Wolters Kluwer

Planned home birth

Authors: Eugene Declercq, PhD, Naomi E Stotland, MD
Section Editor: Charles J Lockwood, MD, MHCM
Deputy Editor: Kristen Eckler, MD, FACOG

All topics are updated as new evidence becomes available and our peer review process is complete.
Literature review current through: Jul 2018. | **This topic last updated:** Apr 26, 2017.

INTRODUCTION — Planned home birth is a subject of ongoing controversy. The American College of Obstetricians and Gynecologists' (ACOG) Committee on Obstetric Practice states that hospitals and birthing centers are the safest setting for birth, but they respect the right of women to make medically informed decisions about their delivery site [1]. The American Academy of Pediatrics (AAP) has taken a similar position [2]. The American College of Nurse Midwives (ACNM) [3] and the American Public Health Association (APHA) [4] have policy statements supporting the practice of planned out-of-hospital birth in select populations of women. The World Health Organization (WHO) has released a statement indicating women can choose to deliver at home if they have low-risk pregnancies, receive the appropriate level of care, and formulate contingency plans for transfer to a properly-staffed/equipped delivery unit if problems arise [5]. In the Dutch system, pregnant women without medical complications are asked to choose where they want to give birth: at home or in a short-stay hospital setting. The home birth rate in the Netherlands is the highest in the developed world, although it has declined from 35 percent of all births in 1997 to 2000 to 16 percent of all births in 2013 [6].

This topic will discuss planned home birth. Delivery at birth centers and unplanned home birth are reviewed separately.

- (See "Birth centers".)
- (See "Precipitous birth not occurring on a labor and delivery unit".)

UNITED STATES NATALITY DATA

Prevalence of home birth — The prevalence of planned home birth varies by country. As an example, the prevalence of home birth in Sweden is 0.1 percent compared with over 20 percent in the Netherlands [7]. For the United States, 0.92 percent of births occurred at home in 2013 [8,9].

The United States National Center for Health Statistics reports birth data based on state vital statistics records, which are determined from the Standard Certificate of a Live Birth (ie, birth certificate). Prior to 1989, births were identified as either occurring in or out of a hospital (eg, home, car, doctor's office). Since 1989, a specific category for home births has been included on the Standard Certificate. Starting in 2003, some states changed their Standard Certificate to identify planned versus unplanned home births. In 2014, 47 states and the District of Columbia reported planning status of birth location, which accounted for 96 percent of all births and 98 percent of home births.

After a period of decline in home births from 1989 to 2003, the rate of home birth in the United States has

Twelve percent of the home births were unplanned in 2014, ranging from 1 percent (Wisconsin) to 49 percent (Alabama) among the 47 states and District of Columbia reporting these data. Only Connecticut, New Jersey, and Rhode Island were not yet reporting the new data. From 1989 to 2003, the overall rate of home births in the United States declined from 0.69 to 0.57 percent of births, or by an average of 0.01 percent annually. The 2014 figures represent a substantial increase in both absolute numbers and rate, reaching 0.96 percent of all births, the highest United States home birth rate since the variable was added to the birth certificate in 1989. Almost all of the increase was attributed to births among non-Hispanic white women.

This rate is comparable to that in other industrialized countries with two exceptions: England has experienced a slight rise in its home birth rate from 1.0 percent in 1989 to 2.3 percent in 2013 [11], while the Netherlands had a rate of home birth of approximately 16 percent in 2013 [12].

In the United States in 2014, seven states had home birth rates of more than 2 percent for that year, including: Vermont (2.5 percent), Utah (2.3 percent), Montana (2.2 percent), and Idaho (2.1 percent). These states are predominantly rural; however, some non-rural states also have relatively high rates of home birth: Oregon (2.5 percent), Washington (2.3 percent), and Wisconsin (2.0 percent). In Wisconsin, the home births were disproportionately located in rural counties. In Pennsylvania, the high rate of home birth was due, at least in part, to a large Amish population, which has traditionally relied on home birth. Lancaster County, for example, had the highest home birth rate of any county in the United States: 13.0 percent.

Birth attendant — In the United States, the majority of home births are assisted by individuals other than clinicians and certified nurse midwives (CNMs) (the two dominant birth attendants for hospital births) (table 1). In a retrospective review of nearly 62,000 United States home births between 2006 and 2009, the authors combined the "other midwife" and "other" birth attendant categories on the birth certificate (see 'Provider' below) and reported someone other than a nurse midwife performed 70 percent of the home deliveries and CNMs performed 30 percent [13]. Refer to the table (table 1) for the 2014 distribution of planned home birth providers.

In 2014, 50 percent of planned home birth that occurred at home were attended by "other midwives," typically certified professional midwives [10]. The qualifications of the different types of midwives are described below. (See 'Provider' below.)

In 2014, 22 percent of planned home births had "other" attendants, a residual category for attendants (eg, fathers) who are neither clinicians nor any type of midwife [9]. In some cases, fathers may sign the birth certificate to protect other birth attendants (eg, direct entry midwives or CNMs) in states with legal restrictions on planned home birth or type of provider for home birth. In other cases, the woman has planned an unassisted birth [14] or has had an unplanned home birth.

The type of birth attendant in planned home births varies somewhat by race/ethnicity (table 1) with other midwives, CNMs, and "other" ranking first, second, and third, respectively, among all groups. Black non-Hispanic mothers were usually attended by either "other midwives" (41 percent) or a CNM (31 percent), while white non-Hispanic mothers were primarily attended by other midwives (50 percent) or CNMs (28 percent). Hispanic mothers also relied on other midwives (56 percent) or CNMs (36 percent). Clinician attendance at home births is more common among unplanned home births, with 22 percent of unplanned home births attended by a physician and another 64 percent attended by "other." When clinicians were recorded as home birth attendants, 78 percent of these home births were unplanned [9].

childbirth, and they have a belief in their bodies' inherent ability to give birth without interference [15,16].

