

Home and Birth Center Birth in the United States

Time for Greater Collaboration Across Models of Care

Aaron B. Caughey, MD, PhD, and Melissa Cheyney, LDM, PhD

There has been a small, but significant, increase in community births (home and birth-center births) in the United States in recent years. The rate increased by 20% from 2004 to 2008, and another 59% from 2008 to 2012, though the overall rate is still low at less than 2%. Although the United States is not the only country with a large majority of births occurring in the hospital, there are other high-resource countries where home and birth-center birth are far more common and where community midwives (those attending births at home and in birth centers) are far more central to the provision of care. In many such countries, the differences in perinatal outcomes between hospital and community births are small, and there are lower rates of maternal morbidity in the community setting. In the United States, perinatal mortality appears to be higher for community births, though there has yet to be a national study comparing outcomes across settings that controls for planned place of birth. Rates of intervention, including cesarean delivery, are significantly higher in hospital births in the United States. Compared with the United States, countries that have higher rates of community births have better integrated systems with clearer national guidelines governing risk criteria and planned birth location, as well as transfer to higher levels of care. Differences in outcomes, systems, approaches, and client motivations are important to understand, because they are critical to the processes of person-centered care and to risk reduction across all birth settings.

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In this Clinical Expert Series article, we combine our clinical perspectives and expertise to provide an examination of the history, clinical issues, and evidence regarding home and birth-center birth in the United States and other countries. It is challenging to present an entirely unbiased discussion on this topic, but we have attempted to interweave our respec-

tive experience in maternal-fetal medicine, homebirth, perinatal epidemiology, medical anthropology, and behavioral and health economics to interpret existing data, inform the discussion, and to be critical regarding the framing of the evidence.

BACKGROUND

It is commonly believed today that safety was the primary impetus behind moving births into the hospital more than 100 years ago. Indeed, there has been a significant reduction in maternal and neonatal morbidity and mortality throughout the 20th century. However, the rationale for hospital birth was likely more complex. When hospital births became normative, the leading causes of maternal mortality were hemorrhage and infection; yet at the time, there were few effective hospital-based interventions to lower the risks of these outcomes.

In 1900, only 5% of U.S. neonates were born in hospitals, but by 1935, 75% were born there.¹ Yet

From the Department of Obstetrics and Gynecology, Oregon Health & Science University, Portland, and the Department of Anthropology, Oregon State University, Corvallis, Oregon.

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Corresponding author: Aaron B. Caughey, MD, PhD, Professor and Chair, Department of Obstetrics and Gynecology, Oregon Health and Science University, 3181 SW Sam Jackson Park Road, Portland, OR 97239; email caughey@ohsu.edu.

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rather than declining during this period, rates of morbidity and mortality for both women and infants initially rose. In the 1920s, as middle-class women began delivering their neonates in hospitals, the maternal mortality rate increased slightly from 600 deaths per 100,000 in 1915 to 630 per 100,000 in 1932.² In urban areas, where hospital births were more common, the maternal mortality rate was higher still at 740 per 100,000. Additionally, between 1915 and 1929, neonatal deaths from birth injuries and nursery-based nosocomial infections increased by more than 40%.³ Blood banking did not become routine until the 1940s,⁴ and broad spectrum antibiotics were not available until the 1950s.⁵ As such, substantial reductions in maternal mortality were not seen until the latter half of the 20th century. However, rates of intervention (eg, enemas, immobilization in labor, no oral intake, episiotomy, forceps delivery, cesarean delivery) in childbirth also rose throughout the 20th century, leading some women and providers to question the routinization of medically managed birth.⁶

The resurgence in homebirth midwifery care in the 1970s and 1980s coincided with an increase in women desiring more control over their birth experiences.⁷⁻⁹ In recent years, there has been a small, but significant, increase in births taking place at home and in birth centers. Although the overall community birth rate today is less than 2%, the U.S. homebirth rate increased by 20% from 2004 to 2008, and another 59% from 2008 to 2012.¹⁰ Births in freestanding birth centers have also increased.¹¹ Although the United States is not the only country with a large majority of births occurring in hospitals, there are other high-resource countries where community birth is far more common and where community midwives are more central to the provision of pregnancy care. For example, in 2012, 85% of women in the Netherlands started their care with a community midwife; the other 15% of women, most of whom had a significant history of medical or obstetric complications, received care from a secondary or tertiary care obstetrician.¹² The Netherlands has seen an overall decline in home birth from 30.3% in 2000 down to 15.7% in 2012, and an overall increase in the percentage of women receiving hospital-based, obstetrician-led care at birth (up from 57% in 1999 to 71% in 2014).¹³ In the past decade, the Dutch have introduced free-standing birth centers as a strategy to help keep low-risk women out of the hospital. There, when a healthy woman goes into labor, she may choose where she wants to deliver—home, birth center or hospital. Regardless of setting, she is attended by her midwife unless a significant complication arises.¹²

One of the biggest concerns that hospital-based obstetric providers in the United States voice related to community birth is time and distance to emergency medical care. With rare events such as cord prolapse or severe abruption, delayed access to an operating room could lead to tragedy. Indeed, one U.S. study of birth outcomes in Oregon found that planned community birth was associated with a higher rate of perinatal death than planned hospital birth (3.9 vs 1.8 deaths/1,000 deliveries, $P=.003$; odds ratio after adjustment for maternal characteristics and medical conditions, 2.43; 95% CI, 1.37–4.30; adjusted risk difference, 1.52 deaths/1,000 births; 95% CI, 0.51–2.54).¹⁴

Although small, but statistically significant, increases in the relative risk of perinatal death in the community setting have been reported in the United States,¹⁴⁻¹⁸ fetal and neonatal outcomes by birth setting in other high-resource countries are somewhat variable. A few studies suggest a small increase in intrapartum or neonatal death and adverse outcomes.^{19,20} However, the vast majority of international evidence, particularly from countries with well-integrated systems and clear collaboration guidelines, suggests no increase in neonatal morbidity or mortality for planned community birth.²¹⁻³⁰ Population-level characteristics appear to play a much smaller role in risk of perinatal death than do larger systems-level features, such as collaboration and integration across birth settings, eligibility criteria for community birth, and the availability of institutional supports for physiologic birth and respectful care.³¹

In contrast, evidence on maternal outcomes is remarkably consistent: community birth is associated with lower rates of perineal lacerations, as well as fewer interventions, including cesarean delivery.^{16,19,21,22,24,27-29,32-38} However, secondary to low statistical power, less is known about outcomes in the case of placental abruption, postpartum hemorrhage, and (the much more rare) amniotic fluid embolism in the community setting. Given both the acute and downstream risks of unnecessary interventions, and in particular, the higher than desired rate of cesarean delivery in the United States, birth location decisions are ones that trade off some risks for others.^{39,40} In the United States, women and clinicians desiring immediate access to anesthesia, pharmaceutical pain management, cesarean delivery, assisted vaginal birth, and neonatal intensive care unit care are generally supporters of birth in the hospital.^{41,42} Alternatively, women and providers who are focused on maternal autonomy, support of physiologic birth, and reducing unnecessary interventions may consider birth in the



community setting.^{39,40,42–44} These distinctions are not universal nor dichotomous; many hospital-based clinicians are devoted to the prevention of unnecessary cesarean deliveries and support normal, physiologic birth, whereas some community midwives may overintervene.

