

# Checklist for parents planning out-of-hospital births: An evidence-based application

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Out-of-hospital births (OHBs) have increased in the United States in recent years. However, available evidence to date shows that OHBs, when compared with in-hospital births, are associated with higher levels of neonatal morbidity and mortality. The authors of this article offer an evidence-based checklist to help maternity care providers and their patients understand these risks and determine whether an in-hospital birth might be a better choice for them.

**KEY WORDS:** out-of-hospital birth, freestanding birth center, home birth, prenatal care, midwifery, neonatal morbidity and mortality



**T**he rate of out-of-hospital births (OHBs) is increasing in the United States.<sup>1-6</sup>

Data indicate an increase of 72%, from 0.87% of U.S. births in 2004 to 1.50% in 2014.<sup>1</sup> OHBs are defined as those intended to occur at home or at a freestanding birth center. In modern times, a woman might choose to have an OHB, which is typically attended by a midwife, in order to have a more personalized birth experience, with less medicalization and fewer interventions. Indeed, OHB studies have shown consistently reduced rates of obstetric intervention (e.g., less frequent electronic fetal monitoring [EFM] or artificial rupture of membranes) in OHBs, with women exerting more control over their birth experiences.<sup>2,7,8</sup> Women cite other advantages of OHB, including increased affordability, greater access to vaginal birth after cesarean section (VBAC), and greater privacy afforded by the home. Midwives, the primary providers attending OHBs, are committed to women's right to choose a birth location and have a natural, intervention-free birth.<sup>9</sup>

All of these advantages notwithstanding, the safety of OHB must be considered in the context of provider skill level, available equipment, transfer accommodations, access to timely interventions, and an

integrated medical back-up team for maternal and fetal/newborn health. Healthcare providers (HCPs) caring for pregnant women are responsible for offering them the best evidence to make an informed decision about the site where they will give birth.

Healthcare providers' knowledge about the adequacy of birth site locations and the risk criteria for their patients is essential for ensuring optimal maternal and neonatal outcomes. The purpose of this article is to provide an evidence-based checklist for women/couples who are considering OHB, with the safety of mother and infant as paramount. The checklist can be used to facilitate discussion between HCPs and women/couples considering OHB.

## Organization policy statements

The American College of Nurse Midwives (ACNM), the American College of Obstetricians and Gynecologists (ACOG), and the American Academy of Pediatrics (AAP) have each issued policy statements regarding planned OHB.<sup>10-12</sup> The ACNM's policy statements support planned OHBs in selected low-risk women.<sup>10</sup> This stance differs from that of ACOG and the AAP,<sup>11,12</sup> resulting in substantial controversy concerning planned home births. ACOG and the AAP have stated that hospitals and accredited birth centers are the safest and the preferred settings for birth.<sup>11,12</sup> However, both organizations express respect for the right of women to make medically informed decisions about their birth site. The key words are *medically informed*, with high-quality information and maternal/fetal risk screening provided during all three trimesters in an objective, non-biased, and developmentally appropriate manner.

Balancing these organizations' recommendations with their pa-

tients' sincere desires for OHB, HCPs should follow the most current evidence and practice guidelines and communicate them to patients in a thoughtful, reality-based context. HCPs must be knowledgeable, frank, and open about maternal and perinatal outcome data to ensure informed decision making on the part of their patients. For example, HCPs need to be able to adequately counsel and screen patients considering OHB, not only during the initial prenatal visit, but also throughout pregnancy, labor, and delivery, and document such discussions. A natural birth setting with a hands-off approach must be balanced against the potential for increased fetal and neonatal risks (e.g., higher rates of intrapartum fetal death and neonatal mortality) in a U.S. maternity system that may not be well integrated for OHB.<sup>8,11,14</sup>

## Findings from recent retrospective analyses

Recent retrospective analyses of data from U.S. birth certificates obtained through the CDC-linked birth/infant mortality dataset<sup>15</sup> have illuminated the differences in neonatal mortality rates associated with birth setting, risk factors, and birth attendants.<sup>1,3,14-18</sup> The information represents approximately 4 million births in the country each year. In the analysis of 2006-2009 data, a significantly higher neonatal mortality risk was noted for midwife-attended OHBs versus midwife-attended hospital births.<sup>3</sup> This analysis included only singleton, vertex, and term births without congenital malformation. *Highest risks for neonatal mortality were for women who were  $\geq 41$  weeks' gestation and for primiparas.*<sup>14,18</sup>

