

The U.K. Study: Is Home Birth a Reasonable Option?

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As Kimmelin Hull's **recent blog post** reported, we have **another study** to add to the short list (**de Jonge 2009**); **Janssen 2009**) of studies of:

planned home birth,
with a qualified home birth attendant,
in women eligible for home birth at labor onset,
that had a comparison group of similar women planning hospital birth,
and
where outcomes were obtainable for hospital transfers.

This study even had the bonus of being prospective, that is, the study was organized ahead of time, as opposed to retrospective, that is, data were collected after the fact from records or surveys. The study's abstract concludes:

The results support a policy of offering healthy women with low risk pregnancies a choice of birth setting. Women planning birth in a midwifery unit* and multiparous [prior births] women** planning birth at home experience fewer interventions than those planning birth in an obstetric unit with no impact on perinatal outcomes. For nulliparous [no prior births] women, planned home births also have fewer interventions but have poorer perinatal outcomes (p. 1 of 13).

*The study also looked at freestanding and hospital-associated birth centers.

**Women with prior cesareans were excluded.

Let us dig deeper into this conclusion and consider the risk trade-offs between planned home versus planned hospital birth in low-risk first-time mothers.

Investigators created a composite perinatal outcome in order to increase the study's power to detect a statistical difference in rare outcomes and to evaluate outcomes relevant to intrapartum quality of care. Some of the latter have no permanent or long-term consequences, so I will focus on the ones that do because these would matter most to women deciding where to plan to birth.

Their foremost concern would be, of course, the risk of perinatal death. Investigators report an intrapartum demise plus early neonatal (up to 7 days) death rate of 1.3 per 1000 in nulliparous women starting labor at home (6/4568) versus 0.5 per 1000 in similar women beginning labor in hospital (5/10,626), or a difference of 0.8 per 1000. Confidence intervals overlapped, which means that differences were not statistically significant, i.e. unlikely to be due to chance, but this could be because even populations this large are too small to detect a significant difference in an event that occurs so rarely. Let us assume, though, that the difference is real and that 8 more babies per 10,000 low-risk nulliparous women starting labor at home would die as a result of that decision. To be sure, no excess death rate, however small, is trivial, but to put this into perspective, the **excess risk of losing the pregnancy as a result of having an amniocentesis** is 60 per 10,000. No one is advising women against amniocentesis on grounds of its danger, so we may conclude that an excess risk considerably more than 8 per 10,000 is deemed tolerable by the obstetric community. Moreover, we have no details about the deaths, so we do not know whether some may have been unavoidable. For example, the study did not include congenital anomalies among its exclusion factors, which means it is possible that a couple who knew their baby would not survive might have chosen to give birth in the privacy and comfort of their home, or a woman **might have refused transfer**.

The second concern would be outcomes that could result in permanent deficit, which in this dataset were encephalopathy (neurologic symptoms) with no perceptible cause other than hypoxia during labor, and brachial plexus injury (injury to a nerve complex in the shoulder). Here, too, rates in nulliparous women planning home birth (5.5 per 1000) exceeded those with planned hospital birth (3.3 per 1000). Again, differences failed to achieve statistical significance, but, again, this may be because the population was too small to detect one. Assuming the difference is real, 2.2 more babies per 1000 of women beginning labor at home will experience encephalopathy or brachial plexus injury compared with women beginning labor in hospital; however, almost all babies will recover fully, making any difference in permanent injury rates miniscule.

Against perinatal risks must be set the excess maternal risks of planned hospital birth. No woman died, but investigators reported cesarean surgery and anal sphincter injury rates, both of which can result in future or permanent adverse effects.

Rates of anal sphincter injury in nulliparous women were nearly identical (43 per 1000 planned home birth vs. 45 per 1000 planned hospital birth), but differences are likely to be much greater in the United States and

Canada, where median episiotomy (cut straight toward the anus) is usual, because, unlike mediolateral (cut angled to one side) episiotomy, the norm in the U.K., median episiotomy strongly predisposes to anal sphincter laceration. Women planning home birth were less likely to have episiotomies (160 per 1000) compared with women planning hospital birth (293 per 1000), which amounts to 133 fewer episiotomies per 1000 women beginning labor at home.

As for cesarean surgery, planning home birth cut the likelihood of cesarean nearly in half. The rate in nulliparous women starting labor at home was 85 per 1000 compared with 160 per 1000 in women planning hospital birth, which calculates to 75 fewer women per 1000 beginning labor at home ending up in the operating room. **The consequences of cesarean surgery can be serious** for both the current delivery and future pregnancies and deliveries, and the risks include *increased likelihood of future maternal and perinatal death*. Furthermore, the excess risk of cesarean can be much greater. A large, multicenter **Canadian study** in women who would have qualified for home birth according to the U.K. study's criteria reported a cesarean rate of 299 per 1000 in nulliparous women.

So there you have it. For multiparous women with no prior cesareans, planned home birth confers no excess risk. For nulliparous women, it isn't a matter of risky versus safe but of which risks the woman prefers to run. As the other two high-quality studies conclude, home birth is a reasonable option with the provisos of low-risk status and a qualified attendant.

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