

Dueling Statistics: Is Out-of-Hospital Birth Safe?

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ABSTRACT

In this article, two recent studies comparing out-of-hospital birth and hospital birth are discussed. The author critiques the studies highlighting the possible reasons for differences in the findings related to home birth. In addition, the findings of both studies add to the body of knowledge that suggests there are risks associated with hospital birth.

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[T]he best evidence in answer to the wrong question is useless.

—Menticoglou and Hall, 2002

Within weeks of each other, two studies of out-of-hospital (OOH) birth were published that came to opposite conclusions on the safety of OOH birth for babies. On the one hand, we have Hutton et al. (2015), a Canadian study. Hutton et al. compared 11,493 planned home births at labor onset attended by midwives matched to women who would have been eligible for home birth but planned hospital births with those same midwives. (Ontario, unlike the United States, has an integrated system in which midwives move freely between home and hospital.) On the other hand, we have Snowden et al. (2015), an analysis of Oregon state birth certificate statistics collected after the question, “Did you go into labor planning to deliver at home or at a freestanding

birth center?” was added to the birth certificate. This question enabled investigators to distinguish hospital transfers and assign outcomes to the correct category as well as exclude unplanned home births. (Unplanned home births shouldn’t be included if one is trying to determine the safety of planned OOH birth.) Snowden et al. compared 3,203 births planned at freestanding birth centers or at home at labor onset with 79,727 planned hospital births. All women were at term (>37 weeks) with a single, head-down baby free of congenital anomalies.

What were their findings? Snowden et al. (2015) found an excess of 0.9 more fetal (antepartum + intrapartum), 1.2 more perinatal (fetal + neonatal), and 0.8 more neonatal (death occurring by 28 days) deaths per 1,000 in the population planning OOH birth after statistical adjustments for factors such as prior birth, prior cesarean, maternal health status (hypertension, diabetes), and demographic factors such as age, race, education, and payment source. In

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contrast, Hutton et al. (2015) found no differences in intrapartum deaths, perinatal deaths (intrapartum + neonatal death), or neonatal deaths.

Both studies reported fewer cesarean surgeries in the OOH population. Snowden et al. (2015) reported 24 fewer per 100 women, and Hutton et al. (2015) reported a much smaller excess (2 per 100 in both first-time mothers and women with prior births, some of whom had prior cesareans), but this would be expected because women planning home births and women planning hospital births were attended by the same midwives, whereas women planning hospital births in the Snowden et al. study would mostly have been attended by obstetricians. The interesting thing is that Hutton et al. found a difference at all, but that's a discussion for another day.

These two studies join a parade of studies of OOH birth that reach contradictory conclusions on perinatal outcomes and agree that OOH birth reduces cesarean surgeries, a severe adverse outcome in its own right on the maternal side with potential for severe adverse perinatal outcomes down the line (Goer, Romano, & Sakala, 2012). I contend that it's

time to stop asking "Is it or isn't it?" questions of OOH birth because it's pretty clear that the answer is "It depends." I think a much more useful question is . . .

WHAT FACTORS INFLUENCE OUTCOMES?

To attempt an answer, I would like to compare and contrast Hutton et al. (2015) and Snowden et al. (2015) along with a couple of other studies that, like them, are well-conducted studies of OOH birth in a physician-led system of maternity care (Table 1). One of them uses Midwives Alliance of North America data to analyze outcomes in 16,924 U.S. women planning home births at labor onset (Cheyney et al., 2014). The other uses American Association of Birth Centers data to analyze outcomes in 15,574 women planning birth at freestanding birth centers at labor onset (Stapleton, Osborne, & Illuzi, 2013).

As you can see, mortality rates are higher in the Snowden et al. (2015) study compared with the same statistic in the other three. One possible explanation may lie in the limitations of harvesting data from birth certificates. The other three studies collected data from forms designed for evaluating OOH birth. Snowden et al. point out the potential for inaccuracy, citing as an example that 27 women among the 601 transfers reported that they had planned OOH births with physicians, which is undoubtedly a recording error. One wishes, too, for more detailed information on causes and timing of death. Stapleton et al. (2013) reports 14 fetal deaths of which 5 were diagnosed on arrival at the birth center and the

TABLE 1
Comparison of Studies

| Study and Design | Number of OOH Participants | Country and OOH Type | Antepartum Death per 1,000 ^a | | Perinatal Death per 1,000 ^a | | Neonatal Death per 1,000 | |
|-------------------------|----------------------------|----------------------------|---|-----------------|--|----------|--------------------------|----------|
| | | | OOH | Hospital | OOH | Hospital | OOH | Hospital |
| Snowden et al. (2015) | 3,203 | United States Home and FSB | 2.4 fetal | 1.2 fetal | 3.9 | 1.8 | 1.6 | 0.6 |
| Stapleton et al. (2013) | 15,574 | United States FSB | 0.4 fetal | | 0.9 | | 0.4 | |
| Cheyney et al. (2014) | 16,924 | United States Home | 1.3 intrapartum | | 2.1 | | 0.7 | |
| Hutton et al. (2015) | 11,492 | Canada Home | 0.3 intrapartum | 0.2 intrapartum | 0.8 | 0.8 | 0.7 | 0.8 |

Note. OOH = out-of-hospital; FSB = freestanding birth center; perinatal death = antepartum + neonatal death; neonatal death = death occurring by 28 days.

