

Homebirth: Is it really a safe option?

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The American College of Obstetricians and Gynecologists (ACOG) claim that a 2002 study shows that women planning homebirths have an increased risk of several complications, including twice the risk of newborn death (11). This new study flies in the face of numerous other reputable studies, all concluding that planned homebirth with a trained attendant is safe (3,5,7,12). These include a study carried out by the Washington State Department of Social and Health services using some of the same data (3).

It behooves us to examine this new study with a critical eye. When we do so, it reveals itself to be, at best, a piece of work done by obstetricians who have an axe to grind. At worst, its many omissions and misstatements may have been intentional.

Here are the study's flaws:

Design flaws render the study incapable of determining whether planned homebirth is riskier than planned hospital birth

The researchers incorrectly select and analyze their outcomes

The authors exaggerate and misrepresent claims

The researchers lack an open mind

Design flaws render the Pang study incapable of determining whether planned homebirth is riskier than planned hospital birth.

The study doesn't match populations according to risk factors. Matching makes groups more alike and therefore more comparable. The researchers should have paired women according to whether this was a first birth, the baby had a heart defect or other serious congenital anomaly or the baby was born early. They should also have matched women planning birth at home with women using nearby hospitals. Otherwise, you aren't comparing apples to apples. Small hospitals lack the facilities and staff of sophisticated medical centers, and outcomes may be different when there are complications.

The study doesn't indicate which of the homebirth babies who died or had complications were actually born in the hospital. Pang and colleagues make much of the fact that 10 of the 20 babies who died had diagnoses of congenital heart disease or respiratory distress. They argue that the outcome in these cases might have been different had the baby been born in the hospital. An additional three babies in the homebirth group had major congenital anomalies, another situation where hospital birth might affect survival. Most of these babies probably were hospital births.

The Washington State government study, which followed women who received prenatal care from licensed midwives, reported that nearly all newborn deaths occurred in the hospital (3). They took this as an indication of appropriate transfer of high-risk cases. In any case, the possibility of heart defects or other major congenital anomalies makes an argument for an ultrasound scan to screen for them, but it doesn't indict homebirth per se.

The study doesn't consider whether more babies died of congenital heart problems or other major anomalies in the homebirth population because these conditions were more common in the homebirth population. The Washington State government study reported that 7 per 1,000 women receiving prenatal care from licensed midwives versus 2 per 1,000 in the background population had babies with a major malformation. This difference is probably because this is a group that is less likely to terminate a pregnancy (3).

The study doesn't examine case histories of the deaths. With 20 deaths in the homebirth population, the researchers could have reviewed medical records. Doing so would have provided a more accurate picture of whether homebirth care affected outcome and probably would have exonerated it in many cases. For example, another U.S. homebirth study reported two stillbirths and one newborn death (10). One stillbirth occurred hours after the mother was moved into the hospital for slow progress and meconium (the baby's first bowel movement) in the amniotic fluid. The newborn death occurred one day after birth and postmortem studies could not determine its cause. If even a few deaths are eliminated on the homebirth side, the difference between planned home and planned hospital birth disappears.

In a properly done study, the researchers attempt to collect and present data on all relevant outcomes. Pang and colleagues fail to do this. Their study reports only that in addition to a higher newborn mortality rate, women planning homebirth had higher incidences of postpartum bleeding, prolonged labor, babies requiring breathing assistance for more than 30 minutes, very low five-minute Apgar scores (a measure of the baby's condition at birth) and prolonged labor.

The authors don't tell you that these outcomes are only a few of a long list found on the birth certificate form. Other relevant items on this list are first-time cesarean, forceps delivery, vacuum extraction, umbilical cord prolapse, fetal distress, birth injury, meconium (the baby's first stool) aspiration syndrome, breathing assistance for less than 30 minutes, and newborn seizures. Researchers aren't allowed to cherry-pick results. Omitting the rest of the list gives the false impression that planning homebirth is riskier than it really is. Pang and colleagues' silence also raises the question of whether the authors have chosen to suppress outcomes that favor homebirth. Indeed, that they do this in one case increases suspicion that they might have done it elsewhere. Buried in a table, but otherwise unmentioned, is the information that despite being equally low-risk, more low-birth-weight babies were born in the planned hospital population (2.3% versus 1.3%).