The authors of the study identifying these two risk factors have suggested that they be added to current ACOG absolute contraindi-

### Box 1. Recommended absolute contraindications for out-of-hospital birth<sup>11,18</sup>

- ✓  $\geq 41$  weeks' gestation
- ✓ Primipara
- ✓ Malpresentation
- ✓ Multiple gestation
- ✓ History of cesarean delivery

cations for OHB: malpresentation, multiple gestation, and history of cesarean delivery (*Box 1*).<sup>11,18</sup> An analysis of 2004-2014 data suggested that the appropriate selection of low-risk women for OHB is improving. In other words, fewer high-risk females, including adolescents, older women, and those with multiple gestation, are choosing OHB. The percentage of first-time births in an OHB setting also has declined.<sup>1</sup> Of note, the VBAC rate remains higher among OHBs than among hospital births.<sup>1</sup> According to ACOG, because of the unpredictability of complications requiring emergency medical care, home birth is contraindicated for women undergoing TOLAC (trial of labor after cesarean delivery).<sup>19</sup>

## The checklist

The checklist for parents considering OHB (*Box 2*) was developed by the authors to facilitate discussion with patients regarding best practice for OHB. This comprehensive list of key points has been drawn from current data from U.S. studies (*Table A*) and from the ACNM's, ACOG's, and the AAP's recommendations regarding OHB policies essential for informed decision making. The checklist also includes a list of other sources of information about OHB.

The checklist can be introduced early in pregnancy for women/couples considering an OHB. HCPs

## Box 2. Checklist for women/couples considering out-of-hospital birth

Childbirth is the most profound, transformative experience you will have in your lifetime. Women/couples may consider an out-of-hospital birth (OHB; that is, one occurring at home or at a birth center) for a variety of reasons. You may prefer a familiar home setting, control over the labor experience, or fewer medical interventions, or you may prefer OHB for religious/cultural reasons. Regardless of the labor and birth setting you are considering, safety for you and your baby must remain the top priority. You need to understand the risks and benefits for all settings. Collaborative planning with a qualified care provider can help you tailor your labor and birth experience to meet your preferences while, at the same time, lead to optimal health outcomes for you and your baby.

You can use this checklist to ensure that you and your healthcare provider address key concerns when considering an OHB. This discussion should continue throughout your pregnancy because conditions and situations can change, sometimes quickly, possibly resulting in an increased risk to you or your baby if you were to proceed with an OHB. Resources for more information about OHB are provided.

- 1. Do a self-analysis.** Not all women are good candidates for OHB. If you have certain health conditions or a pregnancy with risk factors for complications, are pregnant with more than one fetus, have had a previous cesarean section (C-section), or are obese, an OHB may not be safe for you or your baby. In addition, if your baby is in a breech or transverse position, you start labor early, or you have gone a week or more past your due date, you will be at increased risk for a complicated labor and birth that can be more safely managed in a hospital setting.
- 2. Select a qualified obstetric care provider** who will screen you throughout your pregnancy for mother/baby risks and potential complications. The provider should follow guidelines for prenatal care from the American College of Obstetricians and Gynecologists.
- 3. Choose a provider who has an established relationship with a hospital** that provides 24/7 obstetric, anesthesia, and neonatal services.<sup>21,22</sup> When employing a midwife, choose one who has completed formal training in an accredited educational program and is certified by the American Midwifery Certification Board. The midwife should have the credentials of certified nurse-midwife (CNM) or certified midwife (CM).
- 4. Know the location of the placenta in the uterus prior to labor**, as determined by ultrasound. As you approach your due date, your provider should determine what part of the baby will be coming first (head or breech). Abnormal location of the placenta or breech or transverse position of the baby requires a hospital birth. In addition, ask your provider how your baby's heart rate will be monitored during labor and birth. Your provider should monitor the well-being of your baby by regularly checking the heart rate with a Doppler device. Electronic monitoring equipment is not available in a home setting, and birth centers may not have this type of equipment either.
- 5. If you are planning to use a birth center, make sure that the birth center is accredited** by the Commission on the Accreditation of Birth Centers. To maintain this accreditation, the center must meet specific safety standards and follow professional recommendations.
- 6. Make sure that an appropriately trained person whose primary responsibility is the care of your newborn will be in attendance.** This person should be skilled in neonatal resuscitation.
- 7. Make sure your provider has established a reliable emergency transport system** that can transfer you in a timely manner to a hospital that provides full obstetric and neonatal services in case they are needed. The provider should have a pre-existing arrangement for such transfers. The birth site should be less than 20 minutes from the hospital. Delays in accessing emergency services can increase risks to both mother and baby.
- 8. Create a birth plan that includes the possibility of a hospital transfer.** Recognize that a natural, low-tech birth may be ideal, but that labor and birth are highly individualized—and unpredictable. As you create your birth plan, keep in mind that a low-tech labor and birth can take place with a CNM in a hospital setting as well as in an OHB setting.