The literature on maternal decision-making and birth setting reveals that people not only consider risk and safety, but also unique individual, familial, community, and larger cultural value systems.^{45–47} No study has systematically compared satisfaction across birth setting in the United States, though there are numerous examples from Europe that suggest that satisfaction is highest when women are supported to choose the birth setting and provider type that aligns most closely with their individual pregnancy characteristics, value systems, and personal preferences.^{48–50} Indeed, Hodnett's⁵¹ systematic review found that the most critical predictors of satisfaction are individual expectations, the amount of support received from caregivers, the quality of the caregiver–patient relationship, and maternal involvement in decision-making. Thus, understanding how pregnant peoples' desires and expectations frame their perceptions of risk and benefit are integral to understanding choices regarding birth location.

THE IMPORTANCE OF UNDERSTANDING RISK PERCEPTION

Research in cognitive psychology and behavioral economics suggests that humans are not always rational actors capable of incorporating event probabilities into their decision-making calculus.⁵² The Nobel prize-winning work of Kahnemann and Tversky⁵³ captured the most predictable human cognitive biases, collectively as Prospect Theory. They argued, for example, that small probabilities are poorly understood, and are thus commonly over-weighted in decision making, especially when the outcome is highly undesirable (as in the case of a perinatal demise, for our purposes).

Prospect Theory helps to explain the often profound disconnect between those who favor hospital compared with community birth. For example, from the perspective of an individual favoring hospital birth, the safe delivery of a neonate is paramount; risk aversion overwhelms any potential benefit of a community birth. Patients may describe this position as “better safe than sorry” or as “just in case something goes wrong.” On the other hand, the choice for a community birth is often anchored in avoidance of unnecessary procedures, especially cesarean delivery; this desire overrides any fears regarding the small possi-

bility of perinatal mortality. It is easy to see how varying perceptions and weightings of risks and benefits could lead clinicians and patients on either side of the argument to find the alternative side irrational or misguided, especially when they have had little exposure to the other.⁵⁴ In fact, evidence suggests that for clinicians, assessment of birth place safety aligns more with preexisting professional viewpoints, rather than any objective assessment of the evidence.^{55,56}

Although these differences may not be readily assuaged, we do hope to frame the risks and benefits in ways that providers from all settings can appreciate and use to help counsel women. Similarly, we aim to highlight the similarities and common values shared between the diverse practices, guiding philosophies, and underlying goals associated with each birth setting. Where common ground cannot be identified, we hope a deeper understanding of the opposing perspective will facilitate respectful collaboration across difference. Finally, by presenting a variety of approaches to community birth from around the United States and globally, we hope to encourage greater use of systems-level approaches that could improve outcomes and reduce risks for pregnant families regardless of where they choose to give birth.

What is the Effect of Birth Setting on Outcomes?

There are enormous challenges in studying differences in outcomes by birth setting in the United States. The gold standard in medicine for examining an intervention is generally the large, prospective, randomized trial—unfortunately, recruitment of a significant number of women who would agree to be randomized to birth setting is not possible.^{57,58} Further, until recently, most U.S. studies did not appropriately identify intended compared with actual place of birth, control for risk profiles of patients across cohorts, account for effects of provider type, nor correctly address whether outcomes would have occurred regardless of birth setting (ie, congenital abnormalities). Most studies on birth setting are also retrospective and fraught with issues of potential confounding. There are undeniable differences between demographic, cultural, and clinical characteristics for women who have chosen community birth compared with hospital birth, that have not been reliably nor systematically measured. Another major issue is the lack of statistical power in existing studies for rarer outcomes (such as perinatal or maternal mortality), although most studies are adequately powered for common outcomes such as cesarean delivery.



The major methodologic issue with U.S. vital records data is the challenge of identifying individuals who intended a community birth. This leads to misclassification bias: those with an unplanned home birth are erroneously included in the home birth group, and women who had intended a community birth, but transferred to a hospital during labor, are erroneously classified in the hospital birth group. Despite these challenges, there is a body of evidence that provides some suggestion of outcomes across settings in the United States.^{14,25,59} Given the fragmented nature of U.S. data sources, it is perhaps not surprising that the majority of work on outcomes by birth setting has been conducted using registries that do collect data using an intention-to-treat model and have the ability to track attribution of outcome to provider type or level of care over the course of pregnancy and birth.

Recognizing varying standards for study design and the challenges of comparing outcomes across states or regions, an international panel of experts recently developed and validated the Birth Place Research Quality Index.⁶⁰ This critical appraisal tool assesses study rigor using 27 criteria specific to investigations of the effects of birth place on maternal and neonatal outcomes. A quantitative summary score is calculated to rate the quality of studies as high (scores of 75% and above), moderate (65–74%) or low (less than 65%). In 2018, a multidisciplinary team in Australia applied the Birth Place Research Quality Index to a global systematic review and meta-analysis of research comparing safety by place of birth among women with low-risk pregnancies in high-income countries.⁶¹ Based on data from high and moderate quality studies (Table 1), they concluded that intended birth setting does not significantly affect adverse perinatal outcomes, and women who planned a community birth had significantly lower rates of intervention and severe morbidity.

Studies of Populations Outside the United States

Some of the most widely cited work on outcomes across birth setting comes from the Netherlands. Four large studies have found no significant differences in intrapartum or neonatal mortality rates when comparing planned home and planned hospital births. The first study compared 529,688 low-risk women in midwife-led care at the onset of labor ($n=321,307$ planned home and $n=63,261$ hospital births²⁷). A second reported a retrospective analysis of natural prospective (intention to treat) and perfect guidelines approaches ($n=679,952$ low-risk women⁶²), and a third compared low-risk women in midwife-led care

planning home and hospital births ($n=466,112$ planned home birth and $n=276,958$ planned hospital²⁸). In addition, a study by de Jonge³⁶ and colleagues using a retrospective analysis of national perinatal registry and maternal morbidity data found no significant differences in severe maternal morbidity (admission to intensive care unit, uterine rupture, or hemolysis, elevated liver enzymes, and low platelet count syndrome) between home births ($n=92,333$) and hospital births ($n=54,419$) for low-risk, term, singleton pregnancies (Table 1).

