Planned home births:

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The role of the primary care NP

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Abstract: Over the past 15 years, there has been a steady resurgence of planned home births in the US. Multiple factors may impact health outcomes for mother and baby. NPs have the opportunity to provide reliable information to women to help ensure a safe delivery and to optimize care for the neonate.

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Prior to the 1900s, the majority of births in the US occurred in the home with the assistance of midwives. At the turn of the century, birthing gravitated to the hospital setting as a result of developments in medical education, care, and technology that improved maternal and neonatal outcomes.[1] Over the past 15 years, a steady resurgence of home births in the US has resulted in the highest number of planned home births among the industrialized nations. From 2004 to 2017, home births increased by 77%.[2] In 2017, the US reported 1 in 62 births occurred outside of the hospital, of which 62% were at home, 32% were at a birthing center, and 6% were classified as a clinic/physician's office, other, or unknown.[2]

This increase in planned home births has been attributed to several factors. Women who choose a home birth express a desire for a family-centered environment with more control over the birth experience and less obstetric intervention.[3] Lack of health insurance and/or financial resources as well as loss of hospital-based obstetric services in some rural areas are also contributing factors.[4,5] Midwives, including certified nurse-midwives, certified midwives, certified professional midwives, and noncertified lay midwives are the primary attendants for home births, with less than 1% of home births attended by a physician.[2]

Keywords: Apgar score, birth attendant, home births, maternal and neonatal outcomes, midwives, New Ballard Score, transfer plan

Controversy exists among healthcare providers and the general public regarding the safety of home births.[6] Nurses are reportedly the most trusted healthcare professionals.[7] Subsequently, women established within a primary healthcare practice may seek the advice of the NP regarding a planned home birth and ongoing care after delivery for themselves and their neonate. NPs have the opportunity to provide reliable information to the mother to help ensure a safe delivery and optimize care for the neonate. This article will describe qualifications of midwives; prenatal and intrapartum factors that affect maternal and neonatal health outcomes; benefits and risks of a planned home birth; postpartum practices that affect maternal and neonatal health outcomes; and recommended evidence-based practices for neonatal care.

Qualifications of midwives

In the US, education, regulation, and licensing of midwives vary from state to state, as there are no federal regulations for the practice of midwifery.[8] There are efforts underway within the discipline to establish standards for education and certification of midwives.[9] In 2011, the United States Midwifery Education, Regulation, and Association (US MERA) steering committee was established by seven midwifery organizations with the purpose of advancing the International Confederation of Midwives standards "to provide high-quality evidence-based care for women, newborns, and families in order to decrease maternal and infant mortality and morbidity."[9]

Of the seven midwifery organizations that comprise the US MERA, two (American Commission for Midwifery Education and Midwifery Education Accreditation Council) accredit midwifery education programs and two (American Midwifery Certification Board and North American Registry of Midwives) offer a national certifying exam for candidates who met the required qualifications. Both the American Midwifery Certification Board and North American Registry of Midwives allow consumers to verify certification of the midwife provider they have selected. The American Midwifery Certification Board certifies nurse midwives and individuals with graduate degrees who have met the institutional requirements for a graduate degree from a program accredited by or with preaccreditation status from the Accreditation Commission for Midwifery Education.[8]

Midwives can be categorized as certified or noncertified. Certified midwives include certified-nurse midwives (CNM), certified midwives (CM), and certified professional midwives (CPM). CNMs, who practice primarily in hospital or clinic settings, are nurses with either a master's or clinical doctorate degree in midwifery and are eligible to be licensed in all 50 states. CMs and CPMs attend the majority of home births and are trained and certified in midwifery without the nursing component; licensure varies among states. Noncertified midwives, also referred to as traditional or lay midwives, are often educated informally through apprenticeship, and certification and licensure are based on state regulations.[8,10]

Three professional midwifery organizations offer information on midwifery education and resources and include the American College of Nurse Midwives for CNMs and CMs, National Association of Certified Professional Midwives for CPMs, and Midwives Alliance of North America (MANA) for various types of midwives. MANA provides a summary of the laws for each state regulating the practice of midwifery. Find it online here: https://mana.org/about-midwives/state-by-state.