The relevance of two of Pang and colleagues' choices can be questioned. Postpartum bleeding with no qualifying information isn't useful. Did the mother require a transfusion? A hysterectomy? Become severely anemic? If none of the above, so what? As for prolonged labor, it has little association with poor infant outcomes. Long labors can be hard on mothers, but, no doubt, the hospital women had their labors cut short by cesareans, which can be even harder.

Confining the study to birth certificate data will miss relevant outcomes. The birth certificate lacks check-boxes for maternal or newborn infection and for maternal injuries such as anal tears. These complications will likely be more common in women planning hospital births because C-section, vaginal instrumental delivery and episiotomy cause them.

The researchers improperly calculated statistical significance. "Significance" means that the difference between outcomes is unlikely to be due to chance. When there is a laundry list of outcomes, the odds go up for finding what

look like real differences that are actually due to chance. For this reason, the significance threshold must be set higher. The authors don't indicate that they did this. A stricter standard could drop some or all of their results below the significance threshold. In particular, the key finding, increased newborn deaths, just barely exceeds this threshold.

"Two times the risk of newborn death" sounds alarming, but the absolute difference is 1 per 1,000. Absolute differences for very low five-minute Apgar score and the need for breathing assistance for more than 30 minutes amount to 2 per 1,000. And this assumes that the numbers are sound, which, based on the above criticisms, is highly doubtful. It also assumes that these differences don't simply represent the effects of a higher incidence of congenital problems in the homebirth population.

In contrast to the Pang study, the Washington State government study concluded (3):

[T]he results of this study are consistent with a large body of literature which has documented the safety of planned homebirth for low-risk women when attended by a trained provider.

Did the study authors have a bias?

Pang and colleagues skew their presentation to portray homebirth in the most negative light.

They falsify the true consensus of the homebirth research. In the introduction, the authors cite three studies they claim show an increased risk of newborn death in planned homebirths with a trained attendant. Two of them report no such increase (2,13). The third study's authors note that their study's mortality rate exceeded those reported in other homebirth studies and conclude that the excess was due to births that were not low risk and were therefore inappropriate for homebirth (1). Pang and colleagues don't acknowledge any of the many studies concluding that homebirth is safe.

The study omits mention of any disadvantages of hospital birth. We know there must have been at least two: more C-sections and more vaginal instrumental deliveries because all homebirth studies find this (5). And, in fact, a study using Washington State data from the same time period reports that 1 in 5 first-time mothers had a cesarean and approaching 1 in 4 had a

vacuum extraction or forceps delivery (8). These procedures introduce considerable risk. Compared with women having normal vaginal births, this same study found that women were more likely to be admitted to the hospital within the next six months for uterine infection, wound complications or blood clots (8). Another study using Washington State data looked at postpartum health (9). Women having cesareans or vaginal instrumental deliveries were substantially more likely to experience poorer physical and emotional postpartum health. We also know these procedures can cause long-term or chronic problems, and in the case of cesarean section, problems conceiving or in future pregnancies and births (4,6).

The authors misrepresent the planning status of homebirth women who were transferred into the hospital. The study includes hospital transfers if the birth certificate "indicated that delivery was initially attempted at home by a health care professional." But a perusal of the birth certificate form reveals that there is no place to indicate who attended the mother at home when the baby was born in the hospital. This means that home-to-hospital transfers are actually a mixture of births with a trained attendant and births that were not. Homebirths with no trained attendant have much higher risks (2,13).

The Pang study includes homebirths as early as 34 weeks of pregnancy. No competent homebirth attendant knowingly attends a preterm labor at home. The authors don't state how many births between 34 and 37 weeks were included, but you can derive it: it's a mere 1 in 100. Undoubtedly, most of them resulted from due-date miscalculations and were near full-term. But by including the 34 to 37 week range, the study gives the misimpression that preterm labor at home is accepted practice.

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