In Australia, Kennare et al²¹ used a retrospective population-based design ($n=1,141$ home birth; $n=297,192$ hospital births) and found similar perinatal mortality rates between the two groups (7.9 vs 8.2/1,000), but a higher intrapartum fetal death rate in the home birth group (1.8 vs 0.8/1,000), with significantly lower cesarean delivery and episiotomy rates at home relative to the hospital (cesarean delivery: 9.2% vs 27.1%; episiotomy: 3.6% vs 21.7%). Catling-Paul et al²⁴ examined 12 publicly funded homebirth programs in Australia ($n=1,807$; 97% of all home births) and found a 1.7 per 1,000 neonatal mortality rate and a 5.4% cesarean delivery rate. The largest study conducted to date in Australia by Homer et al³⁰ was a retrospective analysis of public birth data ($n=258,161$ with 0.3% planning a home birth) and found a nonsignificant difference in a composite perinatal and neonatal mortality–morbidity index score (7.1/1,000 for planned home birth vs 5.8/1,000 for planned hospital birth), and a significant difference in cesarean delivery rates at 3.3% compared with 10.6% for home and hospital, respectively.

Janssen et al³² conducted a 5-year prospective cohort study in Canada, and found no significant differences in perinatal mortality between three groups—midwife-attended home births (0.35/1,000), midwife-attended hospital births (0.57/1,000), and physician-attended hospital births (0.64/1,000). Maternal outcomes were all better in the home delivery group (cesarean delivery rate: 7.2% home vs 10.5% hospital midwife; intact perineum rate: 54.4% home vs 7.2% hospital midwife; and postpartum hemorrhage rate: 3.8% home and 6.0% hospital midwife). A second Canadian study with a retrospective nested case-control design⁶³ ($n=6,692$ planned home births matched to 6,692 planned hospital births for comparable low-risk women) found no differences in combined perinatal–neonatal mortality rates (1/1,000 in both samples), nor for a composite perinatal and neonatal mortality–morbidity score (2.4% for home vs 2.8% for hospital). Cesarean delivery rates were lower



Table 1. Studies on Home Birth Outcomes by Nation with ResQu Index Score for Research Quality

Study	Country	Key Findings*	ResQu Index Score ⁶⁰ for Research Quality
Johnson & Daviss ³⁷	US	Home-to-hospital transfer rates: 12.1% IP and NEO deaths 1.7/1,000 (excluding breeches and twins) Epidural 4.7% Episiotomy 2.1% C/S 3.7%	Low
Grünebaum et al ¹⁶	US	Home births were more likely to have Apgar of 0 at 5 minutes (RR 10.55), seizures, and serious neurologic dysfunction (RR 3.80) Women attended at home were more likely to be multiparous, non-Hispanic white, to deliver beyond 41 weeks, and to have macrosomic infants	Moderate
Cheng et al ¹⁵	US	5-minute Apgar score <4 0.37% home versus 0.24% hospital ($P=0.009$) 5-minute Apgar score <7 2.42% home vs 1.17% hospital NICU admission 0.57% home vs 3.03% hospital Higher rates of intervention in hospital births	Low
Cox et al ²⁶	US	1,733 of births occurred at home (94.5%) Reasons for transfer were ROM at term, failure to progress, choice, C/S, breech, FHR abnormalities, hypertension, twins, maternal fever, IUFD 0.4% NEO hospital admission 0.4% NEO death (all with anomalies) 5.5% PPH 13.55% perineal laceration rate 1.3% maternal postpartum complication rate	Low
Grünebaum et al ¹⁹	US	NEO mortality: Midwife home births =0.97/1,000 Midwife hospital births =0.32/1,000 NEO mortality of women with a first birth: Midwife home births =1.73/1,000 Midwife hospital births =0.33/1,000 NEO mortality of women with gestation >41 weeks: Midwife home births =1.02/1,000 Midwife hospital births =0.27/1,000	Low
Grünebaum et al ¹⁷	US	5-minute Apgar: Hospital doctor RR =1.00 Hospital midwife RR =0.55 Home midwife RR =10.55 Neonatal seizures or neurologic dysfunction: Hospital doctor RR =1.00 Hospital midwife RR =0.74 Home midwife RR =3.8	Low
Cheyney et al ²⁵	US	Birthed at home 89.1% 5-minute Apgar score <7 1.5% IP or NEO deaths including high risk births 2.06/1,000 Augmentation and/or epidural 4.5% Spontaneous vaginal birth 93.6%	Moderate
Snowden et al ¹⁴	US	Higher perinatal death in the community setting 3.9 vs 1.8 deaths per 1000 deliveries ($P=.003$) Community birth strongly associated with unassisted vaginal delivery (93.8%, vs. 71.9% with planned in-hospital births; $P<0.001$) and with decreased odds for obstetrical procedures	High
Grünebaum et al ¹⁸	US	CNM-attended home births have increased odds of breech presentation (aOR 2.64, 95% confidence interval [CI] 2.19-3.18) and twin pregnancies (aOR 1.7, 95% CI 1.39-2.08), compared to CNM-attended hospital births.	N/A

(continued)

Table 1. Studies on Home Birth Outcomes by Nation with ResQu Index Score for Research Quality (continued)