Prenatal and intrapartum factors that affect maternal and neonatal outcomes

Health outcomes for mother and baby are influenced by maternal health, parity, age, past intrapartum events, and fetal health and gestation. Women who choose a planned home birth and have low-risk pregnancies are more likely to have positive health outcomes during the intrapartum and postpartum period and need to be advised as such. Maternal criteria for low-risk pregnancies include multiparous women less than 35 years of age without a history of chronic diseases that may adversely impact maternal disease before, during, or after pregnancy and without history of a previous cesarean section. Fetal criteria for a low-risk pregnancy include a healthy, single fetus and gestation between 37 and 41 weeks.[11-13]

Prenatal care for women who choose a planned home birth can improve health outcomes for the mother and baby. Prenatal care focuses on monitoring maternal and fetal health status and providing screening and counseling for prevention and early detection of factors that may impact health outcomes.[14] During prenatal visits, the midwife can discuss normal physiologic changes associated with pregnancy and

those symptoms that need to be reported (for example, vaginal bleeding or decreased fetal activity).[14] Routine noninvasive prenatal assessments such as maternal BP can identify early preeclampsia, which is associated with increased maternal and fetal morbidity and mortality.[15] Measuring fundal height can screen for intrauterine growth restriction, which may warrant further evaluation.[16]

Conditions that may increase fetal and neonatal morbidity and mortality such as neural tube defects, sexually transmitted infections, and Group B streptococcus may also be detected in the prenatal period.[14] Prenatal care affords the opportunity for preparation and education of labor and delivery including plans for pain management, a transfer plan if needed, and recommended assessments and care of the neonate.[14]

Transfer to a hospital after the onset of labor has been reported in 9% to 13% of women delivering at home.[6] While reasons for transfer have included emergency situations such as postpartum hemorrhage (0.2%) and neonatal respiratory problems (0.3% to 1.4%), these are uncommon.[17-19] The majority of transfers are nonurgent with the most commonly cited reason as failure to progress during labor.[7] Despite the reason for the transfer, it is reported that a lack of a well-defined plan for transfer and poor communication and collaboration between the birth attendant and hospital healthcare providers is the primary cause of poor maternal and neonatal outcomes.[6,17] In the event that it is needed, a seamless transfer from home to hospital is critical to ensure positive health outcomes for women and their babies.[6] This can be facilitated with an established collaborative transfer plan.[17]

Benefits and risks of a planned home birth

Planned home births for women from industrialized nations with low-risk pregnancies who choose a midwife whose certification meets the International Confederation of Midwives Global Standards for Midwifery Education and have a clear plan for transfer experience fewer obstetric interventions and complications than planned hospital births.[11,20] It has been reported that these women experience significantly less instrumentation during labor and delivery.[21] Women delivering in the hospital compared with women who deliver at home were three times as likely to have instrumentation in the birth process.[22] Lower rates of perineal trauma and hemorrhage among this population of women have also been reported.[21] However, increased incidence of neonatal mortality and morbidity with planned home births has been reported.[2,10,11] It is important to note that "adverse fetal and neonatal outcomes are infrequent across all birth settings and that the absolute differences in risk observed between planned birth locations are also small."[21]

NPs can provide women who are planning a midwife-assisted home birth with reliable information to make an informed decision and create a birth plan that will help ensure the best health outcomes for both the mother and baby. Decreased maternal and neonatal morbidity and mortality are dependent on maternal and fetal risk factors, access to prenatal care, qualifications of the birth attendant, and access and willingness to higher-acuity medical care if indicated.[23-25]