Demographics — The table shows demographic data of mothers who gave birth at home (planned and unplanned) in the United States in 2013 (table 2) [9]. Approximately one out of every 105 births in the United States overall was a home birth, while for non-Hispanic white women, approximately one out of every 69 births was a home birth. Women who chose home birth were more likely to be white non-Hispanic, older, multiparous, native born, living in a nonmetropolitan county, college graduates, and nonsmokers. They were much more likely to report not having had prenatal care than women who delivered in a hospital. The revised birth certificate provides an opportunity to explore some additional characteristics of mothers in the 41 reporting states. Mothers having out-of-hospital births had lower rates of pre-pregnancy obesity (12.5 versus 25 percent), lower rates of smoking (2.8 versus 8.5 percent), and higher rates of college graduates (39.3 versus 30.0 percent) compared with women planning in-hospital birth [17]. Mothers in home births were also much more likely to report having paid for the birth out-of-pocket (67 percent) compared with mothers giving birth in a hospital (3 percent).

Reasons for choosing home birth — Studies have identified many different reasons women choose to give birth at home, including [16,18-23]:

- A desire for a low-intervention birth, in particular the avoidance of oxytocin, epidural analgesia, pharmacologic pain relief, episiotomy, instrumental vaginal delivery, and cesarean birth
- Cultural or religious concerns (eg, the Amish, religions that proscribe male birth attendants)
- A concern about iatrogenic complications of hospital birth; fear of and dissatisfaction with hospital care
- A desire for freedom and control in the birth process
- A desire to give birth in a comfortable, familiar environment surrounded by family and friends
- Lack of access to transportation (rural areas)
- Economic concerns

OUTCOMES OF HOME BIRTH — Multiple studies have reported the maternal and neonatal outcomes of home birth [24-39]. Generally these studies have found that, compared to planned hospital birth, planned home birth is associated with reduced rates of cesarean birth and medical interventions, and similar rates of maternal and perinatal morbidity and mortality. However, there are significant limitations to the quality of population data available for systematic analysis and, in some cases, on the methodological quality of the studies themselves [40].

Limitations of available data — The use of birth certificate data to assess outcomes of home birth limits interpretation of findings because birth certificates prior to 2003 did not distinguish between planned and unplanned home births or cases where a home birth resulted in a transfer to a hospital. These omissions created biases in opposite directions. The failure to identify planned home births meant a portion of the home births were the result of emergencies, perhaps involving precipitous labor, which might result in a poorer than average outcome when occurring in a setting unprepared for a delivery. Such cases are not uncommon. As noted above, 2014 birth certificate data from 47 states in the United States revealed that 12 percent of recorded home births were unplanned. In contrast, not accounting for hospital transfers meant those planned home births with potentially the worst outcomes were counted as hospital births.

Several reviews have attempted to summarize studies on the perinatal and maternal outcomes associated with home births. Such studies are very difficult to compare because of the lack of data on planning status and/or transfers to hospitals, use of different outcome measures (eg, neonatal or perinatal death rates), alternative approaches to classification of deaths associated with congenital anomalies, and lack of a similar population of appropriately screened hospital births to use as controls. Confounders that affect comparisons of reported outcomes include differences in: the medical/obstetrical risk status of the parturients, parity (nulliparous versus parous), competence of birth attendants, and birth practices [15]. As an example, a study from Southern Australia found that home birth was associated with a significantly higher rate of intrapartum death from asphyxia than hospital birth [36]. Review of the perinatal deaths in the planned home birth group identified inappropriate inclusion of women with risk factors for home birth and inadequate fetal surveillance during labor, which highlights the importance of assessing patient and provider factors in home birth outcome.

Variation in home birth support systems — Many countries have approaches to maternity care very different from that in the United States, and some have much more integrated support systems for women/infants who must be transferred from the home setting to the hospital. As an example, home birth has always been integrated into the maternity system in the Netherlands [7]. Guidelines exist for both routine maternal transfer and obstetric emergencies. (See 'Organization' below.)

Meta-analysis — A meta-analysis of 12 English-language peer reviewed publications from developed Western nations evaluated maternal and newborn outcomes associated with planned home or planned hospital birth [41]. The challenges in systematically studying home birth outcomes are illustrated by this analysis. It was dominated by a retrospective population-based cohort study from the Netherlands with more than one half million women [28], but also included a failed attempt at a randomized trial that involved only 11 women [42] and several prospective studies ranging in size from 200 to more than 1000 women. Only two studies from the United States met the inclusion criteria: one involved data from 1976 to 1982 [43] and the other relied on birth certificate data that could only infer planning status [24]. The largest United States study that had been performed at the time of the meta-analysis [30] was excluded because it did not include a linked comparison group of low-risk hospital births. Subsequent analyses have raised further methodological questions concerning this meta-analysis [44].

In this meta-analysis, planned home birth was associated with significant reductions in intrapartum interventions (epidural anesthesia, electronic fetal heart rate monitoring, episiotomy, operative vaginal delivery, cesarean deliver); odds ratios ranged from 0.1 to 0.42. Planned home birth was also associated with significant reductions in maternal morbidity (3rd degree laceration, infection, postpartum bleeding, perineal laceration, vaginal laceration, retained placenta); odds ratios ranged from 0.27 to 0.85. There were no maternal deaths.

Perinatal mortality, which encompasses both fetal deaths and early (up to seven days) neonatal deaths, was similar for both planned home births and planned hospital births. The meta-analysis authors chose to exclude the Dutch study from their analysis of neonatal death because this study only examined early neonatal death, rather than the 28-day standard they chose for the meta-analysis. The Dutch study found no difference between groups in deaths up to seven days; however, when these data were excluded, neonatal death up to 28 days was significantly higher in the planned home birth group: all neonatal deaths OR 1.98 (95% CI 1.19-3.28) and nonanomalous neonatal deaths OR 2.87 (95% CI 1.32-6.25).

The authors could not determine the reason for the two- to three-fold higher 28 day neonatal death rate in planned home births. They hypothesized that it might be due to less maternal intervention and/or a higher

home births from the Dutch study were included in the meta-analysis, it is likely the findings would be notably impacted [38,45].

The National Institute for Health Care Excellence in the United Kingdom (UK) issued guidelines concerning intrapartum care in December 2014 (updated April 2015), which included the following recommendation concerning place of birth, "Explain to both multiparous and nulliparous women that they may choose any birth setting (home, freestanding midwifery unit, alongside midwifery unit or obstetric unit), and support them in their choice of setting wherever they choose to give birth" [46]. They based their recommendation on an extensive review of existing research. Because the focus was on the UK system, which provides support for home birth, it is not clear how applicable the recommendations would be in the United States [47,48].