Study	Country	Key Findings*	ResQu Index Score ⁶⁰ for Research Quality
Wasden et al ²⁰	US	Neonates with HIE had a 44.0-fold (95% CI 1.7–256.4) odds of having delivered at home or in a birth center (unplanned or planned) Infants with HIE had a 21.0-fold (95% CI 1.7–256.4) increase in adjusted odds of having had a planned home birth compared to infants without HIE	N/A
Kennare et al ²¹	Australia	Transfer rate: 30.6% Perinatal mortality rates similar (7.9 vs 8.2/1,000) IP fetal death higher in home birth group (1.8 vs 0.8/1,000) Apgar <7: 1.1% planned home births, 1.4% hospital births (NS) Admit to NICU 7.7% for home vs 15.0% for hospital (NS) C/S rate 9.2% vs 27.1% Episiotomy rate 3.6% vs 27.1% PPH 4.4% vs 5.5% (NS)	Moderate
Catling-Paul et al ²⁴	Australia	Transfer rate: 17% NEO mortality 1.7/1,000 2.7% admit to SCN 96.8% breastfeeding initiation 69% breastfeeding at 6 weeks 5.4% C/S rate 3.8% instrumental birth rate 56% intact perineum 2.6% episiotomy rate 1.8% PPH rate	Moderate
Homer et al ³⁰	Australia	Transfer rate: 29% Stillbirth 1.44/1,000 home vs 1.05/1,000 hospital NEO composite outcome 7.1/1,000 home vs 5.8/1,000 hospital (NS) 3.3% C/S rate for planned home birth 10.6% C/S rate for planned hospital birth 4.1% instrumental birth for planned home 15.5% instrumental birth for planned hospital	High
Hutton et al ⁶³	Canada	Perinatal/NEO mortality 1/1,000 both groups Composite perinatal neonatal morbidity/mortality 2.4% for home vs 2.8% for hospital (NS) PPH 0.8% home vs 1.2% hospital ($P=0.026$) Lacerations 54% home vs 61% hospital ($P<0.000$) C/S 5.2% home vs 8.1% hospital ($P<0.000$) Breastfeeding 6 weeks 87.5% home vs 76.8% hospital ($P<0.000$)	High
Janssen et al ³²	Canada	Perinatal mortality 0.35/1,000 in home birth group 0.57/1,000 in hospital midwife group 0.64/1,000 in hospital physician group (NS) Apgar <7 at 5 minutes RR 0.76 home vs 0.74 hospital midwife (NS) C/S rate 7.2% home birth vs 10.5% hospital Operative vaginal birth 3.0% home vs 7.2% hospital midwife Intact perineum rate 54.4% home vs 46.1% hospital midwife PPH rate 3.8% home vs 6.0% hospital midwife	High
Kataoka et al ³⁸	Japan	No neonatal mortality in either group No difference in Apgar scores PPH rate for primiparous women 17.6% in home vs 27.2% in birth center	Low
Hiraizumi & Suzuki ²⁹	Japan	No difference in perineal outcomes Transfer rate: 27% Neonatal outcomes:	Moderate

(continued)



Table 1. Studies on Home Birth Outcomes by Nation with ResQu Index Score for Research Quality (continued)

Study	Country	Key Findings*	ResQu Index Score ⁶⁰ for Research Quality
		Apgar <7 1.6% for home, 1.8% for hospital Maternal outcomes: Labor >24 hours 2% for both groups; C/S 2.4% for home, 2.5% for hospital; PPH 6.0% for home, 5.7% for hospital No difference between groups	
de Jonge et al ²⁷	Netherlands	IP or NEO death 0.06% home vs 0.07% hospital Admit to NICU 0.17% home vs 0.20% hospital	High
van der Kooy et al ⁶²	Netherlands	IP and NEO death <7 days 0.15% planned home vs 0.18% planned hospital	High
de Jonge et al ³⁶	Netherlands	Four risk factors were present in 85% of deaths: congenital anomaly, preterm, IUGR, or low Apgar score Severe maternal morbidity 1.5/1,000 home vs 2.7/1,000 hospital (NS)	High
de Jonge et al ³¹	Netherlands	PPH rate 29.2/1,000 home vs 39.9/1,000 hospital (NS) IP or NEO deaths nulliparous 1.02/1,000 home vs 1.09/1,000 hospital	High
		Parous 0.59/1,000 home vs 0.58/1,000 hospital (NS) 5-minute Apgar scores <7 Primiparous 7.9/1,000 home vs 8.85/1,000 hospital Parous 3.2/1,000 home vs 4.57/1,000 hospital (NS) Admit to NICU Nulliparous 3.41/1,000 home vs 3.61/1,000 hospital Parous 1.36/1,000 home vs 1.95/1,000 hospital (NS)	
Davis et al ³⁵	New Zealand	C/S rate, 2.6% home, 32% primary unit, 8.5% secondary hospital, 14.9% tertiary hospital ($P<0.0005$)	High
Blix et al ²³	Norway	Perinatal mortality rate 0.6/1,000 home and hospital NEO mortality rate 0.6/1,000 home and 0.9/1,000 hospital (NS) No difference in Apgar scores Instrumental birth: primiparas 5.7% home vs 14.8% hospital, multiparas 0.6% home vs 2.0% hospital Episiotomy: primiparas 13.3% home vs 16.7% hospital, multiparas 1.7% home vs 3.7% hospital PPH: primiparas 7.1% home vs 10.7% hospital, multiparas 1.9% home vs 6.6% hospital	High
Lindgren et al ³⁹	Sweden	NEO mortality 2.2/1,000 home vs 0.7/1,000 hospital (NS) No difference in Apgar scores Spontaneous vaginal birth 95% home vs 84% hospital ($P=0.002$) Vacuum 2% home vs 10% hospital ($P<0.001$) Episiotomy 1% home vs 7% hospital ($P<0.001$) Perineal lacerations 18% home vs 31% hospital	Low
Birthplace in England Collaborative Group ³⁴	United Kingdom	NEO composite outcome measure was low for the entire sample and no difference between groups When sample was split, the adverse outcomes were slightly higher in nulliparous at home (9.3/1,000) than in hospital (5.3/1,000) Odds of Pitocin, epidural, C/S, vacuum forceps higher in obstetric unit vs home	High
Nove et al ⁴⁰	United Kingdom	PPH rate was 0.038% at home vs 1.04% hospital ($P=0.000$)	High

*Key findings from homebirth studies.

US, United States; IP, intrapartum; NEO, neonatal; C/S, cesarean section; RR, relative risk; ROM, rupture of membranes; PPH, postpartum hemorrhage; HIE, hypoxic ischemic encephalopathy; SCN, special care nursery.

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in the home group (5.2% vs 8.1% $P<.000$) as were postpartum hemorrhage and laceration rates.

In Japan, a retrospective study by Kataoka et al³⁸ examined outcomes for 5,477 women attended by midwives in birth centers (83.9%) and at home (16.1%) and found no neonatal mortality in either group and no differences in other perinatal outcomes. Postpartum hemorrhage rates were lower for nulliparous women who gave birth at home (17.6%), compared with birth centers (27.2%).