Postpartum practices that affect maternal and neonatal health outcomes

Breastfeeding and placentophagy are two postpartum practices particularly salient to women who choose a home birth.[22,26] Home births have been associated with fewer medical interventions, which creates an environment that facilitates breastfeeding.[22] Women who deliver at home are reportedly more likely to breastfeed than those who deliver in the hospital.[22] Additionally, regardless of setting (home, birth center, or hospital), women who have a midwife as their birth attendant are more likely to breastfeed up to 3 months postpartum.[27]

Infants who are breastfed have a lower incidence of respiratory and gastrointestinal tract infections, sudden infant death syndrome, and obesity later in life.[28] In the immediate postpartum period, mothers who breastfeed experience less postpartum blood loss and have more rapid involution of the uterus.[29] Long-term maternal benefits of breastfeeding include decreased incidence of breast, ovarian, and endometrial cancers as well as a reduction in hypertension and type 2 diabetes mellitus.[30]

Placentophagy, maternal consumption of the placenta, is more common among women who have a planned home birth.[31] The practice of placentophagy is based on the belief that placenta consumption prevents postpartum depression and hemorrhage and improves lactation and maternal iron stores.[32-35]

There are several methods in which the placenta is prepared for consumption. Raw or cooked placenta may be sliced and dehydrated and then pulverized into a powder that is encapsulated.[31] Some women dice the

placenta into small pieces and swallow the pieces whole or freeze them before swallowing. Other methods of consumption include using the placenta as an ingredient in foods such as soups and lasagna. Compounding the placenta into tinctures and ointments has also been used by some women as a home remedy for infant colic and teething pain.[31]

There is no evidence to substantiate the purported maternal benefits of placentophagy or use of the placenta in home remedies for infants.[31,33,34] Placentophagy has not been found to prevent or mitigate postpartum depression.[31,35] In a double blinded, randomized placebo-controlled study (N = 23), it was reported that there was no increase in iron levels in women who consumed placenta versus placebo.[34] Milk production may be decreased as the placenta is rich in estrogen and may suppress prolactin release needed for lactation.[31] The practice of placentophagy by women who experience or are at risk for depression and anemia may actually interfere with timely evidence-based interventions.[35]

Placentophagy can also pose an increased risk of maternal and neonatal infection as safety standards and regulations for preparation of the placenta for consumption are lacking.[31,32] There has been one reported case of Group B streptococcus infection in a neonate whose mother consumed encapsulated uncooked dehydrated placenta. The neonate had been treated with a 10-day course of ampicillin in the neonatal intensive care unit for early-onset Group B streptococcal (GBS) bacteremia.

Five days after completing treatment, the neonate was readmitted for late-onset GBS sepsis. It was discovered that the mother was consuming encapsulated placenta that tested positive for GBS.[36] Placentophagy may pose a risk of transmission of other pathogens as well to the mother and neonate. This may occur if the mother acquires an intrauterine infection during labor or birth seeding the placenta with pathogens or if there is unsafe handling of the placenta during preparation for consumption.[31]

Recommended evidence-based practices for neonatal care

Women planning a home birth should be advised of recommended evidence-based practices in the immediate neonatal period and within 24 hours of birth to facilitate healthy outcomes. Within the immediate newborn period, Apgar scores and growth parameters should be obtained and measures to prevent ophthalmia neonatorum and vitamin K-dependent hemorrhagic disease (VKDB) should be implemented.[12] Birth attendants should also determine gestational age using the New Ballard Score if they are competent in this assessment. The recommended timeframe to determine gestational age using the New Ballard Score is 30 minutes to 96 hours (4 days) after birth.[37] If the birth attendant is unable to perform an assessment of gestational age, this can be completed by the primary care provider at the newborn visit within this timeframe.[12]