Prospective studies — The following findings illustrate data from large prospective studies.

- The largest contemporary prospective study of home births in the United States involved 16,924 women who utilized a midwife as their primary caregiver and planned to deliver at home [49]. The results are not population based since they rely on a voluntary reporting system in which 432 midwives (primarily certified professional midwives [CPMs]) contributed data from 2004 to 2009 to a database including almost 200 variables. Women who became higher risk intrapartum were transferred to the hospital. Major findings were:

    - Rates of medical intervention for home births were consistently low for this low-risk group of mothers: episiotomy rate 1.4 percent, assisted vaginal birth 1.2 percent, and cesarean delivery rate 5.2 percent (based on the cases transferred to the hospital). The authors did not try to match planned home birth patients to planned hospital birth patients since both groups are self-selected. In particular, their home birth population tended to be healthy, multiparous (78 percent), of above average education and income, and averse to intervention.

    - About 11 percent of patients were transferred to a hospital intrapartum and an additional 1.5 percent were transferred postpartum. Primiparous mothers were more likely than multiparous mothers to experience an intrapartum transfer (23 versus 8 percent).

    - One maternal death occurred three days after the birth of a healthy infant and was attributed to the pregnancy. An autopsy revealed a blood clot in the mother's heart.

    - The rate of intrapartum fetal death was 1.3 per 1000 births, the rate of early neonatal mortality (after exclusion of life-threatening congenital anomalies) was 0.41 per 1000 live births less than 7 days of age, and the rate of late neonatal death was 0.35 per 1000 live births at 7 to 27 days of age. The risk for poor neonatal outcome was higher in births to primiparous mothers compared with multiparous mothers, in breech births compared with vertex presentations, and in births to women with a prior cesarean delivery.

A 2015 prospective cohort study compared nearly 11,500 women who planned home birth at the onset of labor with a midwife to a matched cohort of women with low-risk pregnancies who had planned hospital births attended by midwives [39]. Their primary outcome was stillbirth, neonatal death (<28 days), or serious morbidity (Apgar score <4 at 5 minutes or resuscitation with positive pressure ventilation and cardiac compressions). The births studied occurred between March 31, 2006 and April 1, 2009. Results were stratified by parity. Specific findings included:

- Lower rates of labor augmentation, pharmaceutical pain relief, third- and fourth-degree perineal

- No statistically significant differences were reported for composite measures (perinatal/neonatal morbidity or death; stillbirth, neonatal death) or individual measures (Apgar score <4 at 5 minutes; positive pressure ventilation and cardiac compressions). The absolute rates of poor outcomes in this low-risk population were low and differences were small (eg, primary composite outcome – 0.4 percent planned home birth and 0.4 percent for planned hospital birth).
- One strength of the study is that the same group of midwives attended the home births and the hospital births. Their education and practice included home birth, and they were required by their regulatory college to maintain competence in providing care in the home setting. Thus, any differences that might be seen in newborn outcomes would be unlikely to be related to differences in skills or management of providers.

An older prospective cohort study of home births from British Columbia, Canada also reported maternal and neonatal outcomes in planned home births were similar to, or lower than, rates in planned hospital births [32]. Strengths of this study were that the same midwives performed both in hospital and home births, the planned hospital birth group was limited to women who met eligibility criteria for planned home birth, and high ascertainment of outcome data. Specific findings were:

- The rates of perinatal death for the planned home birth and planned hospital birth were 0.35 and 0.57 per 1000 births, respectively (perinatal death defined as stillbirth after 20 weeks of gestation or death in the first seven days of life).
- Women in the planned home birth group were significantly less likely than women in the planned midwife-attended hospital birth group to have obstetric interventions or adverse maternal outcomes (third- or fourth-degree perineal tear, postpartum hemorrhage).
- Newborns in the home birth group were significantly less likely than those in the midwife attended hospital birth group to require resuscitation at birth or oxygen therapy beyond 24 hours and they were less likely to have meconium aspiration.

The largest prospective study, "Birthplace in England," compared the outcomes of low-risk mothers planning to deliver at an alternative birth site (home, freestanding midwifery units, midwifery run units within hospitals) to those of a comparable population planning to deliver in obstetrical units throughout England [50-52]. The final sample consisted of 64,538 women with singleton, term births from 2008 to 2010. The primary composite outcome consisted of stillbirth after the start of labor, early neonatal death, neonatal encephalopathy, meconium aspiration syndrome, brachial plexus injury, and fractured humerus or clavicle. Mortality alone was too rare for useful statistical analysis. Major findings were:

- There were only 250 primary adverse outcome events, giving an overall weighted incidence of 4.3 per 1000 births in this low-risk population.
- Overall, the odds (adjusted) of the composite outcome were similar for the three alternative birth settings and the obstetrical units.
- When analyzed by parity, first time mothers planning to deliver at an alternative birth setting were significantly more likely to experience transfer to hospital than multiparous mothers (44 versus 9.2 percent).
- First time mothers planning to deliver in an alternative birth setting had a significantly higher

- The rates of cesarean delivery, augmentation of labor, and epidural anesthesia were significantly lower in planned alternative setting births than in births planned for obstetrical units: intrapartum cesarean delivery (2.8 percent versus 11.1 percent); augmentation (5.4 versus 23.5 percent); epidural anesthesia (8.3 percent versus 30.7 percent).
- For low-risk pregnancies, planned home birth was more cost-effective than other birth settings.

A 2010 analysis of two years of aggregated data from the catchment area of a single large medical center in the Netherlands found that infants of low-risk pregnant women whose labor started under the supervision of a midwife had a higher risk of delivery-related perinatal death and the same risk of admission to the neonatal intensive care unit compared with infants of high-risk pregnant women whose labor started under the supervision of an obstetrician at the medical center (perinatal death: 1.4 versus 0.6 per 1000 term non-anomalous births) [53]. Although interpretation of these data is limited by inability to adjust for confounders and the findings conflict with other Dutch studies, most notably the two national studies by de Jonge [28,45], it suggests the possibility that the Dutch system of risk selection in relation to perinatal death at term may not be as effective as previously believed.