In New Zealand, a population-based retrospective cohort study³⁵ examined mode of delivery, active management of third stage and postpartum hemorrhage among low-risk women planning births at home, in primary units, and secondary and tertiary level hospitals. The authors found a wide range of cesarean delivery rates across birth settings: 2.6% home, 32% primary unit, 8.5% secondary hospital, and 14.9% tertiary hospital ($P<.001$). A retrospective cohort study in Norway²³ compared planned midwife-attended home births ($n=1,631$) to a low-risk comparison group born in the hospital ($n=16,310$) and found no significant differences in perinatal or neonatal mortality rates nor in Apgar scores, but found significantly lower rates of instrumental delivery and episiotomy at home. In a retrospective study of the Swedish Medical Birth Registry, Lindgren et al³⁹ compared 897 planned home births with 11,341 planned hospital births. They found no significant differences in neonatal mortality nor in Apgar scores. Rates of spontaneous vaginal births were higher at home (95% vs 84%, $P=.002$); vacuum extraction (2% vs 10%, $P<.001$), episiotomy (1% vs 7%, $P<.001$), and perineal laceration (18% vs 31%) rates were all lower at home.

The Birthplace in England Collaborative Group³⁴ conducted a prospective cohort study comparing home, birth center, and midwifery and obstetric hospital units ($n=64,538$ low-risk women at term) for a composite outcome that combined stillbirth, early neonatal death, meconium aspiration, birth-related injuries, and encephalopathy. Overall, no differences in the composite outcome for the entire sample were found. However, when the sample was stratified by nulliparity, rates of the composite outcome were higher for home than for hospital for nulliparous women (9.3/1,000 vs 5.3/1,000). Despite this finding, the authors conclude that home birth is a viable option for all women, including first-time mothers, in the United Kingdom, owing to the higher rates of morbidity and intervention—oxytocin usage, epidural, cesarean delivery, and operative vaginal birth—in the hospital group relative to home. A follow-up economics study con-

cluded that home birth was a cost-effective option for all low-risk women, including nulliparous women.⁶⁴

Studies From U.S. Populations

There have been at least 11 studies conducted in the United States—seven of which rely on birth certificate data, and four use birth registry data. Five studies by Grünebaum et al,^{16–19,43} and one by Cheng et al¹⁵ rely on U.S. birth certificate data from 2007 to 2011, and 2008, respectively. All find worse neonatal outcomes for completed home births including higher rates of neonatal mortality, low Apgar scores, and neonatal seizures. However, none of these studies used an approach to track outcomes by intended place of birth and provider type and are thus thought to suffer from misclassification bias, among other major concerns. After Oregon added new variables to the birth certificate (intended place of delivery and qualifications of the intended provider), Snowden et al¹⁴ were able to use an intention-to-treat approach by limiting analyses to data from Oregon over the 2-year period after the change ($n=79,727$). This study found poorer neonatal outcomes at home and in birth centers, specifically a perinatal mortality rate of 3.9 per 1,000 in community birth compared with 1.8 per 1,000 in hospital birth, but, as expected, a much higher rate of cesarean delivery in the hospital.

Four descriptive studies by Cox et al,²⁶ Cheyney et al,²⁵ Johnson and Daviss,³⁷ and Stapleton et al⁵⁹ have documented low rates of interventions, transfers of care, and morbidity and mortality at home and in birth centers for various populations, though being descriptive in nature, none have an explicit comparison group. Another limitation of these four studies is that, unlike vital statistics, they use samples rather than complete populations, and thus might not be generalizable.

Sadly, the United States has yet to have a national, prospective, cohort study that uses an intent-to-treat model that compares outcomes by planned birth location and provider type, controls for maternal risk factors and other confounders, and has paid adequate attention to statistical power for rare outcomes. Thus, it is currently impossible to replicate the kinds of work done in the other high-resource countries cited above owing to the lack of a uniform, nationally validated data collection tool. Given the rising rates of community birth in the United States, the ability to track outcomes by intended place of birth, provider type at the onset of labor, transfers over the course of care, and pregnancy characteristics is increasingly important. This would improve if all states modified the birth certificate following Oregon's example.



What Are the Differences in Systems for Low-Risk Birth in the United States and Elsewhere?

In the United States, health care has grown into a massive, predominantly for-profit structure whose projected spending may be 20% of the entire economy in the next decade.⁶⁵ Unfortunately, much of this care is fragmented. Ideological, technical, and geographical barriers make it difficult for providers and medical record systems to communicate easily across outpatient and inpatient environments, between different facilities, and between clinical and social services. As a result, the integrated maternity care systems modeled by the Netherlands and the United Kingdom—where most women with low-risk pregnancies begin care with a community-based midwife and then move with fluidity to higher levels of care as needed according to nationally determined guidelines—is currently a near impossibility in most of the United States.

In the United States and Canada, guidelines for practice are determined by state or provincial regulatory bodies; in contrast, the United Kingdom and the Netherlands have national guidelines. National guidelines typically recommend hospital care for pregnancies complicated by preexisting maternal medical conditions such as seizure disorders, as well as complications of the current pregnancy (eg, preeclampsia or gestational diabetes). Other eligibility criteria for home birth exhibit far more variability, such as the definition of postterm pregnancy, as well as guidelines for breech, twins, and labor after prior cesarean delivery. However, most nations support community birth for term, singleton vertex fetuses. In countries with existing national guidelines, the system is mandated to attend women in the place of their choice, even if they do not adhere to national guidelines, via a process of person-centered, complex care planning. To date, there has been no systematic comparison of community birth eligibility criteria internationally.

Whereas other high-resource countries work to match care level to maternal risk and individual preference (ie, normal, healthy pregnancies cared for by midwives, with more complicated pregnancies comanaged by mixed provider teams or referred to obstetricians or perinatologists), in the United States, 98% of births occur in the hospital, with 89% attended by physicians irrespective of individual clinical risk profiles or patient preference. As such, low-risk women commonly have a hospital birth attended by an obstetrician, simply because midwifery care or community birth options are not locally available. Similarly, women with medically complicated preg-

nancies may “choose” in-home care owing to restrictive policies that prevent, for example, labor after cesarean delivery in local hospitals, or out of necessity in rural communities suffering from provider shortages.⁶⁶

Such disconnects between patients’ clinical and psychosocial needs and options for birth setting and provider type, combined with the underuse of skilled midwives in the United States relative to other high-resource countries, result in significant differences between the United States and other wealthy nations regarding the management of low-risk births. The risks, benefits, and alternatives of birth location and provider type are simply not discussed with most pregnant people in the United States. What is commonly discussed are individual preferences regarding components of routine hospital care. Are women interested in unmedicated childbirth? Or is there a plan for an epidural at the earliest point possible? Increasingly, providers encourage the creation of birth plans that are designed to convey patient preferences and values as families think through a checklist of possible options and interventions. However, regardless of patients’ expressed desires, medical interventions have become increasingly common, owing to the growing number of indications for induction of labor. Labor induction and cesarean delivery rates remain particularly high at 23% and 32%, respectively.⁶⁷ Use of oxytocin for augmentation is also quite high, with recent studies showing that more than 50% of women in some hospitals receive this intervention.^{68,69}

