<u>MANA Home Birth Data 2004-2009</u>: Consumer Considerations

By: Lauren Korfine, PhD

U.S. maternity care costs continue to rise without evidence of improving outcomes for women or babies. The cesarean section rate is also rising, bringing its associated risks (Childbirth Connection, 2012). Simultaneously, a small percentage of U.S. women have been choosing safe, low-cost, home birth care with skilled midwives.

Well-designed research from other countries (e.g., Canada, United Kingdom, the Netherlands) has suggested that home birth is safe, but there has been little to tell us about outcomes in the U.S., which has a different health care system. New research published in the *Journal of Midwifery and Women's Health* examines outcomes for nearly 17,000 women who went in to labor intending to deliver at home between 2004 and 2009 in the United States. The data were collected through the MANA Statistics Project (Cheyney et al., 2014; and the companion piece, also Cheyney et al., 2014); it is the largest study of planned, midwife-led home births in the U.S. to date.

Why is this study important?

For consumers, making informed choices about where to give birth requires good data and knowledge of the risks connected with all choices. For policy makers, high quality data can inform the steps they take to improve maternity care on a national, state and local level.

What makes this study unique?

The data in this study were collected *prospectively*; that is, midwives logged in each client at the initiation of her care, and continued to log in data concerning that client throughout her pregnancy, birth, and up to 6 weeks postpartum. This method of data collection reduces the possibility that midwives could choose to enter only the cases with positive outcomes, as the outcomes of care are not known when the client is logged. Importantly, most studies of birth outcomes to date have relied on birth certificate data, which, for the most part, do not collect data by *intended* place of birth. This is extremely important because unplanned home births and unassisted home births carry different risks than planned home births with skilled attendants. In addition, women who begin labor at home, but then transfer to the hospital during labor, are listed as hospital deliveries when their outcomes actually belong in the home birth sample.

The MANA Stats dataset is also unique as it offers tremendous potential for learning about outcomes and trends in a sample of largely undisturbed births. A typical hospital-based sample will contain large numbers of births with routine obstetrical interventions. The MANA Stats dataset provides a unique look at the potential benefits of giving birth with minimal technological involvement.

What were the purposes of this dataset?

The MANA Division of Research Coordination Council members outline the three main purposes of the dataset:

> 1). **Track Statistics:** Entering all consenting clients into this database allows midwives to easily track their own practice statistics.
>
> 2). **Benchmarking:** Midwives can use the findings from the sample as a *benchmark,* or to evaluate their own practice relative to the group.
>
> 3). **Research:** Researchers can use the data to address many questions about birth that occurs with minimal obstetric intervention.

How were the data collected??

Midwives from all over the country logged in data from all consenting clients, providing extensive information about their clients' health history, pregnancy progress, labor and birth details, and outcomes.

The MANA Division of Research team put the data through an extensive internal review process, including accuracy and completeness checks and careful examination of data related to perinatal loss and transports, incorporating considerable follow-up with midwives who supplied the data.

What were the findings?

This paper reports on 16,924 planned home births recorded in the MANA Stats dataset, and includes births from 2004-2009. Among this largely white, college-educated, married sample of healthy women, the authors reported:

> *** High rate of completed home birth / low rate of transfer***

89.1% of babies were born at home. 10.9% of women transferred to a hospital, either during labor or postpartum. By far, the most common reason for transfer to the hospital was "failure to progress." Only a very small proportion of the transfers occurred for urgent reasons, such as fetal distress.

> *** High rate of vaginal birth / low cesarean section rate***

93.6% of women in the sample gave birth vaginally. Of those women who transferred to the hospital, 53.2% still had vaginal births. **The overall cesarean section rate for this sample was 5.2%.**

> *** High rate of completed vaginal birth after cesarean (VBAC)***

87.0% of women attempting a VBAC gave birth vaginally and 94% of those were completed at home.

* Low rate of obstetrical intervention*

Under 5% of women in this sample required the use of oxytocin augmentation or epidural anesthesia.

* Low rate of low APGAR scores*

1.5% of babies had 5-minutes APGAR scores below 7 and 0.6% had scores below 4.

Extremely high rate of breastfeeding at 6 weeks

97.7% of babies were breastfeeding (at least partially), and 86.0% were breastfeeding exclusively at 6 weeks postpartum in this sample. This is an extraordinarily high rate of breastfeeding initiation and continuation, and it is a very important finding to consider in the overall evaluation of the risks and benefits of home birth. Not being breastfed is associated with considerable health consequences to newborns (Stuebe, 2009). These data suggest that home birth is associated with the extremely significant protective factor of maintained breastfeeding.

