Expert Workshop Assesses the Significance of Birth Location on Maternal and Infant Outcomes

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ABSTRACT

On March 6–7, 2013, some of the greatest minds in research and the provision of maternity care came together for a workshop on “Research Issues in the Assessment of Birth Settings,” hosted by the prestigious Institute of Medicine (IOM) and sponsored by the W.K. Kellogg Foundation.

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The Institute of Medicine (IOM) held a similar workshop on “Research Issues in the Assessment of Birth Settings” more than 30 years ago in 1982, as the resurgence of U.S. midwifery was taking place. At that time, about 1% of births in the United States were occurring in the homes of families or in free-standing birth centers across the country, attended by midwives and a handful of physicians (Institute of Medicine & National Research Council, 1982).

Today, the number of planned out of hospital births has not changed appreciably; about 1.2% of families in the United States plan to have a baby outside of the hospital setting (Martin et al., 2012). What *has* changed since 1982 are the demographics of the families who are choosing to birth at home or in birth centers; the characteristics of “low-risk” versus “high-risk” pregnancies; the ways in which data on maternal/infant health are collected and used; the types of providers attending births in various settings in the United States and how they are

educated, regulated, and managed; and the cost of having a baby in America.

All of these issues were explored at the IOM workshop by epidemiologists, public health professionals, midwives, nurses, pediatricians, and obstetricians. The discussions were supported by 30 years of research. Members of the audience were just as impressive as the panelists themselves. At the end of each panel discussion, the microphone was opened and significant content was added through questions and comments. However, there was a noticeable lack of consumer representation on the panels, nor was there a panel addressing racial/ethnic and class disparities in maternal and infant outcomes, which have remained at crisis levels for the last century and are only continuing to get worse. The rate of infant death is 2–3 times higher for African American families than for White families in the United States. African American mothers are 2–3 times more likely to die in the childbearing year than White mothers.

Individual presentations and videos from the IOM workshop can be found on the IOM website at <http://www.iom.edu/Activities/Women/BirthSettings/2013-MAR-06.aspx>

These types of disparities also exist for Latina, Native Indian, immigrant, low-income, and other families to varying degrees of severity all across the United States. The lack of discussion about these issues at the IOM workshop was a grave oversight.

A great deal of ground was covered over the course of the two-day workshop, and there were several takeaways that have particular impact for those who provide education to childbearing families on their options for location of birth. The home birth rate in the United States was predicted to continue its incremental rise with the next release of Centers for Disease Control and Prevention (CDC) data, reaching about 31,500 births nationwide in 2010. Midwife-attended births in birth centers are also trending upward. However, as Dr. Marian MacDorman from the CDC clearly pointed out, birth certificates in most states are still not accurately capturing *intended* place of birth, resulting in the inability to draw solid conclusions from studies that use birth certificate data.

For example, a rapid labor that resulted in a birth in the mother's driveway with no provider in attendance would be attributed to the home birth category. Research has shown that unplanned, unattended home births have worse outcomes than planned home births attended by a skilled attendant (Declercq, MacDorman, Menacker, & Stotland, 2010), so if we are unable to differentiate on the birth certificate which births were planned/attended and which ones were not, the home birth outcomes can appear much worse than they really are. Similarly, when a mother who was planning a home birth with a midwife needs to be transported to the hospital in labor—sometimes because the labor has moved into a higher risk category, which also tend to have worse outcomes no matter where the mother gives birth or who attends her—those deliveries are attributed to the hospital birth category. Poor outcomes are incorrectly attributed to both sides, making it impossible to use birth certificate data to gain clarity on the issue of safety.

There are two large databases that have emerged in the United States to address this problem, both of which were applauded at the IOM workshop.