For women considering an alternative to an obstetrician-attended hospital birth, modern technology and social media may enable them to identify and get input on a range of options.^{70,71} Depending on geographical location, home birth providers and birth centers may or may not be available. When they are, they may or may not have established collaborative relationships with the local hospital(s) that would be called on to provide more advanced medical care if needed. For example, if a woman goes beyond 41 weeks of gestation, and wishes to obtain antenatal testing, in some places this is easily arranged by the community provider. In other places, it becomes a stressful, obstructive experience that requires the woman to arrange an initial prenatal care visit and explain why she is presenting for care so late in pregnancy. She may be questioned about her intent to undergo a community birth, required to transfer care before any testing is ordered, or even denied access to care citing physician liability concerns that arise from collaborating with a community midwife.⁷² Similarly,



when complications arise during labor (prolonged labor and maternal exhaustion are the most common indications^{73,74}), transfer from a planned community birth to a hospital setting can range from clearly delineated relationships and protocols between providers in a collaborative experience, to hostile, combative relationships that can contribute to poor outcomes.^{25,75,76}

The U.S. experience (which is highly variable across states, hospitals, and individual providers) differs dramatically from a number of health systems around the world in this respect. For example, in the Netherlands, the majority of women begin pregnancy with a community provider and many with the intent of a community birth. However, there are clear guidelines agreed on by most midwives and obstetricians that help determine place of birth and primary provider.⁷⁷ If a pregnant person develops certain risk factors such that a hospital birth becomes the recommended plan for delivery, the birth plan is adjusted accordingly. Transfers to higher levels of care from home or birth center are commonplace^{75,76,78} and not occasions primarily marked by interprofessional strife as they have been reported to be in the United States and elsewhere.^{73,79}

Another important and often overlooked difference between the United States, Europe, and Canada is the proportion of midwife-attended births across birth settings, including those in the hospital or in alongside units. In the United Kingdom, Australia, New Zealand, Canada, and others, midwives lead the care model for low-risk women. Although the majority of women still deliver in hospitals, midwives are their primary providers throughout their outpatient prenatal care and during their labor and birth. If there is an indication for an operative vaginal delivery or a cesarean delivery, or if other complications beyond a midwife's scope of practice arise, a physician is immediately available. The midwife may also remain the primary provider for the mother across settings. This means that, for women who do develop risk factors or for those who simply prefer to birth in a hospital, they may stay with the midwifery practice they have been with throughout pregnancy. In these systems with higher levels of integration, choices are more fluid and decisions about birth setting may be flexibly adjusted at multiple points over the course of care (ie, after the 20-week anatomical survey ultrasound scan, in the third trimester, at the onset of labor, or many hours into a slowly progressing labor). There are often fewer potential consequences of these choices—clients do not have to leave the care of a trusted midwife and can worry less about how they

will be perceived on arrival at the hospital. Transfer of care from community to hospital in high midwife-utilizing nations is an expected, predictable, and desirable outcome. It is relatively common for pregnant people to require a consult or triage to a higher-level facility or specialty provider at some point in the pregnancy.

In contrast, moving from community to hospital in the United States almost always means a change in provider. Ethnographic data on women and providers in the United States suggest that these movements across place, space, and provider type are often not characterized by smooth articulations.^{72,79,80} Such transfers are all too often described as fear-inducing crises, sentinel events, morbidities, or occasions to report midwives to regulatory boards, rather than as normal and expected aspects of a care process.

We all share the responsibility for decreasing the chasm between community and hospital care and between obstetrician and midwife where these exist; a shorter distance to traverse literally, metaphorically, and ideologically could mean improved outcomes for all. Indeed, a recent study of midwifery integration in the United States shows that states with midwife-inclusive laws and regulations tend to have better maternal and neonatal health outcomes, including lower rates of premature births, cesarean deliveries, and newborn deaths.³¹ These states also had higher rates of physiologic birth, breastfeeding, and vaginal birth after cesarean delivery. Overall, findings from this study suggest that, in states where families have greater access to midwifery care across all settings, and where midwives are well integrated into the maternity system, mothers and newborns tend to experience improved outcomes. The converse was also demonstrated: where integration of midwives is poor, so are outcomes. A large body of cross-cultural research has demonstrated similar relationships between midwifery care, systems integration, and improved maternity care outcomes.^{81–84}

What Are the Key Practice Differences Between Community and Hospital Birth?

What makes it so difficult in some places to achieve integration across birth settings? Sometimes difficulties emerge when midwives and physicians must work together across different models of care^{72,79,85} and outside their comfort zones, serving an unfamiliar patient base who may carry highly varied expectations and desires for their care.⁸⁶ Fear and misgivings may also result from the very limited contact community- and hospital-based providers have with one another. Most interactions between community and



hospital providers occur during intrapartum transfers of care, when emotions are heightened owing to the uncertainty and stress that comes from having to collaborate in caring for someone who has made an active attempt to avoid a hospital-based model of care.⁷⁶ Intrapartum transfers, by definition, also occur in more complicated labors, adding another layer of stress and fear for all parties. In addition, hospital-based providers may very rarely have the opportunity to observe normal, low-risk births or the effective and skilled first-line management of complications at home or in birth centers. Similarly, community midwives rarely see normal physiologic birth in the hospital, as their clients who transfer do so because they require or desire intervention.

Another confusing issue is that the United States uniquely has three credentialing routes to becoming a professional midwife: the CNM (Certified Nurse Midwife), CM (Certified Midwife), and CPM (Certified Professional Midwife). Although largely distinct, these credentials share key similarities. For example, all credentialed midwives are distinguished from “lay,” “traditional,” or “plain” midwives who practice without having demonstrated the ability to meet formal training and certification requirements. Uncredentialed midwives (a distinct minority) attend only homebirths and some prefer the complete autonomy of staying “outside the system” where they are not bound by its rules and regulations; their practices are completely unregulated in most states.⁸⁷ They may also remain unlicensed because there is no path to licensure in their state. In contrast, all professional, credentialed midwives have standards for nationally accredited certification. As many physicians (and most patients) do not understand these different pathways, there can be confusion about their colleagues’ training and knowledge base when physicians are interacting with midwives.