^aFetal death includes antepartum as well as intrapartum deaths. This means antepartum death rates and perinatal death rates aren't comparable between studies using different measurements.

women immediately transferred to the hospital and another 2 that were born at the birth center because the women arrived too close to delivery to transfer. Snowden et al. reports 10 fetal deaths, 2 delivered at home and 8 in the hospital. Could some of Snowden's cases likewise be an antepartum demise? We don't know. Nor do we know whether any of the five neonatal deaths Snowden et al. reports were unrelated to planned birth setting.

Let's assume, though, that the varying mortality rates among studies is at least partially attributable to factors other than the limitations of the data source. What else might these be? Snowden and colleagues' (2015) thoughtful, fair-minded discussion of their results helps us out here, too.

They observed that the home-birth attendant's qualifications may be one. Three percent of their OOH births were home births attended by people with no qualifications such as relatives, and another 13% were attended by midwives who were neither certified nurse midwives nor certified professional midwives (CPMs). Cheyney et al. (2014), which, as you can see, reported intrapartum mortality rates greater than Hutton et al. (2015), found that 6% of their population were attended by noncredentialed midwives. All women in Hutton et al. were attended by registered midwives (RMs). Snowden and colleagues (2015) point out that a movement is underway in the United States to bring all U.S. midwifery training in line with the standards of the International Confederation of Midwives (ICM). I can add that the movement is accompanied by efforts to legalize CPM-credentialed midwives in all states. Giving women access to licensed, regulated, and credentialed midwives in every state should reduce the use of less qualified OOH birth attendants.

Snowden et al. (2015) also notes that integrating OOH midwifery into the maternity care system could make a difference. Cheyney and colleagues (2014) agree. They write, "The lack of integration across birth settings . . . contributes to intrapartum mortality due to delays in timely transfer related to fear of reprisal" (p. 9). Supportive of this is that while Cheyney et al.'s intrapartum mortality rates exceed Hutton et al.'s (2015), neonatal mortality rates are identical and similar to the neonatal mortality rates Hutton et al. reports in its hospital population. It could be argued that Stapleton et al. (2013) is a U.S. study, too, and despite a nonintegrated system, it has very low mortality rates, to which I would respond that birth centers are more likely to have formal relationships with physi-

cians and hospitals than home-birth midwives.

What, I wonder, might we find if researchers attempted to answer my proposed research question? What if they pooled data from these four studies and compared perinatal mortality and other serious adverse outcomes according to:

- Credentialed or licensed versus noncredentialed care provider
- Credentialed or licensed care provider in an integrated versus nonintegrated system, including Stapleton et al. (2013) in the integrated arm


Admittedly, even the combined data probably wouldn't have sufficient numbers to detect statistically significant differences between groups, and even if it did, association doesn't mean causality. Still, Hutton et al. (2015) and Stapleton et al. (2013) findings suggest that OOH birth with qualified home-birth care providers practicing in an integrated system results in perinatal loss rates no greater than in similar women planning hospital birth.


There's still more. Snowden and colleagues (2015) note as well that banning hospital VBAC pushes women wanting to avoid elective repeat surgery into OOH birth, potentially to their detriment (and kudos to them for not blaming the victims). It wouldn't be worthwhile to explore what factors might affect perinatal outcomes in OOH VBAC because only Cheyney et al. (2014) has a sizeable number of them. That being said, some of the perinatal deaths in Cheyney et al.'s population were women having home births after cesareans (HBACs; Cox, Bovbjerg, Cheyney, & Leeman, 2015).

So what's the bottom line here? The only factor the OOH community controls is the qualifications of its providers, and as I wrote earlier, work is proceeding on bringing those in line with ICM standards. The other factors, providing a system in which OOH care providers can readily consult, collaborate, and transfer care and where VBAC is not only available on demand but managed in ways that best promote safety and maximize vaginal births, depend on the obstetric and hospital community. The OOH community is doing its part. It's time for the obstetric community to step up to the plate and do theirs. But we're not done until we also ask . . .

WHAT ABOUT THE RISKS OF PLANNED HOSPITAL BIRTH?