The Midwives Alliance of North America (MANA) has been collecting data on midwife-led care in the home and birth center settings for over a decade and has more than 24,000 records available to researchers, with hundreds more coming in every month. The MANA Stats web-based system was touted by epidemiologists as the best data collection system for home birth outcomes. Several research articles have been submitted for publication from this dataset. The American Association of Birth Centers (AABC) also has a database of birth center births from which the recent birth center study was published (Stapleton, Osborne, & Illuzzi, 2013). It is only with datasets like these that we can begin to illuminate issues around safety as well as the myriad other health effects of location of birth for mothers and babies.

Although most experts and speakers at the IOM workshop came together with a collegial attitude, not everyone showed up in the spirit of collaboration and learning. Dr. Frank Chervenak, who has recently published papers imploring physicians to refuse to discuss the option of home birth with their patients, used his time on the panel to portray data that has not passed peer review for publication. Dr. Chervenak showed slide after slide of home/hospital differences in 5-min Apgar scores using raw data drawn from birth certificates, attempting to convince the experts there that his data was aligned with their messages. Meanwhile, there are several well-designed studies published in peer-reviewed journals that show that there is actually no difference in 5-min Apgar scores between home and hospital settings (Hutton, Reitsma, & Kaufman, 2009; Janssen et al., 2009; van der Kooy et al., 2011). Although Dr. Chervenak felt that differences at the low end of the Apgar scale were significant for the long-term health of infants born at home versus the hospital, he dismissed differences at the high end of the Apgar scale as the result of midwives artificially inflating those high scores at home “because no one is watching.”

Epidemiologists in the room were quick to step to the microphone for the open discussion part of the panel, pointing out the many flaws in Chervenak's presentation. Dr. Marian MacDorman, senior statistician and researcher for the CDC's National Center for Health Statistics, reminded everyone that birth certificate data is notoriously unreliable for neonatal seizures and low Apgar scores; this has been shown time and again for decades and had indeed been discussed earlier in the workshop. More importantly, Dr. MacDorman stated that data from birth certificates

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cannot be used to make comparisons between settings or providers. Her point, which deserves some elaboration here, is that there is a very important distinction between “absolute risk” and “relative risk,” and different types of data are better than others depending on what you are trying to describe.

As an example, consider that a person’s odds of getting struck by lightning in a heavily populated city are one in a million, and those same odds in a rural area are five in a million. These odds are your *absolute risk* of being struck by lightning. Another way to look at this is to say that a person’s odds of being struck by lightning are *five times higher* in a rural area than in a densely populated area. This is the *relative risk* of a lightning strike in one area over another.

A common approach of anti-home birth activists is to use the relative risk approach and ignore the absolute risk. It is much more dramatic and sensationalistic to suggest that the risk of something is “double!” or “triple!” that of something else, even though the absolute risk of those things is very low and may not even be statistically significantly different from each other. Of course, any infant or maternal mortality is a tragedy. One of the key points raised at the IOM workshop was the idea that, in our efforts to identify “safety” with one indicator (mortality) or “truly low-risk” pregnancies by their absence of a particular factor (breech position), we often fail to quantify *all* of the impacts of the various settings in ways that are meaningful to the women who experience the outcomes, such as the fact that in many areas, the only option for breech delivery is cesarean or the only way a vaginal birth after cesarean (VBAC) can happen is to do it at home, attended or not. As Brynne Potter, CPM, asked during her presentation at the IOM workshop, “When we limit access to certain birth settings because of risk, are we examining the risks of the alternative?”

To return to the lightning analogy, it would be deeply disingenuous for a person to say that you should not move to a rural area simply because your risk of being struck by lightning is five times higher than an urban setting, without mentioning that, at worst, that risk is five in a million. There may be factors that are far more important to you than the miniscule risk of being hit by lightning, and all of those reasons must be considered and weighed in making your decision. When you consult with a trusted advisor who disregards what is important to you and withholds all information about your option to move to a rural area because he or she has

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decided that the risk of being hit by lightning in a rural area is too high for you, the ethics of this must be called into question.

Overall, the IOM workshop concluded with agreement by most presenters that normal physiologic birth is best for both mother and baby and should be the goal of all settings and practitioners. The future research inspired by this event and its forthcoming report will move maternity care forward in the United States.

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