* Low intrapartum and neonatal fetal death rate overall/ slightly elevated death rate among higher risk pregnancies*

The overall death rate from labor through six weeks was 2.06 per 1000 when higher risk women (i.e., those with breech babies or twins, those attempting VBAC, or those with preeclampsia or gestational diabetes) are included in the sample, and 1.61 per 1000 when only low risk women are included. This rate is consistent with some published reports of both hospital and home birth outcomes, but is slightly higher than others. Because only 0.45 per 1000 separates these samples, further work is needed. These findings should, however, help to inform the process of shared decision-making as women talk with their providers about their own specific risk profiles, value systems and priorities for birth.

Understanding the intrapartum and neonatal mortality data

The MANA Stats data findings clearly illustrate that planned home birth with skilled midwives is safe for healthy women with low-risk pregnancies, and additionally, can confer many positive benefits in this population.

The data are less clear with regard to women with higher risk pregnancies, especially those with babies in breech position and those attempting a VBAC. Of 222 babies presenting in breech position, 5 died either during labor or the neonatal period. Of the 1052 babies born to women attempting a VBAC, 5 died. ***Taken alone, these data do not have the power to inform women's choices as many questions remain unaddressed.*** These intrapartum and neonatal death rate data presented here raise more questions than they answer with regard to women with higher risk pregnancies, specifically those with babies in a breech position and those attempting a VBAC.

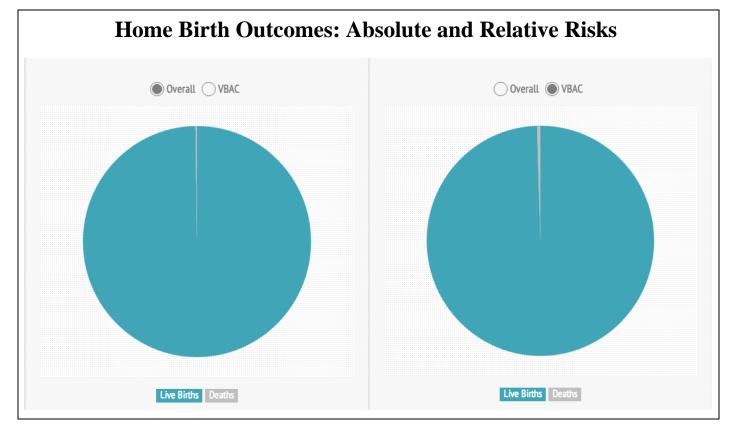### *How does this risk compare to risk in the hospital?*

It is important to note that this study did not include a comparison sample; that is, a sample of demographically and risk-matched women choosing to give birth in the hospital. It is unclear, then, whether the elevated risk detected in this subgroup of the sample is due to planned place of birth, or simply due to the greater risk these conditions confer.

How do we predict rare events?

When babies with congenital anomalies were removed from the sample, the number of babies that died (either during labor or in the postpartum) was very small; 35 out of almost 17,000 babies.

That intrapartum and neonatal death is incredibly rare is, of course, a positive finding. Yet it raises questions for prediction of risk. Predicting rare events is extremely challenging because your predictors, even if they elevate risk, are still almost always going to be wrong because the thing you are predicting is simply not likely to happen. *It is important to remember, in this situation, that while the risk of death to a baby presenting in a breech position was higher than that of a baby presenting in the vertex position, that risk is still extremely small*.

This question of relative versus absolute risk is displayed visually in the figure below. Add to this the probability that women with higher risk pregnancies are less likely to find support for physiologic, midwife-attended birth in most hospitals, and the choice of where to give birth represents a complicated challenge for consumers. While some women with higher risk pregnancies might look at the elevated risk and clearly decide that it is too high, others might view it in the context of the potential benefits of home birth, and decide that it is not.

Home Birth Outcomes: Absolute and Relative Risks

Are some combinations of risk factors especially predictive of intrapartum or neonatal death?

Does risk accumulate in some additive (or even multiplicative) way? That is, it isn't clear from these results what other factors could contribute to intrapartum or neonatal death among the high risk babies. This initial report did not include fine-grained analyses that looked at interactions among risk factors and could therefore better inform women making decisions. For example, is it the case that it is not breech presentation alone that elevates risk of death, but rather breech presentation among, first time mothers with larger babies? These findings raise the question: do parity (whether this is a first or subsequent birth), gestational age, or size of baby (to name a few) mediate the relationship between breech presentation or VBAC and outcome? These types of analyses will become possible as the dataset grows, lending itself to more reliable analyses of these smaller subsets of subjects.

Given that these findings do raise important questions, and that women will differ in how they think about them, it is critical for consumers to have the autonomy to accurately weigh the risks and potential benefits in order to make informed choices. In order to do that, they need access to high quality data that illustrate these risks and benefits in an unbiased manner.

These findings represent an important addition to the body of literature on outcomes of planned home birth. We look forward to future reports from this rich dataset to help us begin to parse these findings even further.

References

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