and provision of gas cards and bus passes greatly influenced attendance at prenatal care appointments.[16]

Altogether, the literature on patient navigation and home visiting by CHWs indicates that "pregnancy navigators," or CHWs who perform patient navigation activities among pregnant women, could be a critical component to improving and promoting health equity in birth outcomes, which strongly influence infant mortality. Of the few programs with published evaluations, the services provided by CHWs, either as members or leaders of teams, have been associated with improved birth outcomes among African Americans, which will likely translate to improvements in infant mortality over time. This effectiveness has already been shown in CHAP and Safe Start, which are likely the first of many patient navigation programs that will emerge over the next several years to address disparities in birth outcomes.

In a recent review, McKenney et al. describe several ways in which patient navigators could be integrated into women's health care to address inequities.[1] They first outline a model by which patient navigators enhance access to care, promote self-efficacy, and sustain engagement with care, assuming that self-efficacy and sustained engagement will be reinforced within the patient over time to allow for self-sustained engagement with care in the future. In practice, this means patient navigators should help schedule prenatal appoints, assist with barriers to attending appointments, connect patients to community resources (housing, food, transportation), offer social support throughout the prenatal period, help patients identify primary and pediatric care providers to be prepared for the postpartum period, and assist with the transition from obstetric to primary care.[1] While these activities are meant to serve as suggestions for how patient navigation could be integrated into obstetric care, there are similarities between these suggested services and those already provided by CHWs working in home visiting, as described in the preceding

paragraphs. Thus, current programs utilizing CHWs may only need to be altered to include the measurement of specific outcome objectives to transition them into "pregnancy navigator" programs. McKenney et al recommend several outcome measures to assess the effectiveness of navigation, including patient satisfaction, patient anxiety, time to diagnosis of pregnancy-related morbidities (e.g., gestational hypertension or diabetes), time to initiation of screening or therapy, and specific birth outcomes.[1] Taking a cue from the patient navigator literature for cancer and chronic disease, in addition to disease-specific metrics like preterm birth, low birth weight, or infant mortality, "pregnancy navigator" programs could include measurable objectives such as accessing referred social services, use of transportation incentives (i.e., bus passes or gas cards), attendance to prenatal care and other referred services, obtaining recommended prenatal screenings, or level of perceived social support. Thus, CHWs could easily transition to patient navigator roles to reduce disparities in birth outcomes.

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