Retrospective studies — Retrospective studies from Europe and Canada comparing the outcomes of women who planned home birth to matched women who planned hospital births have generally reported that maternal, fetal, and neonatal morbidity and mortality rates for the planned home birth group were as low as, or lower than, those in the hospital group [25,27,28,33-35,37,54,55]. In contrast, studies from United States and Australia birth registry data have reported increased infant morbidity and mortality among infants delivered by planned home birth [13,24,56-62]. As an example, in a 2017 retrospective cohort study of nearly 13 million singleton, normal weight, non-anomalous, term (>37 weeks) births in the United States, the overall risk of neonatal death was significantly higher for planned home births compared with in-hospital births performed by either physicians or midwives (risk of neonatal death per 1000 deliveries 1.21, 0.51, and 0.31, respectively) [61]. These rates are comparable with previously reported United States data [24,57,60].

Limitations that can be found in many of the studies include incomplete ascertainment of provider qualifications (eg, certified professional versus lay midwife), antepartum versus intrapartum death, differing definitions of planning status, and tracking of planned home births delivered in hospital after intrapartum transfer and some important neonatal outcomes (eg, neurodevelopmental dysfunction). They do suggest varying risks associated with home birth provider [63], but are limited by birth certificate data on identifying the training level of the "other midwife" category and the content of the "other" category. An analysis by Danish economists of data from the Netherlands used distance from hospitals to infer the impact of place of birth on outcomes and suggested that, in the Dutch context, there was greater risk in home births for women from lower income districts, but no difference in risk for women from wealthier districts [64].

In a United States study that analyzed birth outcomes by planned birth location rather than actual delivery site, approximately 16 percent of women planning out-of-hospital births (combined home birth and freestanding birth center) required hospital transfer and their infants had higher rates of perinatal death, neonatal seizures, and neonatal ventilator support compared with infants born of planned in-hospital births [38]. Mothers who planned out-of-hospital births had fewer obstetric interventions (eg, induction, augmentation, operative vaginal delivery, cesarean delivery) and a higher rate of blood transfusion. This study used revised birth certificate data to examine outcomes of out-of-hospital births, both home and

601 women (0.8 percent) with planned out-of-hospital births but who delivered in the hospital after intrapartum transfer. They were compared with 75,923 full-term planned hospital births. Major findings were:

- Mothers in home births were generally older, of higher parity, more likely to self-pay for the delivery, have longer gestations, and fewer pregnancy complications (eg, gestational diabetes rates were 7.1 versus 1.7 percent in planned hospital compared with planned out-of-hospital deliveries).
- Sixteen-and-a-half percent of the planned out-of-hospital births involved a transfer to hospital, and mothers involved in transfers were more likely to be nulliparous (67 percent) than either the completed out-of-hospital (35 percent) or the hospital (41 percent) groups.
- Mothers were unlikely to experience severe adverse events in either case.
- Including transfers in the planned out-of-hospital category and adjusting for a number of covariates, the odds of perinatal death in out-of-hospital births were 2.43 (95% CI 1.37-4.30) with hospital births as a reference. The absolute difference in risk between the groups on perinatal death was very small (0.158 percent), meaning a difference of about 1 in 632 births. The difference in risk for neonatal death was less than 1 in 1000 (0.077 percent).
- Mothers in out-of-hospital births, even after adjustment, were far less likely to experience interventions such as induction (eg, adjusted odds ratio 0.11; 95% CI 0.09-0.12) or cesarean section.

MANAGEMENT — Home birth can be a viable option for carefully screened low-risk mothers with good labor support and a back-up plan to facilitate transfer, if needed. While other countries have developed such integrated plans for care, few such examples exist in the United States.

Counseling — While home birth providers/midwives typically provide prenatal care to their patients, they may not have access to the full range of medical tests and procedures, such as ultrasound, so collaboration between hospital and home birth providers may be necessary to provide comprehensive care. For this reason, and also because women may be undecided about their preferred place of birth at the start of their pregnancy, hospital-based obstetric providers may see patients who are planning, or considering, a home birth.

Low-risk women considering planned home birth in the United States should be informed of its risks and benefits based on United States studies [38,41]. In the United States, an ACOG Committee Opinion notes that, while home birth is associated with fewer maternal interventions compared with planned hospital birth, planned home birth is also associated with a higher rate of low Apgar scores and an increased risk of perinatal death, although the absolute risk is very low [1,38,41]. The provider's ethical obligations regarding discussing home birth with patients have been the subject of commentaries [48,65,66]. If a provider does not agree with a woman's plan to have a home birth, according to the principle of harm reduction, providers should offer continued care of this patient and the provision of ongoing prenatal care and diagnostic tests, as needed, or the provider should refer the patient to another provider who is more accepting of her plan [2].

Suggested discussion points for counseling a woman who is considering a home birth include:

- What are your reasons for thinking about a home birth?
- Are there specific aspects of hospital birth that concern you, and are there ways we can reduce those

- What is the home birth provider's back-up hospital, and are there plans for what to do if complications arise during prenatal care, labor, birth, or postpartum?

Provider — In the United States (US), access to quality out-of-hospital birth services varies greatly by geographic locale. Most home births are attended by midwives, although a few clinicians are also willing to attend home births. A survey of obstetricians in three US states found little experience with or support for planned home birth among the 488 respondents [67]. There are three different categories of midwife, which vary by the amount of training, oversight and credentialing they receive:

- Direct-entry midwife (DEM): A health care professional who may or may not have a college degree or certification. Direct-entry midwives train through some combination of apprenticeship, workshops, and formal instruction. DEMs usually practice in homes or freestanding birth centers. The legal status of DEMs varies from state to state.

- Certified nurse-midwife (CNM): Per the American College of Nurse-Midwives, a CNM is a nationally certified and state licensed advance practice nurse who has received a degree as a registered nurse (RN) followed by an additional master's or doctoral level degree [68]. CNMs are licensed, independent health care providers with prescriptive authority in all 50 states. CNM care encompasses a full range of primary health care services for women from adolescence to beyond menopause. These services include primary care, gynecologic and family planning services, preconception care, care during pregnancy, childbirth and the postpartum period, care of the normal newborn during the first 28 days of life, and treatment of male partners for sexually transmitted infections.

- Certified professional midwife (CPM): A health care professional certified by the North American Registry of Midwives after passing written exams, as well as hands-on skill evaluations. Both direct-entry midwives and certified nurse-midwives can apply for this certification. CPMs are required to have out-of-hospital birth experience, and usually practice in homes and birth centers. Their legal status varies according to state with 31 states recognizing them in some form (licensure, certification, registration) as of March 2017.

