A recent study by Grunebaum et al examined the relationship between place of birth and adverse neonatal outcomes (Apgar of 0 at 5 minutes, and neonatal seizures or serious neurologic dysfunction—hereafter referred to as neonatal seizures) as reported in birth certificate data from 2007 to 2010 for term newborns \((n = 13,891,274)\) (1). Outcomes were analyzed by four practitioner types: hospital physician, hospital midwife, freestanding birth center midwife, and home birth midwife. The authors claim that babies born at home and in freestanding birth centers were at a significantly higher risk of having a 5-minute Apgar score of 0 \((RR = 10.55 \text{ and } 3.56, \text{ respectively})\) and neonatal seizures or serious neurologic dysfunction \((RR = 3.80 \text{ and } 1.88)\). However, these findings must be interpreted with caution for several reasons.

Limitations of birth certificate data for epidemiologic analysis have been widely discussed in the literature, and include concerns about the completeness and accuracy of reporting of specific items on birth certificates, and the inability of birth certificates to provide longitudinal information (such as for planned home births that transfer to the hospital) or information on clinical intentions (2–4). The neonatal seizure variable, for example, is one of several medical variables unreliably reported on birth certificates (4–6). Two detailed studies comparing birth certificate data to medical records in New Jersey and Tennessee yielded sensitivity rates for neonatal seizures of 0.226 and 0.182, respectively (5,6). This means that approximately 80 percent of cases of neonatal seizures identified on medical records are not reported on birth certificates. Data of this poor quality should not be used as the main outcome measure in any study.

Although reporting of data on 5-minute Apgar scores in broad categories (such as \(<7 \text{ or } \geq 7\)) is a bit better (7), no studies have examined the validity of reporting of 5-minute Apgar score = 0. However, there is substantial evidence that the reporting of this item on birth certificates is very problematic. Watterberg found that although large differences existed between home, birthing center, and hospital settings for reported Apgar scores of 0 and 10, these differences were greatly reduced for Apgar <4, and virtually eliminated for the combined category of Apgar 9 or 10 (8). There appear to be real differences between how physicians and home and birth center midwives perceive and report Apgar scores at the edges of the Apgar spectrum. Physicians are more likely to report fine gradations of either very low or very high Apgar scores, whereas home and birth center midwives are more likely to report Apgar scores of 0 or 10 more absolutely. Apgar score <4 is the more commonly used measure of early neonatal compromise, and has the added advantage of providing greater numbers of cases for analysis. The reported odds ratios for 5-minute Apgar score of 0 and neonatal seizures in the Grunebaum et al study are based on very small numbers of cases, and thus have limited generalizability or clinical relevance. It is also well-established that Apgar scores are poor predictors of neonatal outcomes (9), so even if these data could be improved, they...
would provide a poor proxy for adverse birth outcomes.

Also worrisome is the authors’ assertion (based on the reported rate of Apgar = 0) that stillbirth is more common among home births. Stillbirths are not recorded on U.S. Certificates of Live Birth. The dataset that Grunebaum et al examined contains only records of infants born alive and does not include stillbirths. The CDC does produce a separate dataset on stillbirths (10), but the authors did not use this dataset in their analysis. When the 2007 to 2008 stillbirth data (the latest currently available) are analyzed using the same parameters as the Grunebaum study (singleton, term, birthweight 2,500+ grams), we find that the stillbirth rate for home births is 0.43 (stillbirths per 1,000 live births and stillbirths), and, for hospital births, 0.88 (10). These rates are based on relatively small numbers of cases (21 stillbirths for the home birth category) and are not meant to be definitive, but they do demonstrate that the results from the Apgar score = 0 analysis do not coincide with results from stillbirth data.

We are concerned that Grunebaum et al may be unaware of the rigorous guidelines for the conduct of credible research on outcomes by planned place of birth, and of potential biases that may affect home birth research (11,12). They also appear to be unaware that international maternity research experts have applied these standards to the evaluation of research in this hotly contested area and concluded that the evidence on the safety of birth place in high resource countries is sufficient to recommend the integration of home birth services and home birth practitioners into regional health care systems (13). The Grunebaum et al article also conveniently ignores a large number of high-quality observational studies that use an intention-to-treat design to account for variance in maternal risk profiles and intrapartum transfers of care from home or birth center to the hospital (14–18), and find very low risks of poor neonatal outcomes for planned home births.

