What do the latest data reveal about the safety of home birth in the United States?

Planned home birth was associated with a significantly greater likelihood of a 5-minute Apgar score less than 4, compared with hospital birth (0.37% vs 0.24%, respectively; adjusted odds ratio [aOR], 3.08; 95% confidence interval [CI], 1.36–2.58), **as well as a greater likelihood of neonatal seizures** (0.06% vs 0.02%, respectively; aOR, 3.08; 95% CI, 1.44–6.58), according to this retrospective cohort study. The investigators note that an Apgar score of 0 to 3 at 5 minutes is a valid predictor of neonatal death.

Admission to a neonatal intensive care unit (NICU) was lower among infants born at home, compared with hospital delivery (aOR, 0.23%; 95% CI, 0.18–0.30).

FAST TRACK

An Apgar score below 4 at 5 minutes is a valid predictor of neonatal death

Cheng YW, Snowden JM, King TL, Caughey AB. Selected perinatal outcomes associated with planned home births in the United States. Am J Obstet Gynecol. 2013;209(4):325.e1–e8. doi: 10.1016/j.ajog.2013.06.022.

EXPERT COMMENTARY

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Every morning before I leave for work, I kiss my three children goodbye and tell them, "I love you. Make good choices today."

This has become my mantra—so much so that, on her way out the door to join her friends at the movies recently, my daughter turned to me and said, "I know, Dad. I know. I'll make good decisions tonight."

And what decision is more important than where to deliver your child and who to have in attendance at the birth?

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It is said that the passage from the uterus to the outside world that each one of us was forced to negotiate at birth is the most treacherous journey we will ever undertake. Any unnecessary delay or complication can have profound, lifelong consequences.

There is no question that the past few centuries have seen a significant "medicalization" of childbirth, including the relocation of deliveries from the community to a hospital setting, the introduction of male obstetricians, the unfortunate marginalization of midwives and support personnel (doulas), the development of uterotonic drugs, and the evolution of operative vaginal (forceps, vacuum) and cesarean deliveries.

Many of the practices initially introduced by obstetric care providers (including multiple vaginal examinations in labor, induction of labor for a large baby, and active management of labor protocols) have since been shown to be unhelpful in improving pregnancy outcomes, and some practices (such as episiotomy) have even been shown to be harmful.

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ON THE WEB

Dr. Norwitz wonders why well-educated women are more likely to choose home birth, at obgmanagement.com

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In the midst of this confusion, the one voice that has been lost is that of the patient herself.

Whose birth is it anyway?

The American College of Obstetricians and Gynecologists (ACOG), the American Academy of Pediatrics (AAP), and the American College of Nurse-Midwives (ACNM) all agree that patient autonomy is paramount, and that the final decision of where to deliver and who to have in attendance should be made by the patient herself, ideally in conjunction with her family and her obstetric care provider.[1–3] But an informed decision is only as good as the available data. Regrettably, the literature on how planned home birth compares with hospital delivery in terms of pregnancy outcomes in the United States are sparse.

How safe is home birth in the United States?

Cheng and colleagues attempt to answer this question by reviewing newborn and maternal outcomes among planned home births versus hospital deliveries in a contemporary low-risk birth cohort. Their retrospective study included low-risk women at term with a singleton vertex live birth in 2008 in 27 of the 50 states using information from the Vital Statistics Natality Data provided by the Centers for Disease Control and Prevention.

Of these 2,081,753 women, 0.58% (n = 12,039) had planned home births, and the remainder delivered in a hospital setting. Women who had an "accidental" (unintended) home birth or who delivered in a freestanding birthing center were excluded. The primary outcome was the risk of a 5-minute Apgar score less than 4. Secondary outcomes included the risk of a 5-minute Apgar score less than 7, assisted ventilation for more than 6 hours, neonatal seizures, admission to the NICU, and a series of maternal outcome measures.

Besides the outcomes listed previously (top of page 24), women with a planned home birth had fewer obstetric interventions, including operative vaginal delivery and labor induction or augmentation. They also were less likely to be given antibiotics during labor (although the authors did not distinguish between antibiotics administered for prophylaxis against group B strep or surgical-site infection versus antibiotics to treat infections such as urinary tract infections or chorioamnionitis).

