

Place of Birth: Ethics and Evidence

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Abstract In the US and UK Births in obstetric units vastly outnumber births that take place outside of an obstetric unit. Still non-obstetric births are increasing in both countries. Is it professionally responsible to support a non-obstetric birth? It is morally responsible to choose to give birth at home? This debate has become heated with those on both sides finding empirical support for their positions. Indeed this moral debate is often carried out in terms of empirical evidence. While to some this debate over the evidence is a distraction from what is genuinely at stake, namely different non-epistemic values, I will argue in this paper that the way forward is to take a closer and more fine grained look at the evidence. This closer look will first require that we distinguish between evidence of risk acceptability and evidence of safety (relative risk) and then focus carefully on evidence of the safety of non-obstetric births compared to obstetric births.

Keywords Birthplace · Evidence · Relative risk · Safety · Non-epistemic values · Moral norms · Ethics

In the US and UK Births in obstetric units vastly outnumber births that take place outside of an obstetric unit. Still non-obstetric births are increasing in both countries. For example, in 2004 only .87 % of US births occurred in non-obstetric units (home or midwifery units), but by 2012 1.36 % babies were born in a non-obstetric unit. In the UK they have seen an even steeper increase, with only .9 % of births occurring at home between 1985 and 1988 rising to

2.4 % in 2011 (McLaren 2013; Products—Data Briefs—Number 144—March 2014 2014). Is it professionally responsible to support a non-obstetric birth? It is morally permissible to support women in choosing where to give birth? These are the kinds of questions that shape the debate over place of birth and for those who answer no to these questions the increase in non-obstetric births is alarming.

Given the emphasis on evidence-based policy and evidence-based medicine it may not be surprising that the current discussion of place of birth takes the shape of empirical studies investigating the relative riskiness of different birth place choices. This debate has become heated with those on both sides finding empirical support for their positions—sometimes within the same study (e.g. Birthplace in England Collaborative Group 2011; Chervenak et al. 2013). Elizabeth Bogdan-Lovis and Raymond de Vries have characterized the debate over place of birth as “dueling data” (Bogdan-Lovis and de Vries 2013). Following Lachian de Crespigny and Julian Savulescu’s recent article “Homebirth and the Future Child” two letters followed immediately criticizing their use of the evidence (de Crespigny and Savulescu 2014; Cohain 2014; Hollowell 2014).

While to some this debate over the evidence is a distraction from what is genuinely at stake, namely different non-epistemic values, I will argue in this paper that the way forward is to take a closer and more fine grained look at the evidence (de Vries and Lemmens 2006; de Vries et al. 2013; de Melo-Martín and Intemann 2012). This closer look will first require that we distinguish between evidence of risk acceptability and evidence of safety (relative risk) and then focus carefully on evidence of the safety of non-obstetric births compared to obstetric births. I am interested here in how the debate over place of birth is most fruitfully

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conducted; I will not attempt to answer the morally loaded questions that shape the debate itself.

1 The Evidence and Its Interpreters

If you are deliberating about where to give birth, then the contemporary literature may not be the place to go for clarity. Take for example the Birthplace in England Research Programme, which in 2011 published the largest prospective cohort study of its kind looking at 64,500 births to women at low risk for complications including almost 17,000 women who planned to give birth at home (Birthplace in England Collaborative Group 2011; Hollowell 2014). The main publication coming out of this research programme, ‘Perinatal and maternal outcomes for planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study’, compared three non-obstetric unit locations, i.e. home, freestanding midwifery units and midwifery units alongside obstetric units, with obstetric units to determine whether outcomes in the non-obstetric units differed from those in the obstetric group. The primary outcome for the study was a composite outcome of perinatal mortality and specific neonatal morbidities. Maternal morbidities and interventions were secondary outcomes. This study found that,

The incidence of adverse perinatal outcomes was low in all settings. There was no difference overall between birth settings in the incidence of the primary outcome (composite of perinatal mortality and intrapartum related neonatal morbidities), but there was a significant excess of the primary outcome in births planned at home compared with those planned in obstetric units in the restricted group of women without complicating conditions at the start of care in labour. In the subgroup analysis stratified by parity, there was an increased incidence of the primary outcome for nulliparous women in the planned home birth group (weighted incidence 9.3 per 1000 births, 95 % confidence interval 6.5–13.1) compared with the obstetric unit group (weighted incidence 5.3, 3.9–7.3) (Birthplace in England Collaborative Group 2011).

Based on these findings the authors conclude that,

Our results support a policy of offering healthy nulliparous and multiparous women with low risk pregnancies a choice of birth setting. Adverse perinatal outcomes are uncommon in all settings, while interventions during labour and birth are much less common for births planned in non-obstetric unit settings (Birthplace in England Collaborative Group 2011).

Some, including the UK’s National Institute for Health and Care Excellence (NICE) have agreed with the main conclusions of this study and in April 2015 decided to update their Intrapartum care guidelines in part because of these conclusions. These Guidelines now recommend that all healthy low-risk women have the choice of giving birth at home, in a freestanding midwifery unit, in an alongside midwifery unit or in an obstetric unit. But they advise low risk multiparous women to “plan to give birth at home or in a midwifery led unit” and nulliparous women are advised to plan to give birth in a midwifery led unit (Intrapartum Care | Guidance and Guidelines | NICE 2014).

