Pregnancy Medical Home Care Pathways Improve Quality of Perinatal Care and Birth Outcomes

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The clinical leadership of the Pregnancy Medical Home (PMH) program develops and disseminates clinical pathways to promote evidence-based practice and to improve quality of care and outcomes. PMH pathways represent the first standardized clinical guidance for obstetric providers statewide across all care settings.

The Pregnancy Medical Home (PMH) program was launched in April 2011 as a public-private partnership between the North Carolina Division of Medical Assistance (North Carolina Medicaid) and North Carolina Community Care Networks (NCCCN). NCCCN, also known as Community Care of North Carolina, is North Carolina Medicaid's primary care case management program. The PMH program aims to improve the quality of maternity care, improve birth outcomes, and reduce costs among the pregnant Medicaid population. The primary focus is on preterm birth prevention, and the improvement strategy is universal risk screening with targeted services for those at highest risk. The model projects that savings will result primarily from reduced utilization of costly newborn health care services, as a greater proportion of infants will be born at term and at a healthy birth weight (greater than 2,500 grams). Indeed, there has been a decrease of 6.7% in the rate of low birth weight in the Medicaid population since the inception of the program (State Fiscal Years 2011–2014).

Approximately 90% of North Carolina providers who care for the pregnant Medicaid population are engaged in the PMH program and are supported by their local Community Care network's PMH team, which consists of a nurse coordinator and a physician champion who practices obstetrics within the local community. PMH providers sign a contract with NCCCN in which they agree to meet certain expectations, including standardized risk screening of all pregnant Medicaid patients; no elective deliveries at less than 39 weeks of gestation; offering and providing progesterone therapy (17 alpha-hydroxyprogesterone) to patients with a history of spontaneous preterm birth; maintaining a primary cesarean delivery rate of 16% or lower among term, singleton, vertex pregnancies; completing a postpartum visit within 60 days of delivery; and coordinating with the pregnancy care manager(s) assigned to the practice. Pregnancy care managers, nurses and social workers whose services are contracted primarily through county health departments, work with the prenatal care team to support patients identified as being at high risk of preterm birth.

Each Community Care network's PMH team provides PMH providers with practice support and technical assistance around quality improvement; the network uses data to identify components of care that warrant further attention. Community Care network PMH teams coordinate efforts and share strategies across the state through regular conference calls and through quarterly face-to-face meetings where all Community Care networks are represented. Regional meetings bring together local pregnancy care managers, Community Care network PMH teams, and other stakeholders.

Community Care network physician champions are a diverse group of practitioners with a range of expertise who are recruited for this role because they are local opinion leaders who can provide guidance to their colleagues. They include obstetrics specialists, maternal-fetal medicine subspecialists, and family physicians who practice in a range of settings, including independent community practices, hospital-owned clinics, academic medical centers, and local health department maternal health clinics.

Care Pathway Development and Content

Early in the PMH program's implementation, Community Care network physician champions recognized that there were wide variations in practice across the state. Protocols among the various regional centers and academic health systems were not always completely aligned with one another. It was proposed that having consistent clinical guidance would enable all PMH providers to more effectively meet the program's goals.

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The PMH group developed "pathways" to communicate evidence-based practices and to ensure that best-practice management guidelines and local resources are readily available to all PMH providers. These guidance documents are developed by a subgroup of physicians, who then bring draft recommendations to the leadership group for review and consensus building. Pathways are based on available evidence—including published positions of the American College of Obstetricians and Gynecologists (ACOG), the Society for Maternal Fetal Medicine (SMFM), and other professional societies—and are supplemented by expert opinion when the medical evidence is insufficient or unclear.

Pathway topics are chosen for their alignment with PMH goals, the availability of evidence to support a standardized approach, and the feasibility of evaluating their impact through administrative data (eg, Medicaid claims, vital records, or NCCCN care management documentation). The first set of pathways, released in 2012–2013, focused on medical management of specific conditions: hypertensive disorders, use of cervical length screening and progesterone therapy for preterm birth prevention, and induction of labor among nulliparous women (see Table 1). Topics were selected as priorities by Community Care obstetrics champions based on areas of concern in their local provider communities. These topics also reflect national perinatal quality priorities [1] and are supported by existing and emerging evidence.

The obstetrics champions chose to first focus on the management of hypertensive disorders of pregnancy, as these are the leading causes of iatrogenic preterm birth. Improved management of gestational hypertension and of preeclampsia without severe features allows more pregnancies to safely reach term gestation. Best-practice management of women with more severe disease in the most appropriate care setting can prevent some cases of extreme prematurity while promoting optimal maternal and infant outcomes.

The hypertension pathway provides guidance about when to manage a hypertensive pregnant patient in the community and when to seek consultation from or transfer to a tertiary center. The pathway lays out a common approach that should work across all care settings in the state, regardless of which tertiary facility a PMH practice uses as a referral center. Feedback from obstetric generalists in community settings during this pathway's development was unexpected; while tertiary care providers often discuss the importance of community-based providers seeking consultation in a timely manner, some community providers talked about encountering barriers when reaching out to regional perinatal centers for consultation or to request a transfer. This pathway provides guidance for appropriate transfer to higher levels of care.

TABLE 1.
Pregnancy Medical Home Care Pathways

Pathway	Date of release
Management of Hypertensive Disorders of Pregnancy	August 2012 (updated March 2014)
Preterm Birth Prevention: Treatment with Progesterone and Cervical Ultrasound Screening	November 2012
Induction of Labor in Nulliparous Patients	February 2013
Management of Perinatal Tobacco Use	January 2015
Postpartum Care and the Transition to Well Woman Care	February 2015
Management of Substance Use in Pregnancy	April 2015
Reproductive Life Planning and the Use of Long Acting Reversible Contraception	September 2015

Note. PMH care pathways are available at https://www.communitycarenc.org/population-management/pregnancy-home/pmh-pathways/.