### Resources for more information about OHB

- [American Academy of Pediatrics Policy Statement on Planned Home Birth<sup>B</sup>](#)
- [American College of Nurse-Midwives Position Statement on Home Birth<sup>C</sup>](#)
- [American College of Obstetricians and Gynecologists Committee Opinion on Planned Home Birth<sup>D</sup>](#)
- [Childbirth Connection<sup>E</sup>](#)
- [Home Birth Summit: Best Practice Guidelines<sup>F</sup>](#)

**Table.** Literature review of U.S. out-of-hospital births, 2012-2017

Authors	Purpose/setting	Design/theory	Sampling/participants	Findings/conclusions
Cheng et al, 2013 <sup>8</sup>	To examine outcomes associated with planned home births versus hospital births	Retrospective cohort study	2,081,753 births, of which 12,039 were planned home births	More planned home births had 5-minute Apgar scores <4 and neonatal seizures. Planned home births were associated with increased neonatal complications but fewer obstetric interventions.
Cheyney et al, 2014 <sup>6</sup>	To examine outcomes of planned home births in U.S. between 2004 and 2009	Calculation of descriptive statistics for maternal demographics, antenatal risk profiles, procedures, and outcomes of planned home births	16,924 women who planned home births at the onset of labor	Data supplied by 432 midwives with difficulty delineating collaborative care. 89.1% delivered at home. Most transfers were for failure to progress. Low Apgar scores (<7) in 1.5% of newborns. Excluding lethal anomalies, the intrapartum, early neonatal, and late neonatal mortality rates were 1.30, 0.41, and 0.35 per 1,000, respectively.
Cox et al, 2015 <sup>5</sup>	To describe the maternal and neonatal outcomes for women who planned a VBAC at home with midwives during 2004–2009	Calculation of descriptive statistics	12,092 multiparous women without a prior cesarean, and 1,052 women with a prior cesarean	Women with a prior cesarean had a VBAC rate of 87%, with higher rates of transfer, and higher proportions of blood loss, maternal postpartum infections, uterine rupture, and NICU admissions compared with women without a prior cesarean.
Grunebaum et al, 2013 <sup>17</sup>	To examine occurrence of 5-minute Apgar scores of 0 and seizures or serious neurologic dysfunction based on birth setting and birth attendant	Population-based retrospective cohort study from birth certificate data. U.S. CDC National Center for Health Statistics	Birth certificate data files used for 2007–2010 for singleton term (>37 weeks' gestation) births. Each year consists of ~4 million U.S. births.	Home births and births in free-standing birth centers attended by midwives had a significantly higher risk of a 5-min Apgar score of 0 and neonatal seizures compared with hospital births attended by physicians or midwives.
Grunebaum et al, 2014 <sup>14</sup>	To examine neonatal mortality in relation to birth setting and birth attendants in U.S. from 2006 through 2009	Population-based retrospective cohort study. Analysis of data from U.S. CDC	Singleton, vertex, and term births without congenital malformations delivered by midwives and physicians in the hospital and midwives and others out of the hospital. Each year's data consisted of ~4 million U.S. births.	There was a significant increase in total and early neonatal mortality for home births, an increase that was even greater in those who were at ≥41 weeks' gestation or who were primiparas.