This brings us to the other side of the ledger. Cheney and colleagues (2014) observe that another reason

 For more information on the International Confederation of Midwives, see <http://www.internationalmidwives.org/>

 Information about efforts to legalize CPM-credentialed midwives in all states can be found in the document "Principles for Model U.S. Midwifery Legislation & Regulation" at <http://www.usmera.org/index.php/2015/11/20/principles-for-model-u-s-midwifery-legislation-regulation/>

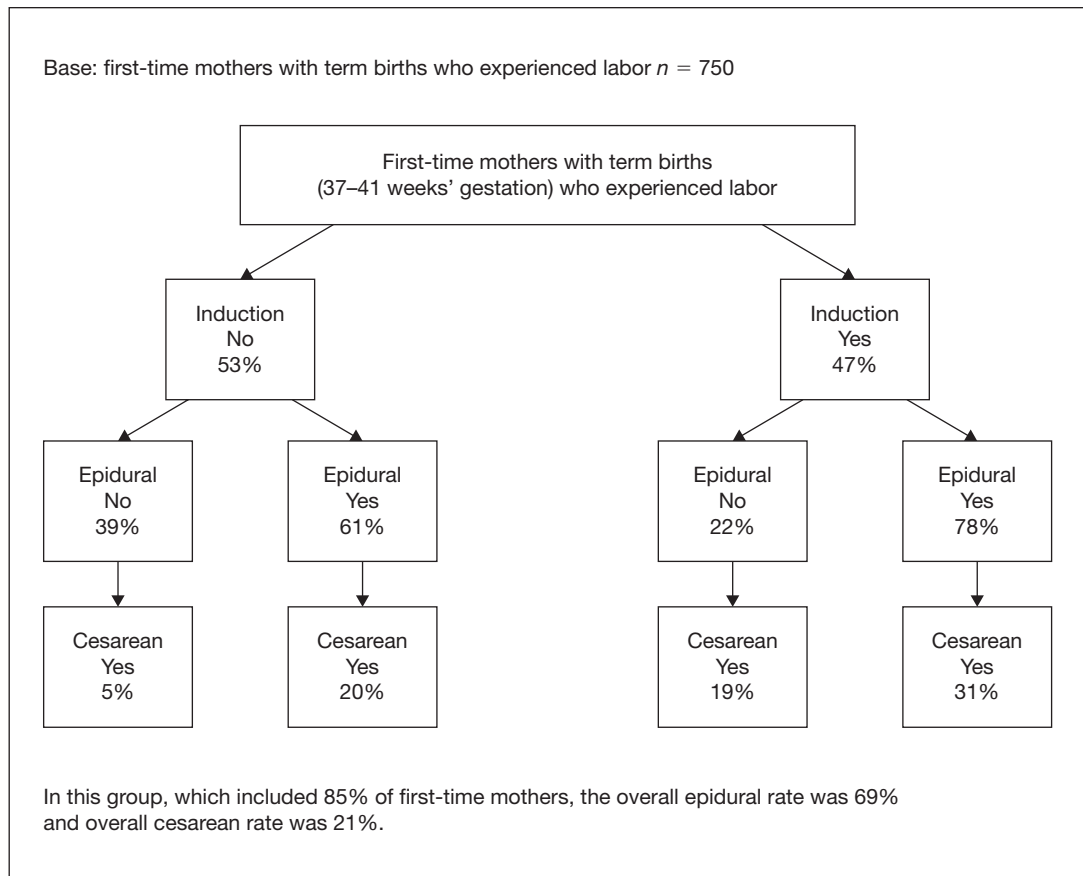


Figure 1. Cascade of intervention in first-time mothers with term births who experienced labor. From Declercq, E., Sakala, C., Corry, M. P., Applebaum, S., & Herrlich, A. (2013). *Listening to mothers III: Pregnancy and birth*. New York, NY: Childbirth Connection. Reprinted with permission.

that women with risk factors choose OOH birth is that they can't find in-hospital care that supports physiologic birth. We have abundant evidence of the gross overuse of tests, drugs, restrictions, and procedures in hospitals, the toll of its consequent harms, and the low use of practices known to promote healthy, physiologic birth (Declercq, Sakala, Corry, & Applebaum, 2006; Declercq, Sakala, Corry, Applebaum, & Herrlich, 2013; Goer & Romano, 2012). As we saw earlier, 24 fewer women per 100 in Snowden et al. (2015) planning OOH birth had cesareans compared with women planning hospital birth, most of whom would have had obstetricians as care providers, whereas only 2 more women per 100 had

cesareans in Hutton et al. (2015), where women planning hospital birth had midwife-led care. And as this chart from *Listening to Mothers III* a national U.S. survey, makes clear, excess cesarean surgeries don't occur in a vacuum (Figure 1).

Indeed, a good case could be made that the answer to the question "Is hospital birth safe for the low-risk woman?" is "No." In light of that fact, the obstetric community should stop paying so much attention to the speck in their neighbor's eye and attend to the beam in their own. If they did, everyone would benefit. Fewer women would feel the need to opt out of the hospital, and the 99% of women who plan hospital birth would be infinitely better off. It's a win-win.

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We have abundant evidence of the gross overuse of tests, drugs, restrictions, and procedures in hospitals, the toll of its consequent harms, and the low use of practices known to promote healthy, physiologic birth.

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