

# The Safety of Home Birth

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During the 20th century, in most well-resourced countries, giving birth moved out of the home and into the hospital. In that same period, a dramatic decrease in the rate of both perinatal and maternal mortality occurred, and it is easy to see why many people associate these improved outcomes for women and their infants with giving birth in a hospital. Although the plethora of studies reporting on home birth have frequently been criticized for a variety of methodological limitations, a recent Cochrane review points to a few well-designed studies<sup>1</sup> that can be used to inform our understanding of the role of hospital birth in improving maternal and newborn outcomes and to determine whether the relationship observed in the 1900s is one of causation or mere association. A systematic review is in progress to do just that.<sup>2</sup>

In the meantime, in December 2015 two additional studies reporting on home births were published in highly regarded journals: a Canadian study in the *Canadian Medical Association Journal* reported on > 18 000 planned home births occurring in Ontario,<sup>3</sup> and a study from the United States in *The New England Journal of Medicine* reported on 3408 planned out-of-hospital births, including 1968 home births and 2440 births in birthing centres, in the state of Oregon.<sup>4</sup> The authors of both studies (I was first author of the Canadian study) stated that their findings are reassuring; however, the Ontario study found no difference in perinatal mortality when comparing home and hospital birth outcomes, whereas the Oregon study showed a two-fold increase in perinatal mortality. What can we take away from these studies? Why are the findings different? What do women need to know about birth out of a hospital? Which results are relevant to practice? Findings presented in both articles may be valid, but they are not generalizable outside their own setting.

It is significant that the perinatal mortality outcomes of the Ontario study are so different from those in the Oregon study. The meta-analysis included in the report of the Ontario study included over 18 000 home births and reported a perinatal mortality rate of 1.15/1000 among births planned at home compared with 0.94/1000 in low-risk births planned for a hospital and attended by

midwives.<sup>3</sup> The Oregon study included 3408 out-of-hospital births and found a perinatal mortality rate of 3.9/1000 compared with an in-hospital rate of 1.8/1000.<sup>4</sup> This difference is worth considering.

The perinatal mortality rate in the hospital birth group in the Oregon study (1.8/1000) was nearly double the rate in the Ontario study (0.94/1000). This difference may be explained by the fact that the authors of the Oregon study used all term singleton vertex births born in Oregon during the study period as comparators and used statistical methods to adjust for differences in risk.<sup>4</sup> But we know that even among the relatively low-risk population included as the hospital birth cohort, a significant number of women and infants who were at higher risk were included, thus potentially overestimating the perinatal outcomes associated with a planned hospital birth in Oregon. In the Ontario study, on the other hand, we were able to compare “apples with apples,” in that the planned hospital births were all to women with low-risk pregnancies who were attended while giving birth by the same group of midwives who provided care in the home birth group. This ensured comparability of the home and hospital cohorts for that study, in that women with low-risk pregnancies and birth attendants were the same, and only the planned place for giving birth was different.

Another observation from the pooled Ontario data was that the rate of perinatal mortality among women in Ontario planning a home birth with midwives (1.15/1000) was not different from that of women planning a hospital birth and attended by the same midwives (0.94/1000). However, in Oregon the perinatal mortality rate for planned out-of-hospital births was more than double the rate for planned hospital births (3.9/1000 vs. 1.8/1000, respectively). The authors of the Oregon study emphasize that although this finding is statistically significant, it is a

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small absolute difference. However, the perinatal mortality rate for out-of-hospital births in Oregon was more than three times as high as the rate among Ontario women. So, why are we seeing differences between these two studies, reporting on the same “intervention?”

A careful examination of the report from the Oregon study reveals that organization of care for planned out-of-hospital birth in Oregon is quite different from that in Ontario, including who is giving birth in an out-of-hospital setting, who is attending these births, and the mechanisms in place to facilitate transfer of care when required. In the Ontario study, registered midwives attended both planned home births and planned hospital births. In addition to regulated midwives, in the Oregon study a variety of other care providers attended births at home, including naturopaths (19%), midwives without recognized credentials (13%), and family members (4%). It is unclear what experience these care providers had for attendance at birth—and specifically at home birth, which requires particular skill in screening potential candidates. Particular skill also is required for determining what circumstances require transfer to a hospital and when—that is, with enough time to intervene effectively.

Information about how out-of-hospital birth is integrated as part of the maternity care system in Oregon was not provided in the report of the Oregon study. The relatively low rate of transfer to a hospital from outside (16.5%) compared with the rate in the Ontario study (25%), the inclusion of women with higher obstetrical risk (including a higher proportion of women with post-dates pregnancies, grand multiparas, women with gestational diabetes, and women with hypertension) in the out-of-hospital setting, and the variety of regulated and non-regulated care providers attending home births suggest that home birth is not well-integrated into the Oregon health care system. This is in contrast to countries such as England, the Netherlands, and Canada, where reassuring outcomes associated with home birth are reported.<sup>3,5-7</sup> In these jurisdictions, the conduct of home birth is governed by guidelines including, for example, who should consider giving birth at home, required qualifications for attendants at home births, and equipment that should be brought to the home.<sup>8</sup>

A final and potentially important contrast between these two studies is that the number of self-paying patients (typically women without health insurance) in the Oregon study was much higher in the out-of-hospital group than in the planned hospital birth group, and specifically in the home birth group, for which nearly 50% of women were self-paying. This suggests that the decision to have a home birth, and to transfer to a hospital only if necessary, may be

determined in part by financial circumstances rather than suitability to give birth in an out-of-hospital setting.

The outcomes for women planning out-of-hospital birth were similar in the two studies in terms of the significantly lower likelihood of experiencing obstetrical intervention among women planning home birth. This might be explained in part by the self-selected nature of the cohorts. Women who plan to give birth at home (or in birthing centres) may be more confident about actually giving birth, may have previous positive experiences to build on, and may be more determined to avoid interventions.

Nevertheless, the possibility that the home (or out-of-hospital) setting provides a more supportive environment for the very personal act of giving birth, and leads to a decreased need for intervention, cannot be ruled out.

We can conclude that the findings in both these studies are not generalizable beyond the health systems in which they were performed. The message for physicians, midwives, families, and policy makers in the United States is this: there is a clear need for improved access to a high-quality system for out-of-hospital births, and in particular for home births, including the availability of well-qualified and experienced home birth attendants who have suitable access to hospital facilities and easily facilitated transfer of care to appropriate obstetrical services when required. This likely cannot be accomplished without removing financial barriers to giving birth in a hospital.

The message for Canadian physicians, midwives, families, and policy makers is this: in provinces in which midwifery is regulated, and home birth is a part of that regulation, home birth is well-integrated into the health care system. This has resulted in perinatal and neonatal outcomes for women planning home birth that are not different from those for women planning hospital births; however, women planning home births can anticipate lower rates of obstetrical intervention. The Canadian experience of home birth is similar to that described in the European studies in both organization and outcomes.<sup>5,6</sup> Based on these studies, the National Institute for Health and Care Excellence guidelines from the United Kingdom<sup>9</sup> direct health care providers to discuss home birth as an option for all women with low-risk pregnancies.

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