Guidance about the use of cervical length screening and progesterone treatment focuses both on improving clinical outcomes and on appropriate utilization of resources to promote good stewardship of publicly funded health care. While ACOG and SMFM recently published guidance on ultrasound screening for shortening cervix [2, 3], the evidence regarding universal screening was not conclusive. Since universal transvaginal ultrasound would be costly, the PMH physician champions identified the need to establish local, cost-conscious, best-practice guidelines. The PMH Care Pathway on the Use of Cervical Length Screening and Progesterone Treatment to Prevent Preterm Birth is a consensus-based document that outlines which women should have cervical length measured abdominally as part of routine imaging at 18–20 weeks' gestation and which higher-risk women require transvaginal ultrasound procedures. The pathway also includes an algorithm to illustrate which form of progesterone is indicated based on obstetric history and current condition.

The second set of pathways, released in 2015, focuses on tobacco use, substance use, postpartum care, and reproductive life planning (see Table 1). These pathways were developed in response to feedback from the provider community regarding the need for guidance about best-practice management of these conditions and for information about available resources for Medicaid beneficiaries. For example, the PMH Care Pathway on the Management of Substance Use in Pregnancy describes how a multidisciplinary team of behavioral health specialists, substance abuse treatment providers, social workers, and others can work collaboratively to respond to a challenging issue experienced by PMH providers. The pathway promotes a nonjudgmental approach using motivational interviewing skills and presents the evidence-based model Screening, Brief Intervention, and Referral to Treatment (SBIRT) [4], both of which are endorsed by ACOG [5]. This pathway also describes in detail when and how to seek behavioral health consultation, and it addresses the management of opioid-dependent pregnant patients, a population of great concern among the PMH provider community.

A high-quality comprehensive postpartum visit with effective transition to primary care is a stated goal of the

PMH program. Providers are eligible for financial incentives from Medicaid for postpartum care ($150 for each comprehensive postpartum visit completed within 60 days of delivery). The PMH Care Pathway on Postpartum Care and the Transition to Well Woman Care describes timing of care based on patient conditions (eg, a woman with hypertension during pregnancy should have blood pressure measured 7–10 days after delivery [6]). Given the lack of evidence for the traditional 6-week visit, the care pathway calls for scheduling the comprehensive postpartum visit at 14–42 days postpartum. The pathway also establishes the content of the comprehensive visit to ensure that women receive all recommended components of care while avoiding unnecessary care.

PMH Pathway Implementation and Provider Community Response

Care pathways are published on NCCCN's website and distributed to Community Care network PMH teams, who disseminate them to their local PMH provider community and obtain buy-in from their colleagues. This includes visiting individual practices to review pathway content and strategies for implementation of pathway guidance, as well as introducing pathway themes at hospital obstetrics department meetings. Through a partnership with the UNC Center for Maternal and Infant Health, which received support from The Duke Endowment, NCCCN was able to offer physician-led webinars to release the 2015 pathways.

The UNC partnership facilitated the development of a package of supporting materials for the newer pathways in order to promote their implementation; these materials include patient education resources, reimbursement guidance, relevant Medicaid policy, and flowcharts illustrating pathway recommendations. These tools were developed in response to provider feedback that often their challenges were less about how to interpret evidence and more about how to incorporate best practices into their workflow. For example, the substance abuse pathway has 12 appendices, including information about the North Carolina Controlled Substances Reporting System; appropriate use of urine drug screening; the North Carolina Maternal and Perinatal Substance Abuse Initiative; the state alcohol and drug abuse treatment centers; and an overview of buprenorphine treatment in pregnancy, including how to become a buprenorphine prescriber.

The PMH provider community has been generally receptive to the PMH care pathways and appreciative of the efforts of Community Care physician champions to build consensus and clearly communicate what is involved for evidence-based, best-practice management of various conditions. Some responses have reflected ongoing tension about "cookbook medicine," with providers concerned about care becoming overly standardized and leaving little room for the art of medicine or for individual discretion. The PMH program intentionally chose the word "pathway" rather than "protocol" or "policy" to underscore the point that these materials are intended to serve as guidance documents and to put helpful tools in providers' hands, not to prescribe a specific course of action. Pathways are accompanied by the following disclaimer:

> Pregnancy Medical Home Care Pathways are intended to assist providers of obstetrical care in the clinical management of problems that can occur during pregnancy. They are intended to support the safest maternal and fetal outcomes for patients receiving care at North Carolina Pregnancy Medical Home practices. This pathway was developed after reviewing ACOG resources such as practice bulletins, committee opinions, and Guidelines for Perinatal care as well as current obstetrical literature. PMH Care Pathways offer a framework for the provision of obstetrics care, rather than an inflexible set of mandates. Clinicians should use their professional knowledge and judgment when applying pathway recommendations to their management of individual patients.

PMH providers have expressed little disagreement with the guidance offered in these materials and appear to be glad to have expectations defined as clearly as possible.

NCCCN uses analytics to identify practices that are adhering closely to pathway guidance as well as those that are failing to adhere to the guidance offered in the pathways. For the latter practices, the first step is to communicate the pathway recommendations clearly and achieve buy-in; then, when local Community Care network PMH teams reach out to these outliers, the discussion can focus on how to improve practice rather than being a debate about the validity of the guidance itself.

As the program matures, there will be more time to implement existing pathways, evaluate consistent use of pathway guidance, and, more importantly, evaluate the impact of the pathways. As this happens, the PMH program expects to continue to achieve improvements in birth outcomes, quality of care, and utilization in the pregnant Medicaid population. NCMJ

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