There is no consensus on what constitutes the optimal qualifications for a home birth attendant in the United States. Women may find assistance in seeking a qualified provider by contacting one of the following organizations:

- American College of Nurse-Midwives: www.midwife.org
- Midwives Alliance of North America: www.mana.org
- North American Registry of Midwives: www.narm.org
- Childbirth Connection: www.childbirthconnection.org
- DONA International: www.dona.org

Patient selection — There is considerable controversy over the specific patient characteristics and risks that might compromise the safety of out-of-hospital birth. Many countries have established such lists based on expert panel recommendations as well as local and international outcomes data (table 3) [69,70]. As an example, Canadian guidelines include women with one prior low transverse cesarean delivery as candidates for planned home birth, but these guidelines are based on data from Canada's system and may not be applicable to other countries [32].

presentation, 2.5 for nulliparous births, and 1.7 for births with a gestational age > 41 weeks [61]. When characteristics were combined, the births at greatest risk for neonatal death in the planned home birth setting were those in nulliparous mothers age 35 years or greater (5.2 per 1000 births) and nulliparous mothers with a gestational age ≥41 weeks (4.0 per 1000). When compared with a similar low risk population cared for by midwives in a hospital setting, the risk of neonatal death in a planned home birth was 8.3 times higher for women with a prior cesarean delivery, 8.1 times higher for women with breech presentations, and 6 times higher for nulliparous mothers. Based on the similar risk levels, women with nulliparous and late-term (≥41 weeks) pregnancies should be informed that while the absolute risk of neonatal death is low, the relative risk of a neonatal death in a planned home birth is 5 to 6 times greater than in a hospital birth attended by a midwife.

Thus, women who are nulliparous or who reach a gestational age of 41 weeks or greater should be counseled antenatally about the increased risks of neonatal mortality in the out-of-hospital birth setting, and this counseling should be documented in the prenatal record. Clinicians managing labor in the out-of-hospital setting are advised to be extra vigilant and opt for earlier hospital transfer in concerning cases, such as in the setting of meconium-stained amniotic fluid.

While determining the appropriate birth setting ultimately falls upon the woman and her birth provider, women who may be good candidates for an out-of-hospital birth include the following (this should not be considered a complete list):

- A woman who has chosen home birth on the basis of informed consent
- Singleton, cephalic fetus at term
- Absence of preexisting serious medical conditions (eg, cardiac, renal disease, coagulopathy, diabetes mellitus managed with insulin)
- Prior vaginal birth
- Absence of serious obstetrical conditions (eg, preeclampsia, antepartum bleeding)
- No prior cesarean deliveries
- Absence of contraindications to vaginal birth (eg, placenta previa, active genital herpes)
- Spontaneous labor

Group B streptococcus and home birth — Group B streptococcus (GBS) screening and intrapartum antibiotic prophylaxis for women planning home birth is controversial. Based on their training, certification, and local regulations, some home birth providers are able to administer intravenous antibiotics when indicated according to the Centers for Disease Control and Prevention (CDC) guidelines for GBS-positive women. When intrapartum intravenous antibiotic prophylaxis is not technically possible, home birth providers have proposed a variety of alternatives; however, the effectiveness of these approaches is unproven [71,72]. (See "Neonatal group B streptococcal disease: Prevention".)

Organization — The Dutch system is probably the best model of planned home birth for an industrialized country, given the large number of successful home births in the Netherlands. While rates have fallen in recent years [6], the continued high rate of home births in the Netherlands (16 percent) is unique among industrialized countries and is a legacy of a strong reliance on independent direct entry midwives, a widespread view among families that birth is a natural process, a generalized questioning of the use of

- A highly organized system of midwifery care. Dutch midwives are trained in a four-year program that prepares them to practice in the hospital or in the home and to recognize and manage some pregnancy complications. Early pregnancy care is primarily delivered by independently practicing midwives. If complications occur or threaten to occur, the midwife refers the woman to an obstetrician at the secondary or tertiary care level. At that point, the woman is no longer eligible for home birth.

- Formal agreements for collaboration between professional groups that have been specified in the Verloskundig Vademecum (Obstetric Manual), which also includes a list of obstetric indications for referral from primary to secondary care, based on best evidence or consensus. This provides a clear distinction between women at low risk and those at high risk of problems during pregnancy, labor, and delivery.

- A timely transfer system where the average distance to the hospital is relatively short. In Amsterdam, 85 percent of urgent obstetric referrals arrived in the hospital within half an hour. In addition, the midwife is able to provide some interventions herself in the woman's home, such as the administration of an intravenous infusion and provision of basic life support.

- Lack of intervention, eg, pharmacologic methods of pain relief are not offered to women laboring at home.

Periodic measurement of temperature, pulse, blood pressure, and fetal heart rate is part of the ongoing assessment of labor, not interventions, and should be performed [5]. A clean delivery kit should be available. Instruments that come into contact with mucous membranes or non-intact skin, or penetrate the skin or mucous membranes, should be sterile.

Newborn care — Standards for newborn care in the home birth setting should be consistent with state and federal regulations and consistent with standards for infants born in a medical care facility [2]. For example, administration of vitamin K and eye prophylaxis and newborn screening should be explained and offered, but parents have a right to sign a waiver. In the United States, the American Academy of Pediatrics (AAP) recommends that the delivery be attended by at least two individuals, one who has primary responsibility for the mother and one who has primary responsibility for the infant. (See "Overview of the routine management of the healthy newborn infant".)

Hospital transfer — The rate of hospital transfer varies from 7 to 33 percent and depends on the parity of the woman and birth country [27,38,49,50,74]. As discussed above, the largest prospective study of United States home births reported that approximately 11 percent of intrapartum cases required transfer [49] while a subsequent study reported a 16.5 percent transfer rate [38]. In a Nordic study of over 3000 women planning home birth, nearly one-third of the nulliparous women were transferred to the hospital (24 percent during labor, 9 percent after the birth) [74]. In contrast, 8 percent of multiparous women were transferred (5 percent during labor and 3 percent after the birth). Of all transfers, only 3.8 percent were considered potentially urgent.