At home and in many birth centers, continuity of care is normative.⁸⁶ Clients are socialized into extensive discussions around options for antenatal testing, and it is relatively common for a person to decline an intervention or test that is standard of care (prenatal labs are one exception, as these are very rarely declined). For labor management, pharmacologic induction or augmentation are near complete impossibilities in the community setting.⁸⁸ Fetal heart rate monitoring is by intermittent auscultation, and intravenous drips are very rarely used except to treat maternal dehydration or hemorrhage. Some states allow for group B streptococcus (GBS) prophylaxis in the community setting (more so in birth centers than at home), though antibiotics are often declined unless there is an active infection because women in-

tending to have a community birth tend to be concerned about preserving their microbiome.⁸⁹

Generally, there is a deeply held belief by community midwives and their clients that spontaneous onset of labor, upright movement throughout the first stage, continuous labor support from someone who is well known to them (as opposed to what some call “intimate strangers”⁴¹), upright pushing positions, skin-to-skin contact, and exclusive, on-demand breastfeeding leads to the best outcomes.⁹⁰ Thus, when an emerging complication necessitates a transfer of care, it can be very difficult for women who have been socialized into trusting birth, their bodies, and their instincts, to make the intellectual and emotive leap to accepting potentially beneficial interventions such as epidurals or oxytocin augmentation. After all, they have often spent their entire pregnancy affirming their choice to birth in an intervention-free space. The time it takes to make this mental shift, and the number of questions that may be asked during that process, can be read by receiving providers as distrust.

For most low-risk women in a practice that plans delivery in a hospital setting, prenatal visits occur at specific, routine times throughout the pregnancy. These visits are predominantly performed through a more medicalized model of care focused on disease and complication prevention—screening for infectious diseases, gestational diabetes, and preeclampsia, for example. In the hospital, the focus is on mitigating risk, for example, by inducing labor to reduce the risk of stillbirth or maternal morbidity. During the labor and delivery experience, physicians and other hospital-based providers rely on a combination of available technology and obstetric skill to reduce risks of infection, bleeding, and fetal or neonatal injury. Unfortunately, some of those tools, such as continuous electronic fetal monitoring, have not lead to improved outcomes, and indeed may contribute to higher rates of intervention.⁸⁸ In terms of pain control, providers honor women’s preferences, and a large majority of women receive an epidural for analgesia at some point.^{90–92} Today, high levels of cesarean delivery and other interventions are common concerns.^{93,94} It is incumbent on hospital providers to work within their local systems to reduce interventions without worsening maternal and neonatal outcomes. Such efforts have been called for in a recent American College of Obstetricians and Gynecologists document that emphasizes an evidence-based approach to reducing obstetric interventions.⁹³ In addition, exposure to and collaboration across provider types and birth settings should enhance communication and deepen an understanding of practice variation across location.



Table 2. Community Outcomes by Risk Factor* From Lowest Relative Risk of Intrapartum or Neonatal† Death to Highest‡

Risk Factor (n=47,394)	IP or NEO	
	Absolute Risk	aOR (95% CI)
AMA (older than 35 y vs younger)	2.16/1,000	0.95 (0.48–1.7)
Obesity (BMI greater than 30 vs less than 25 kg/m ²)	3.34/1,000	1.5 (0.76–3.0)
LAC with vaginal birth	1.27/1,000	1.5 (0.36–6.5)
GDM	3.88/1,000	2.3 (0.55–9.7)
Postterm (greater than 42 weeks vs term)	4.74/1,000	2.8 (1.5–5.3)
Primiparous	3.43/1,000	3.0 (1.8–5.2)
Twins	14.5/1,000	3.3 (0.43–25.1)
Breech	3.88/1,000	8.2 (3.7–18.4)
LAC, no vaginal birth	10.2/1,000	10.3 (4.7–22.4)
Preeclampsia	16.2/1,000	10.5 (1.4–80.3)

IP, intrapartum death; NEO, neonatal death; aOR, adjusted odds ratio; AMA, advanced maternal age; BMI, body mass index; LAC, labor after cesarean; GDM, gestational diabetes mellitus.

* Data from Bovbjerg ML, Cheyney M, Brown J, Cox KJ, Leeman L. Perspectives on risk: Assessment of risk profiles and outcomes among women planning community birth in the United States. *Birth* 2017;44:209–21.

† Out to 28 days postpartum.

‡ Data are from a reference group of multiparous women with none of the listed risk factors.

Are There Specific Subgroups of Women Who Should or Should Not Be Offered Birth in the Community Setting?

In 2017, Bovbjerg et al⁹⁵ examined the independent contributions of a variety of risk factors to birth outcomes among women planning community births in the United States (n=47,394). Controlling for demographic confounders, they quantified the independent contribution to perinatal outcomes of 10 commonly cited risk factors, including nulliparity, age 35 years or more, obesity (body mass index [calculated as weight in kilograms divided by height in meters squared] higher than 30), gestational diabetes, preeclampsia, postterm pregnancy (greater than 42 completed weeks), twins, breech presentation, history of cesarean delivery with at least one previous vaginal birth, and history of cesarean delivery without a history of vaginal birth. This study was the first in the United States to examine the independent contributions of each of these risk factors to maternal and neonatal outcomes, including intrapartum, neonatal or maternal postpartum transfer, cesarean delivery, genital tract trauma, postpartum hospitalization for a maternal indication in the first 6 weeks, low (less than 7) or very low (less than 4) 5-minute Apgar scores, neonatal hospitalization in the first 6 weeks, and combined intrapartum and neonatal death.

Using low-risk multiparous women with none of the listed risk factors as the reference group, the researchers found that maternal age and obesity had quite modest effects, with adjusted odds ratios (AOR)

less than 2.0 for all outcomes. Breech birth, however, was strongly associated with morbidity and intrapartum and neonatal mortality (AOR 8.2, 95% CI, 3.7–18.4). Women with a history of both cesarean and vaginal deliveries had better outcomes than nulliparous women across all outcomes. However, women with a history of cesarean delivery but no prior vaginal birth had worse outcomes, including increased intrapartum and neonatal demise (AOR 10.4, 95% CI, 4.8–22.6). Cesarean deliveries were most common in women with breech presentations (44.7%), preeclampsia (30.6%), a history of cesarean delivery without prior vaginal birth (22.1%), and among nulliparous women (11.0%).

Findings from this study, and the larger body of literature that informed it, raises the question: if we focus on a ranking of risk for intrapartum or neonatal death in the community setting from lowest to highest (Table 2), is there a point at which we might say the hospital is a clear recommendation? Conversely, is there a point at which the risk of poor outcome is so low that it is unethical not to discuss the option of community birth, given the large potential reductions in maternal morbidity associated with planned community birth?

Cognizant that the American College of Obstetrics and Gynecologists and the American College of Nurse-Midwives have both clearly affirmed maternal autonomy, noting that women have the right to make choices about their care during labor and birth even if those choices place themselves or their fetuses or newborns at risk,⁹⁶ we struggle to draw a firm line.