**Table (continued).** Literature review of U.S. out-of-hospital births, 2012-2017

Authors	Purpose/setting	Design/theory	Sampling/participants	Findings/conclusions
Grunebaum et al, 2015 <sup>16</sup>	To analyze the perinatal risks of midwife-attended planned home births in U.S. from 2010-2012 and compare them with deliveries performed in the hospital by certified nurse-midwives	Population-based retrospective cohort study from birth certificate data. Data from U.S. CDC National Center for Health Statistics	Birth certificate data files from 2010-2012 with planned home births attended by midwives (hospital deliveries attended by certified midwives served as the reference). Each year consists of ~4 million U.S. births.	Midwife-attended planned home births in U.S. had these risk factors: breech presentation, prior cesarean delivery, twins, and gestational age $\geq 41$ weeks. At least 30% of midwife-attended planned home births were not low risk and were not within clinical criteria set by ACOG and AAP, and 65% of planned home births in the U.S. were attended by non-AMCB certified midwives, even though AAP and ACOG state that only AMCB-certified midwives should attend home births.
Grunebaum et al, 2016 <sup>3</sup>	To determine whether the professional certification status of midwives or the home birth setting was more closely associated with the increased neonatal mortality of planned midwife-attended home births in the U.S.	Population-based retrospective cohort study from birth certificate data	Total neonatal deaths in term singleton births from 2006-2009 in U.S. without documented congenital malformations by certification status of the midwife. Each year consists of ~4 million U.S. births.	Neonatal mortality rates in hospital births attended by certified midwives were significantly lower than those in home births attended by certified and uncertified midwives. The difference in neonatal mortality between certified and uncertified midwives at home births did not reach statistical levels.
Grunebaum et al, 2017 <sup>18</sup>	To determine risk factors associated with neonatal mortality rates of planned home births	Population-based retrospective cohort study from birth certificate data	13 million singleton, non-anomalous, term, normal-weight births	Neonatal mortality rates per 1,000 live births of 12.7 for breech, 2.5 for nulliparous births, and 1.7 for gestation $>41$ weeks indicated greatest risk for neonatal death in planned home birth of those in nulliparous mothers $>35$ years, longer gestations, VBAC and breech
Lundeen, 2016 <sup>4</sup>	To describe the reasons for and outcomes of maternal transfers from private homes and freestanding birthing suites to a large academic hospital to better understand and meet the needs of transferring women and their families	Convenience sample with descriptive data	All adult women (n = 51) who planned to give birth out of hospital but were admitted to the labor and birth unit or emergency department at a single facility within a 5-year period	Four transfers were considered urgent. Only 25% of medical records documented that the referring provider accompanied the woman to the hospital during care transition. On average, one transfer per year included neonatal morbidity. Describes need for interconnectedness between hospitals and planned OHBs.



should first ask women/couples in a non-judgmental manner what they desire in an OHB and what they perceive as not desirable in a hospital birth. After all, hospital births with certified midwives can be *natural*, with little intervention. Misconceptions about hospital births can be corrected and the potential for meeting women's labor and birth goals within the hospital setting can be discussed.

Women/couples should be informed that U.S. studies indicate hospital births are safest, especially from the perspective of the fetus/newborn.<sup>2,14-20</sup> They also need to understand that OHBs have inherent risks, including a lack of specialized monitoring equipment (e.g. EFM), a lack of facilities and personnel for urgent/emergent intervention, and a lack of newborn resuscitation equipment. Such deficits may result in increased risks for neonatal morbidity (e.g., seizures, low Apgar scores, hypoxic ischemic encephalopathy) and mortality.<sup>14,16,17</sup> The checklist should be revisited throughout the pregnancy to ensure focus on any evolving risks or contraindications to OHB. The checklist can be incorporated with home and birth center consent forms.

## Conclusion

Women/couples clearly have the right to make medically informed

decisions about the birth site that seems best for them. However, HCPs are obliged to provide essential and timely information about the safety of the birth site options being considered. Discussion concerning how to achieve the birthing experience that women/couples desire in the safest possible setting is important. OHBs are not as well integrated into the overall U.S. maternity care system as they may be in other countries, magnifying the challenges related to time—time to transfer, hospital triage time, and time to implement interventions such as anesthesia and cesarean section—if an emergency for the neonate or the mother arises. To help women/couples make the best possible decision in this regard, education and frank communication, coupled with professional recommendations based on evidence-based research findings and risk assessment throughout the pregnancy, are key. The checklist for patients considering OHB serves as a springboard to start the patient-HCP dialogue to optimize fetal/newborn and maternal outcomes. ●

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#### Web resources

- A. <https://npwomenshealthcare.com/?p=6521>
- B. <http://pediatrics.aappublications.org/content/pediatrics/early/2013/04/24/peds.2013-0575.full.pdf>
- C. <http://riverandmountain.net/wp/wp-content/uploads/2014/02/ACNM-homebirth-position-statement.pdf>
- D. <http://acog.org/-/media/Committee-Opinions/Committee-on-Obstetric-Practice/co697.pdf?dmc=1&ts=20170506T1034060833>
- E. <http://childbirthconnection.org>
- F. <http://www.homebirthsummit.org/best-practice-transfer-guidelines/>