Of special interest is the fact that **neither a prior vaginal delivery (multiparity) nor the absence of a prior cesarean delivery was protective against these adverse events.**

The women at highest risk of an adverse event were those who delivered at home under the supervision of "other midwives." Although these providers were not well defined, this term typically refers to community-based lay midwives whose only "training" consists of an unofficial apprenticeship of variable length. Despite the absence of formal training, the lack of certification and standardization of care, and the existence of legislation in many states banning their activity, such lay midwives continue to encourage and support home birth for both low- and high-risk women in the United States.

Limitations of the study design

Although this dataset contains more than 2 million births, it includes only low-risk women at term and, therefore, is underpowered to measure outcomes such as fetal or neonatal death or birth injuries.

WHAT THIS EVIDENCE MEANS FOR PRACTICE

Even in countries where home births are integrated fully into the medical care system and attended by trained and certified nurse-midwives, they are associated with increased risks, including a two-fold to threefold increase in the odds of neonatal death.[4] In the US, where no such integration exists, home births are dangerous.

Maternity care has come a long way since the 17th century, when a woman had a 1 in 6 chance of dying in childbirth and only one of every five children lived to enjoy a first birthday. It is appropriate in this era of Obamacare and cost containment that we explore alternative models. The option of a safe home delivery may well be part of the solution, as it is for many European countries—but until we can be assured that such an approach is safe for both mothers and infants, let's keep home delivery where it belongs…for pizza!

›› ERROL R. NORWITZ, MD, PHD

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The women at highest risk of an adverse event were those who delivered at home under the supervision of "other midwives," or lay midwives who lacked formal training

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No data were presented on a number of important variables and outcome measures, such as the rate of or indications for cesarean delivery, the mode and frequency of intrapartum fetal monitoring, birth weight, intrapartum complications (uterine rupture, postpartum hemorrhage), blood transfusions, and infectious morbidity. The study also lacks long-term follow-up data on the infants.

That said, the study was well designed and very well written, and many of the limitations listed above are inherent in all retrospective cohort studies.

Putting these findings in context

These data are not novel, but they are remarkably consistent with other publications that have explored pregnancy outcomes in planned home birth versus hospital delivery from the Netherlands, the United Kingdom, Australia, and the United States, all of which show a higher rate of neonatal complications with planned home birth [see Reference 4 for review].[4]

Moreover, it is likely that the data in the current report significantly *underestimate* the risks of planned home birth for two reasons:

- Attempted home births that ended in transfer and, ultimately, delivery in a hospital setting (presumably for some unforeseen event such as excessive hemorrhage or uterine rupture or cord prolapse or nonreassuring fetal testing) were classified as hospital births.
- Apgar scores at 5 minutes are assigned by the attending care provider, and there is no way to independently verify their accuracy. Because of their limited training and/or concern about efforts to limit the scope of their practice, "other midwives" may be inclined to assign more favorable Apgar scores.

Who is choosing to deliver at home?

The proportion of US women who delivered outside the hospital setting increased by 29% between 2004 and 2009,[5] although home births still constitute a minority of low-risk births (0.58% in the current study).

One of the more interesting questions raised by this publication is the issue of who is choosing to deliver at home. In this cohort, women who planned home birth were more likely to be older, married, multiparous, white, and well educated. These aren't exactly the women you would expect to gamble with the lives of their unborn offspring. So why are they choosing to deliver at home?

It could be that they are not well informed about the risks. Alternatively, they may have concluded that, although the relative risk of an adverse event is significantly higher with home birth, the absolute risk is low and acceptable to them. Or it could be that they are frustrated by the lack of autonomy afforded to them in the decisions surrounding antenatal care and the birthing process.

In recent years, more women are asking for minimally invasive births that are physically, emotionally, and socially supported. As hospital-based obstetric care providers, we do not always respect or meet these expectations. We can and should do better.

Women should not have to choose between a good birth experience and medical safety, between social support and hospital resources, between a sense of autonomy and access to life-saving interventions. Although every effort should be taken to make the birthing experience a positive one for the mother and her family as a whole, it should not be done at the expense of safety. I have yet to hear an asphyxiated and brain-damaged child thank his mother's obstetric care provider for allowing a wonderful birth experience.

FAST TRACK

Studies from the Netherlands, the United Kingdom, Australia, and the United States show a higher rate of neonatal complications with planned home birth

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