Part of a Larger Trend

This article was not published in isolation, but is part of a larger effort by senior author Dr. Frank Chevernak from Cornell University, who has published at least six other articles critical of home birth in the past 2 years in major obstetrics, pediatrics, and ethics journals (19–24). A recent article published in Pediatrics is typical of Dr. Chevernak’s work. In it, he claims to discuss the ethics of home birth, but his discussion runs counter to contemporary democratic principles of free choice and autonomy for the expectant mother, and to women’s control over their own bodies. Demonstrating a remarkable disregard for the importance of shared decision making and informed choice in maternity care, Chervenak and colleagues state that, “in a professional relationship, the physician’s integrity justifiably limits the woman’s rights by limiting the scope of clinically reasonable alternatives” (22, p35). They assert that the state of the science demands that pregnant women be counseled strongly against a planned home birth, that any clinician who attends a home birth should not be called a professional, and that he or she should be subject to regulatory sanctions. The difficult balance of maternal and fetal benefits and harms are also ignored in his commentaries. One wonders what motivates such a systematic crusade, but it appears to be neither science, nor a concern for women.

It should also be noted that Dr. Chevernak has gone on the record as vigorously opposing both the American College of Obstetrics and Gynecology’s (24) and the American Academy of Pediatrics’ (20) official policy statements on home birth, thus further marginalizing his opinions from the scientific mainstream. This type of unqualified and uncritical crusade against women who plan home births, the midwives who attend them, and the physicians who support and collaborate with them, puts mothers and babies at risk. Thus, we turn to a discussion of ethics.

The Ethics of Home Birth

In a recent issue of the Journal of Clinical Ethics, two obstetricians, Drs. Howard Minkoff and Jeffrey Ecker, argued that in some circumstances physicians could ethically participate and collaborate with midwives who attend home births (25). Minkoff and Ecker provided an analysis of the available empirical evidence to argue that the safety of home birth is still not a settled issue, but that women can and do choose to deliver their babies at home, for reasons that are not irrational. We argue that physicians not only can collaborate with home birth midwives, but rather have a duty to seek out collaboration with the home birth community to further the safety of the home birth environment.

The authors of this commentary include an obstetrician (Burcher) and two midwives (Cheyney and Vedam) with 65 combined years of practice in home, birth center, and hospital settings, and thus we realize we are speaking heresy. However, the ethics of this position are actually straightforward. The most robust study establishing the safety of home birth is the observational study of over 500,000 births from The Netherlands by de Jonge et al. (14). de Jonge and colleagues’ study found no differences in perinatal morbidity and mortality between planned hospital birth and planned home birth. This study suggests that home birth may
be as safe as hospital birth given two important parameters: low-risk women and a collaborative medical environment.

Here is where obstetricians in the United States have failed both today and historically. During the 19th and early 20th centuries, physicians, for economic reasons and to increase the status of their profession, campaigned successfully to socially stigmatize midwifery, and, in many states, to make the ancient practice illegal (26). Yet, the evidence clearly shows that at the time this transition was occurring, physicians could not offer greater safety for women or their babies, even in the most medically complicated pregnancies (26). Rather than adopt a European model of physician–midwife cooperation, United States physicians chose to fight, and drive out their socially marginalized, and gender disadvantaged competitors, thus effectively eliminating a birth choice for many low-risk women.

Although we believe physicians may actually owe midwives the historical redress that renewed collaboration could provide, the more important argument is ahistorical. Obstetricians and midwives alike have a stated goal of improving maternal health, and a duty to collaborate is implied if we are truly open to helping all pregnant women—but real collaboration must flow both ways. There is much to do to improve the safety and humanism of hospital birth, and home birth midwives have a demonstrated expertise in how to safely reduce cesarean birth rates (27). In addition, home birth practitioners occasionally require expert consultation, and when that support is freely and respectfully given, home birth can be made safer and transfers of care less distressing. We suspect that it is women who will ultimately gain the most from renewed ties between the home and hospital birth communities. Still, the “birth is natural” and “birth is a medical event” paradigms have little overlap, and midwives and physicians will need to learn new language and new perspectives if they are going to be able to effectively communicate with one another (28). We need real dialogue rather than mutual recriminations. The history of the last 100 years will also need to be addressed.

**Finding Common Ground**

As physicians and midwives, we are all committed to women’s health, and safe childbirth is a crucial component of this. Given that women in the United States, despite significant cautionary recommendations by professional associations (29,30), are choosing home birth in increasing numbers (31), we must find ways to work together to improve the safety of home birth in this country. If 200 years of opposition have failed to extinguish home birth, then perhaps it is time for hospital practitioners to embrace (metaphorically) their home birth colleagues, and to re-establish ties between our professions toward greater safety for all. The wholesale crusade against home birth championed by Chervenak and colleagues takes us in the wrong direction.

**References**