Ideally, the back-up hospital should provide 24-hour maternity care and should be within 15 minutes of the home, but this may not be possible, especially in some geographic areas where home birth is more common precisely because of the lack of nearby hospitals. In such settings, home birth providers should have a lower threshold for transferring patients to the hospital and must consider the transfer time when caring for patients in labor. Women delivering in homes that are remote from a hospital should be informed by their home birth provider during prenatal care that in the case of an unforeseen catastrophic complication (eg, abruption, cord prolapse), they may not be able to transfer to the hospital in time to

the transfer process. Home birth providers and their clients sometimes report that they are treated "punitively" or disrespectfully by hospital staff when a transfer occurs [18,75]. This perception may lead to a delay in a needed transfer, thereby increasing the risks of morbidity to mother and baby. Perceived antagonism from hospital staff may also lead to the patient's refusal and resultant delay of recommended medical interventions [75,76].

Hospital staff should be aware that most home birth providers keep detailed antenatal and intrapartum records and such information may be crucial for patient care after hospital transfer. Good communication between home birth providers and hospital staff will allow conveyance of this information and a smoother transition for the patient.

Providers should also be aware that women transferred to the hospital after an attempted home birth may be very disappointed and/or fearful of hospital transfer; putting such patients at ease may facilitate patient care. The use of the expression "failed home birth" is discouraged, as it is unnecessarily negative, as opposed to a neutral expression such as "home birth transfer."

SOCIETY GUIDELINE LINKS — Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Labor".)

SUMMARY AND RECOMMENDATIONS

- Planned home birth is uncommon in the United States (0.97 percent of births). After remaining fairly stable over recent years, the rate is rising, suggesting ongoing interest in this approach to childbirth. The Netherlands have the highest rate of planned home birth (16 percent of births) among industrialized countries. (See 'Prevalence of home birth' above.)

- Women who opt for home birth in the United States are predominantly white non-Hispanic, older, and multiparous. Some common reasons for choosing home birth include a desire for a low-intervention birth with family and friends in a familiar environment, more control of the birth process, and dissatisfaction with hospital care. (See 'Women who choose home birth' above.)

- Large cohort studies using intent-to-treat analysis of midwife-attended, planned, out-of-hospital birth of low-risk women in developed countries have reported reduced rates of cesarean birth, perineal lacerations, and medical interventions, and similar rates of maternal morbidity and mortality compared with planned hospital birth. While most studies report similar morbidity and mortality for infants born at home compared with those born in hospitals, at least one study reports a higher rate of perinatal morbidity and mortality for infants delivered in hospitals after being transferred from a planned out-of-hospital birth compared with infants born of planned in-hospital births. (See 'Outcomes of home birth' above.)

- The following are suggested minimum criteria for planning a home birth:

  - Informed consent.

  - Singleton cephalic fetus at term.

  - Absence of preexisting serious medical or obstetrical conditions.

  - Absence of contraindications to vaginal birth.

  - The prenatal care, labor, birth, and postpartum care should be attended by a licensed obstetrical

- Good communication and mutual respect between home birth providers and hospital staff are essential for patient care and safety when a woman is transferred from home to hospital. (See 'Hospital transfer' above.)

REFERENCES

1. ACOG Committee on Obstetric Practice. ACOG Committee Opinion No. 669: planned home birth. Obstet Gynecol 2016.
2. American Academy of Pediatrics. Policy statement: Planned Home Birth. Pediatrics 2013; 131:1016.
3. American College of Nurse-Midwives Position Statement on Home Birth. Washington, DC: ACNM. D ecember, 2005.
4. APHA. Increasing access to out-of-hospital maternity care services through state-regulated and natio nally-certified direct-entry midwives. APHA Public Policy Statements, 1948 to present, cumulative W ashington, DC 2001.
5. Maternal and Newborn Health/Safe Motherhood Unit of the World Health Organization, Care in Norm al Birth: A practical guide. World Health Organization, 1996.
6. Brouwers HA, Bruinse W, Dijs-Elsinga J, et al. Netherlands Perinatal Registry. Perinatal Care in the Netherlands 2013. Utrecht: Netherlands Perinatal Registry, 2014.
7. Zielinski R, Ackerson K, Kane Low L. Planned home birth: benefits, risks, and opportunities. Int J Womens Health 2015; 7:361.
8. Martin JA, Hamilton BE, Osterman MJ, et al. Births: final data for 2013. Natl Vital Stat Rep 2015; 64:1.
9. National Center for Health Statistics. VitalStats website. Birth data 2013 state and county files. http:// www.cdc.gov/nchs/vitalstats.htm (Accessed on January 07, 2016).
10. Martin JA, Hamilton BE, Osterman MJK. Births in the United States, 2014. NCHS data brief, no 216. National Center for Health Statistics; Hyattsville, MD 2015.
11. Office for National Statistics. Births in England and Wales by Characteristics of Birth 2, 2013. http://w ww.ons.gov.uk/ons/dcp171778_384394.pdf (Accessed on July 25, 2015).
12. Stichting Perinatale Registratie Nederland. Perinatale Zorg in Nederland 2013. 2014. http://www.peri natreg.nl/uploads/150/153/PRN_jaarboek_2013_09122014.pdf (Accessed on August 05, 2015).
13. Grünebaum A, McCullough LB, Arabin B, et al. Neonatal Mortality of Planned Home Birth in the United States in Relation to Professional Certification of Birth Attendants. PLoS One 2016; 11:e0155721.
14. Vogel L. "Do it yourself" births prompt alarm. CMAJ 2011; 183:648.
15. Wax JR, Pinette MG, Cartin A. Home versus hospital birth--process and outcome. Obstet Gynecol Surv 2010; 65:132.
16. Boucher D, Bennett C, McFarlin B, Freeze R. Staying home to give birth: why women in the United States choose home birth. J Midwifery Womens Health 2009; 54:119.
17. MacDorman M, Declercq E. Trends and Characteristics of United States Out-of-Hospital Births

an, Dorling Kindersley, New York 1991.