Bovbjerg et al⁹⁵ argue that guidelines uniformly prohibiting labor after cesarean delivery in any setting should be reconsidered, at least for the subgroup with a history of cesarean delivery and at least one vaginal birth. Because breech presentation has the highest rate of adverse outcomes, they also argue for the management of vaginal breech labor in a hospital setting, while noting that, often, women with a breech fetus choose community birth precisely because vaginal breech delivery is not offered in their local hospital.

We concur with these suggestions with a few additional thoughts and caveats. Most women with a medical complication of pregnancy such as gestational hypertension or preeclampsia, a breech presentation, a prior cesarean delivery without a prior vaginal delivery, and multiple gestations should not routinely be offered a community birth. Yet, in areas where hospitals do not allow women to labor after a cesarean delivery, or to attempt vaginal delivery of breech or twins—which functionally forces women into cesarean delivery and the accompanying risks—community birth may be the only viable option for those who decline a planned cesarean delivery. In such instances, it is paramount that careful plans for closer monitoring and early transfer are in place. Alternatively, for healthy, multiparous women being cared for in regional systems with credentialing for community midwives, clear standards of care, and local hospitals aware of and committed to best practice guidelines in transfer, community birth options may be discussed, especially when patients express a desire for an unmedicated, physiologic birth. Finally, we also acknowledge that any guidelines or standards of care tied to birth setting will need to be flexible if we are to fully respect pregnant peoples' rights to autonomy and self-determination.^{97–99} However, standards and guidelines must be in place to facilitate the best possible care for those higher-risk women who nonetheless choose a birth setting, provider type, or both that goes against conventional medical advice.

How Should Women Be Counseled About Birth Setting?

A single counseling session geared towards giving guidance about birth location options cannot cover every detail and nuance. However, the critical differences in neonatal and maternal outcomes described above should inform the portrayal of risk—most notably, that all settings have risk of some kind, including hospitals. Differences in routine practices and experiences should be clarified and communicated as well. For example, the lack of continuous fetal monitoring

in the community setting means there is greater opportunity for the woman to move around during labor. Alternatively, for women who desire access to pain medications, a hospital setting might be a better match. In addition to experiential and outcome differences, we think it is important that women be educated about the local politics surrounding birth location. State laws, insurance reimbursement, malpractice coverage, credentialing procedures for providers, and back-up relationships (or lack thereof) with hospital providers can all pose unique challenges.

We as clinicians have a tendency to assume that a client or patient who does not elect what we as providers would choose must misunderstand the risks being presented, rather than acknowledging that the person may simply have a different set of values. Often, presenting a different graphic, or yet another metaphor for explaining risk, will not produce convergence in the end decision. If we agree that coercion and scare tactics are inappropriate, we will perhaps all have to become more comfortable with caring and collaborating across differences. There are risks and benefits of community birth, just as there are risks and benefits of hospital birth. Too often, we adopt a position of advocacy, downplaying the risks and amplifying the benefits of our own preferred birth location. Instead, it is vital that evidence-informed discussions of potential risks and benefits across all possible birth settings, tailored to individual circumstances, that balances autonomy of the mother with the obligation of beneficence to the child, guide our care.¹⁰⁰

What Can Hospital, Home, and Birth Center Birth Providers Do to Reduce the Morbidity and Mortality of Mothers and Newborns?

For many hospital-based providers, the immediate response is “encourage hospital birth.” For community providers, the answer might be “keep low-risk women out of the hospital.” Rather than debate the “best” option, it is paramount for all providers to work together to ensure that all women get person-centered care that values their preferences while upholding safety, broadly defined to include clinical as well as social, cultural, and emotional safety. Given the systems-level barriers described above, as well as the evident differences in the United States compared with other high-resource maternity care settings, we offer three concrete recommendations.

First, together, we need to remove the barriers to respectful interprofessional collaboration across birth settings and provider types while holding each other to the highest possible standards of care. In particular, the creation of clear, national-level guidelines by birth



location that not only reflect the best evidence, but also emphasize women's preferences and autonomy, are critical. Considering the differences between the care models in the United States and the Netherlands, for example, a key step forward would be the creation of a shared approach to caring for low-risk women, which would include defining who is, in fact, low-risk.

Second, one of the problems with current community birth transfers is the failure of communication between providers during the transfer itself. It is important for all parties to remember that transfers are not adverse outcomes—rather, they are a necessary part of a functioning primary care model. Nonetheless, reluctance to move to the hospital may stem from the fear of the loss of autonomy or to the lack of respectful treatment sometimes afforded to community midwives by hospital providers. For hospital providers, significant fear and anxiety can arise from caring for patients unknown to the institution, that may request care that is inconsistent with existing obstetric or institutional standards, and who may carry greater medical and legal risk. To improve collaboration during transfer despite such barriers, we encourage all communities to start by studying and adopting (with required regional modifications) the Home Birth Summit's¹⁰¹ Best Practice Guidelines and Implementation Tools for Transfer.

Third, we must train and use more culturally matched midwives. All other high-resource nations that have better outcomes than the United States have successfully incorporated highly skilled midwives into the system to extend access to care, improve outcomes for low-risk women, decrease cultural and epistemic violence, and optimize use of limited health care dollars.¹⁰⁰ The United States is the only high-resource nation without a maternity care system that routinely uses midwifery care. With midwives providing the bulk of the care for healthy women, obstetricians would be able to work at the top of their expertise caring for medically and surgically complicated pregnancies. There are U.S. institutions that have adopted this approach, but a nationwide approach could be truly transformative. We believe it is time.

DISCUSSION

In sum, we want to leave the reader with a few important considerations on the issue of birth setting. First, differences in neonatal outcomes among neonates born to low-risk women are small, particularly in health systems that are designed to integrate a range of birth options. Yet the rates of intervention, most notably in cesarean delivery, are greater for planned hospital births. Although in many other high-resource

nations community births are routine and midwives care for low-risk patients in all settings, such systematic approaches are not commonly implemented in the United States. We believe such approaches would allow for the more appropriate and cost-effective triage of healthy patients into lower intervention settings.

Second, U.S. perinatal outcomes will not improve without collaboration between community- and hospital-based providers. Without a clear, national, systems-level approach, local communities will need to build their own regional, collaborative systems. Hospital-based providers, who are often local health care leaders, can foster such collaboration by initiating communication with community providers with the express purpose of decreasing complications and increasing safety.¹⁰² We believe that this can be accomplished in many U.S. communities. In the end, the focus of our efforts should remain the pregnant people and children for whom we care.

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