An Apgar score should be obtained at 1 and 5 minutes. Developed by Virginia Apgar in 1952, the Apgar score is a standard assessment of a neonate's adjustment to extrauterine life.[38] There are five components of the Apgar score (color, heart rate, reflexes, muscle tone, and respiration) each assigned a 0, 1, or 2. Neonates with an "Apgar score of less than 7 should be repeated every 5 minutes for up to 20 minutes" and warrant further evaluation at a medical facility.[39]

To determine intrauterine growth status, the birth attendant should obtain weight, length, and head circumference within the first 4 to 8 hours of life.[12] These measurements, in relation to gestational age, determine if the neonate is small, appropriate, or large for gestational age which may have clinical implications. For example, neonates who are small for gestational age are at increased risk for hyperbilirubinemia.[37]

Ophthalmia neonatorum, a conjunctivitis commonly caused by *Neisseria gonorrhoeae*, may occur within the first 4 weeks of life.[40] Application of 0.5% erythromycin ophthalmic ointment should be instilled in each eye within 1 hour after birth to prevent gonococcal ophthalmia neonatorum which can cause ocular scarring and blindness.[39]

A single dose of 0.5–1 mg of vitamin K_1 oxide (phytonadione) prevents VKDB of the newborn.[12,41] Vitamin K_1 is a fat-soluble vitamin necessary for clotting. Neonates are at high risk for VKDB because they have low stores of vitamin K_1 and placental transfer of vitamin K to the neonate is low.[41,42]

The American Academy of Pediatrics' Committee on Fetus and Newborn recommends that infants born outside of the hospital be evaluated by a provider experienced in pediatrics within 24 hours of birth.[12] This evaluation should include universal newborn screening and screening for congenital heart disease, hyperbilirubinemia, and hearing. The panel of conditions included in the universal newborn screening may vary

from state to state; however, most test for conditions specified by the Health Resources and Services Administration.[12] Additionally, pulse oximetry to screen for congenital heart disease is preferably performed after 24 hours of life.[43]

In the general population, congenital heart disease is one of the most common birth defects in neonates. Although a complete physical assessment is performed after birth, congenital heart disease can be missed due to inability to detect or differentiate an innocent murmur from a pathologic murmur.[43,44] Pulse oximetry can identify critical congenital heart defects that warrant immediate medical and surgical intervention.[43] Risk of hyperbilirubinemia should be determined, and a serum bilirubin should be obtained. The bilirubin value is plotted on the hour-specific nomogram to identify neonates at risk for severe hyperbilirubinemia who require close follow-up.[45]

Hearing screenings are generally provided by an audiologist as many primary care providers do not have the equipment for newborn screening. It is recommended that the hearing screening be completed by 1 month of age.[12]

Initiation of the hepatitis B vaccine series is recommended to prevent hepatitis B infection. It is recommended that the first dose be administered at birth to medically stable infants with birth weights greater than or equal to 2,000 g. Neonates less than 2,000 g may receive the first dose at 1 month of age by the primary healthcare provider.[39]

When women are provided with information regarding these evidence-based practices for neonatal care, they can make informed decisions regarding their selection of a birth attendant and secure the necessary medications (for example, 0.5% erythromycin ophthalmic ointment and vitamin K_1 oxide) if desired.[46] Some birth attendants may not support use of these medications or may not have them available unless requested. Additionally, understanding the benefits of the newborn visit within 24 hours of birth with a provider knowledgeable in pediatric care allows women who choose a planned home birth the opportunity to meet with the provider prior to delivery. This can help to establish a relationship and facilitates sharing of information.[47]

Summary

Over the past 15 years, there has been a steady resurgence of planned home births in the US.[2] There are benefits and risks associated with planned home births that may impact health outcomes for both the mother and baby. Women established within a primary healthcare practice may seek the trusted advice of the NP regarding a planned home birth and subsequent ongoing care after delivery for themselves and the neonate. NPs have the opportunity to provide reliable information to the mother to help ensure a safe delivery and optimize care for the neonate.

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