20. Klee L. Home away from home: the alternative birth center. Soc Sci Med 1986; 23:9.
21. McClain CS. Perceived risk and choice of childbirth service. Soc Sci Med 1983; 17:1857.
22. Janssen PA, Henderson AD, Vedam S. The experience of planned home birth: views of the first 500 women. Birth 2009; 36:297.
23. Lindgren HE, Rådestad IJ, Christensson K, et al. Perceptions of risk and risk management among 735 women who opted for a home birth. Midwifery 2010; 26:163.
24. Pang JW, Heffelfinger JD, Huang GJ, et al. Outcomes of planned home births in Washington State: 1989-1996. Obstet Gynecol 2002; 100:253.
25. Lindgren HE, Rådestad IJ, Christensson K, Hildingsson IM. Outcome of planned home births compared to hospital births in Sweden between 1992 and 2004. A population-based register study. Acta Obstet Gynecol Scand 2008; 87:751.
26. Ackermann-Liebrich U, Voegeli T, Günter-Witt K, et al. Home versus hospital deliveries: follow up study of matched pairs for procedures and outcome. Zurich Study Team. BMJ 1996; 313:1313.
27. Janssen PA, Lee SK, Ryan EM, et al. Outcomes of planned home births versus planned hospital births after regulation of midwifery in British Columbia. CMAJ 2002; 166:315.
28. de Jonge A, van der Goes BY, Ravelli AC, et al. Perinatal mortality and morbidity in a nationwide cohort of 529,688 low-risk planned home and hospital births. BJOG 2009; 116:1177.
29. Woodcock HC, Read AW, Bower C, et al. A matched cohort study of planned home and hospital births in Western Australia 1981-1987. Midwifery 1994; 10:125.
30. Johnson KC, Daviss BA. Outcomes of planned home births with certified professional midwives: large prospective study in North America. BMJ 2005; 330:1416.
31. Wiegers TA, Keirse MJ, van der Zee J, Berghs GA. Outcome of planned home and planned hospital births in low risk pregnancies: prospective study in midwifery practices in The Netherlands. BMJ 1996; 313:1309.
32. Janssen PA, Saxell L, Page LA, et al. Outcomes of planned home birth with registered midwife versus planned hospital birth with midwife or physician. CMAJ 2009; 181:377.
33. Olsen O, Clausen JA. Planned hospital birth versus planned home birth. Cochrane Database Syst Rev 2012; :CD000352.
34. Mori R, Dougherty M, Whittle M. An estimation of intrapartum-related perinatal mortality rates for booked home births in England and Wales between 1994 and 2003. BJOG 2008; 115:554.
35. Amelink-Verburg MP, Verloove-Vanhorick SP, Hakkenberg RM, et al. Evaluation of 280,000 cases in Dutch midwifery practices: a descriptive study. BJOG 2008; 115:570.
36. Kennare RM, Keirse MJ, Tucker GR, Chan AC. Planned home and hospital births in South Australia, 1991-2006: differences in outcomes. Med J Aust 2010; 192:76.
37. Hutton EK, Reitsma AH, Kaufman K. Outcomes associated with planned home and planned hospital births in low-risk women attended by midwives in Ontario, Canada, 2003-2006: a retrospective cohort study. Birth 2009; 36:180.
38. Snowden JM, Tilden EL, Snyder J, et al. Planned Out-of-Hospital Birth and Birth Outcomes. N Engl J Med 2015; 373:2642.
39. Hutton EK, Cappelletti A, Reitsma AH, et al. Outcomes associated with planned place of birth among

41. Wax JR, Lucas FL, Lamont M, et al. Maternal and newborn outcomes in planned home birth vs planned hospital births: a metaanalysis. Am J Obstet Gynecol 2010; 203:243.e1.
42. Dowswell T, Thornton JG, Hewison J, et al. Should there be a trial of home versus hospital delivery in the United Kingdom? BMJ 1996; 312:753.
43. Koehler NU, Solomon DA, Murphy M. Outcomes of a rural Sonoma County home birth practice: 1976-1982. Birth 1984; 11:165.
44. Michael CA, Janssen PA, Vedam S, Hutton EK, de Jonge A. Planned Home vs Hospital Birth: A Meta-Analysis Gone Wrong. Medscape Ob/Gyn & Women's Health (online). http://www.medscape.com/viewarticle/739987. (Accessed on June 24, 2011).
45. de Jonge A, Geerts CC, van der Goes BY, et al. Perinatal mortality and morbidity up to 28 days after birth among 743 070 low-risk planned home and hospital births: a cohort study based on three merged national perinatal databases. BJOG 2015; 122:720.
46. National Institute for Health Care Excellence. Clinical guideline 190: Intrapartum care: care of healthy women and their babies during childbirth. 2014. http://www.nice.org.uk/guidance/cg190/resources/guidance-intrapartum-care-care-of-healthy-women-and-their-babies-during-childbirth-pdf (Accessed on August 05, 2015).
47. Shah N. A NICE delivery--the cross-Atlantic divide over treatment intensity in childbirth. N Engl J Med 2015; 372:2181.
48. Greene MF, Ecker JL. Choosing Benefits while Balancing Risks. N Engl J Med 2015; 373:2681.
49. Cheyney M, Bovbjerg M, Everson C, et al. Outcomes of care for 16,924 planned home births in the United States: the Midwives Alliance of North America Statistics Project, 2004 to 2009. J Midwifery Womens Health 2014; 59:17.
50. Birthplace in England Collaborative Group, Brocklehurst P, Hardy P, et al. Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study. BMJ 2011; 343:d7400.
51. https://www.npeu.ox.ac.uk/birthplace. (Accessed on December 15, 2011).
52. Schroeder E, Petrou S, Patel N, et al. Cost effectiveness of alternative planned places of birth in woman at low risk of complications: evidence from the Birthplace in England national prospective cohort study. BMJ 2012; 344:e2292.
53. Evers AC, Brouwers HA, Hukkelhoven CW, et al. Perinatal mortality and severe morbidity in low and high risk term pregnancies in the Netherlands: prospective cohort study. BMJ 2010; 341:c5639.
54. van der Kooy J, Poeran J, de Graaf JP, et al. Planned home compared with planned hospital births in the Netherlands: intrapartum and early neonatal death in low-risk pregnancies. Obstet Gynecol 2011; 118:1037.
55. de Jonge A, Mesman JA, Manniën J, et al. Severe adverse maternal outcomes among low risk women with planned home versus hospital births in the Netherlands: nationwide cohort study. BMJ 2013; 346:f3263.
56. Bastian H, Keirse MJ, Lancaster PA. Perinatal death associated with planned home birth in Australia: population based study. BMJ 1998; 317:384.
57. Malloy MH. Infant outcomes of certified nurse midwife attended home births: United States 2000 to 2004. J Perinatol 2010; 30:622.
58. Grünebaum A, McCullough LB, Sapra KJ, et al. Apgar score of 0 at 5 minutes and neonatal seizures

60. Grünebaum A, McCullough LB, Sapra KJ, et al. Early and total neonatal mortality in relation to birth setting in the United States, 2006-2009. Am J Obstet Gynecol 2014; 211:390.e1.
61. Grünebaum A, McCullough LB, Sapra KJ, et al. Planned home births: the need for additional contraindications. Am J Obstet Gynecol 2017; 216:401.e1.
62. Committee on Obstetric Practice. Committee Opinion No. 697: Planned Home Birth. Obstet Gynecol 2017; 129:e117.
63. Grünebaum A, McCullough LB, Brent RL, et al. Perinatal risks of planned home births in the United States. Am J Obstet Gynecol 2015; 212:350.e1.
64. Daysal NM, Trandafir M, van Ewijk R. Saving lives at birth: The impact of home births on infant outcomes. American Economic Journal: Applied Economics 2015; 7:28.
65. Ecker J, Minkoff H. Home birth: what are physicians' ethical obligations when patient choices may carry increased risk? Obstet Gynecol 2011; 117:1179.
66. Chervenak FA, McCullough LB, Brent RL, et al. Planned home birth: the professional responsibility response. Am J Obstet Gynecol 2013; 208:31.
67. Leone J, Mostow J, Hackney D, et al. Obstetrician Attitudes, Experience, and Knowledge of Planned Home Birth: An Exploratory Study. Birth 2016; 43:220.
68. American College of Nurse-Midwives http://www.midwife.org (Accessed on May 19, 2017).
69. Janssen PA, Lee SK, Ryan ER, Saxell L. An evaluation of process and protocols for planned home birth attended by regulated midwives in British Columbia. J Midwifery Womens Health 2003; 48:138.
70. Obstetric Handbook 2003: Commission final report non Obstetrics of the Health Care Insurance Board. Diemen, the Netherlands. 2003. http://lib.ugent.be/nl/catalog/rug01:000838946 (Accessed on April 03, 2017).
71. http://www.livestrong.com/article/534876-holistic-approach-to-strep-b-in-pregnancy/. (Accessed on November 19, 2012).
72. Bishara RM. GBS in a homebirth setting. Midwifery Today Int Midwife 2006; :32.
73. DeVries R. A Pleasing Birth: Midwives and Maternity Care in the Netherlands, Temple University Press, Philadelphia 2005.
74. Blix E, Kumle MH, Ingversen K, et al. Transfers to hospital in planned home birth in four Nordic countries - a prospective cohort study. Acta Obstet Gynecol Scand 2016; 95:420.
75. Davis-Floyd R. Home-birth emergencies in the US and Mexico: the trouble with transport. Soc Sci Med 2003; 56:1911.
76. Declercq ER. The trials of Hanna Porn: the campaign to abolish midwifery in Massachusetts. Am J Public Health 1994; 84:1022.

Topic 4454 Version 42.0

	Medical doctor or doctor of osteopathy (percent)	Certified nurse midwife (percent)	Other midwife (percent)	Other (percent)	Total (percent)	Number*
All	0.9	28.0	49.6	21.5	100	**28,367**
White, non-Hispanic	0.8	27.7	49.8	21.7	100	**25,752**
Black, non-Hispanic	1.9	31.0	41.1	26.0	100	**589**
Hispanic	2.0	29.7	56.3	11.0	100	**1430**
All other	1.7	30.4	49.8	18.1	100	**596**
Number*	**250**	**7929**	**14,184**	**6004**	–	**28,637**

* Excludes cases where either attendant or race/ethnicity is unspecified.

Source: National Center for Health Statistics. VitalStats website. Birth data 2014 state and county files. http://www.cdc.gov/nchs/VitalStats.htm (Accessed January 5, 2016).

Graphic 59460 Version 19.0

	(percent)	(percent)
White, non-Hispanic	90.8	53.9
Age 30+	54.3	42.7
Parity 3+	52.7	28.8
Foreign born	6.6	22.1
Gestation 37+ weeks	97.8	88.6
County <100,000 population	34.8	20.9
No reported prenatal care	2.7	1.5
Nonsmoker	99.1	91.5
16+ years of education	37.6	30.0
Prepregnancy body mass index 25+	11.6	25.0
Self-pay for birth	67.1	3.4

Source: National Center for Health Statistics. VitalStats website. Birth data 2014 state and county files. http://www.cdc.gov/nchs/VitalStats.htm (Accessed January 5, 2016).

Graphic 78648 Version 16.0

3. Cephalic presentation.
4. Gestation between ≥37 completed weeks and <42 completed weeks.
5. Absence of pre-existing serous medical conditions (eg, cardiac or renal disease, insulin-dependent diabetes).
6. Absence of proteinuric preeclampsia or eclampsia.
7. Absence of symptomatic placental abruption.
8. Absence of placenta previa at the onset of labor.
9. Absence of thick meconium.
10. Absence of active genital herpes.
11. Absence of any other conditions arising during labor that meet requirements for transfer of care to a clinician.

Janssen PA, Lee SK, Ryan ER, Saxell L. An evaluation of process and protocols for planned home birth attended by regulated midwives in British Columbia. J Midwifery Womens Health 2003; 48:138. http://onlinelibrary.wiley.com/wol1/doi/10.1016/S1526-9523(02)00418-X/abstract. Copyright © 2017 The American College of Nurse-Midwives. Reproduced with permission of John Wiley & Sons, Inc. This image has been provided by or is owned by Wiley. Further permission is needed before it can be downloaded to PowerPoint, printed, shared, or emailed. Please contact Wiley's Permissions Department either via email: permissions@wiley.com or use the RightsLink service by clicking on the Request Permission link accompanying this article on Wiley Online Library (www.onlinelibrary.wiley.com).

Graphic 112545 Version 1.0

Contributor disclosures are reviewed for conflicts of interest by the editorial group. When found, these are addressed by vetting through a multi-level review process, and through requirements for references to be provided to support the content. Appropriately referenced content is required of all authors and must conform to UpToDate standards of evidence.

Conflict of interest policy