But others referring to the same study have interpreted the evidence differently. For example, Frank Chervenak and colleagues in reference to the findings from the UK Birthplace Study argue that offering women a choice of birth setting, “is irrational and cannot be supported in light of the reported adverse outcomes for birth outside of an obstetric service” (Chervenak et al. 2013). In this article Chervenak et al. focus exclusively on outcomes reported in the Birthplace study referencing the population of women who did not experience complications at the start of labor. This additional analysis was added to the Birthplace study after the discovery that almost 20 % of women in the obstetric unit group, compared with ≤ 7 % in each of the other settings, had at least one complicating condition at the start of labor. This difference suggested to the UK researchers that the pregnancy risk profile was different among low risk women. When women experiencing at least one complication at the start of labor were excluded from their analysis, then the odds of experiencing a primary outcome were higher for planned homebirths than planned obstetric births (odds ratio 1.59 %). This is the statistic Chervenak and colleagues use to refer to the choice of a homebirth as “irrational”.

More recently de Crespigny and Savulescu (2014) have criticized the UK Birthplace Study because its primary outcome is a composite measure. They write that the study is “unhelpful” in determining the relative risk involved in choosing to give birth at home. They argue that it is unhelpful because the outcome includes disparate conditions, e.g. perinatal mortality, encephalopathy, humeral and clavicle fractures, which vary in the seriousness of their prognosis. For instance, while hypoxic-ischemic encephalopathy (HIE) contributes to long-term disability, fractures are typically less debilitating. Their argument is that without evidence of the relative risk of individualized morbidity outcomes, e.g. HIE, we cannot properly assess the safety of homebirths. Because such evidence is very difficult to obtain given the rarity of such events de Crespigny and Savulescu (2014) use an argument to suggest that it is more likely that homebirths would lead to more events of HIE over obstetric units and are thus unsafe.

The UK's Birthplace Study is the most recent example of how the evidence on the relative risk of non-obstetric birth settings are used and interpreted differently by different factions. There are, however, other examples. For instance, in a few different papers de Vries and colleagues discuss the way that studies of relative risk in the Netherlands have been appropriated differently by those in favor and those opposed to non-obstetric unit births (de Vries et al. 2013; de Vries and Lemmens 2006; de Vries et al. 2008). Other examples are not hard to find. In 2013 the *Medical Journal of Australia* published a retrospective analysis of women between 2005 and 2010 who planned a homebirth in one of the publically funded homebirth programs in Australia (Catling-Paull et al. 2013). Although the study was not powered to draw a conclusion about the safety of planned homebirth in Australia the authors concluded that their data contributed to the evidence that homebirths are a legitimate option for low risk healthy women. Following the study the journal published two letters challenging the interpretation of the data and the authors' conclusion (Clark 2013; Ieraci and Tuteur 2013).

The debate over the empirical evidence of planned homebirths is not particularly helpful—if by “helpful” one means contributes to the question whether or not it is safe to give birth at home. In the next section I begin to dissect this debate by distinguishing questions of safety from those of risk acceptability.

2 Safety Vs. Risk Acceptability

In his article, “Safety, Risk Acceptability and Morality” Macpherson (2008) argues that questions of safety and questions of risk acceptability are distinct. Citing previous conceptual accounts of safety, Macpherson argues that they fail because they define safety in terms of risk acceptability, i.e. something is safe if the risks it poses are acceptable. It is a mistake according to Macpherson to define safety in terms of risk acceptability because doing so renders the concept of safety too subjective. Safety is more objective than risk acceptability because there is a fact of the matter about safety, e.g. a bridge cannot both be safe and unsafe. For Macpherson (2008) this objectivity turns on the fact that questions of safety typically involve universal values, e.g. mortality, and the probability of that value being diminished.¹ On the other hand, risk acceptability, is more subjective because it takes into account the potential benefits of taking a risk and taking something to be a benefit is sensitive to individual values (Macpherson 2008).

¹ He argues that most of the values at stake in questions of safety are objective values, i.e. morality (Macpherson 2008).

Macpherson's distinction between safety and acceptable risk is a helpful way of roughly structuring the debate around place of birth even if questions of safety are not as value-free as he suggests. The empirical aspect of the decision about whether women should be given the choice to give birth in a non-obstetric unit, specifically in their home, is typically construed as a question regarding (1) the relative risk of a planned homebirth (compared to a planned obstetric unit birth), i.e. its safety or (2) whether homebirths represent acceptable risk given their potential benefits.² Although most discussions of homebirth feature both concepts, it is helpful for understanding this debate to follow Macpherson in separating these two questions and examine their relationship with one another.

For Macpherson X (a recipient) is safe in situation Y if and only if X has a significant amount of value and there is not a significant probability that something about situation Y could cause that value to be lost or diminished (Macpherson 2008). The cohort design used in the UK Birthplace Study seems to be one way to empirically determine safety according to Macpherson's definition. This study compared the occurrence of neonatal mortality and morbidity in planned non-obstetric unit births to planned obstetric unit births. Babies clearly have a significant amount of value and this value is expressed in part in terms of mortality and morbidity rates. One can determine if there is a significant probability that non-obstetric unit births increase mortality and morbidity by comparing them to a gold standard, i.e. obstetric units. If there is no difference in the relative risk of non-obstetric unit birth, then *ceteris parabis* planned non-obstetric unit births are safe.

To be sure empirical studies provide results about safety that are more nuanced than the abstract definition that Macpherson gives. Take the UK Birthplace Study. If we consider the weighted incidence of the primary outcome for all women in the study, then there were 4.4/1000 events in the planned obstetric unit group and 4.2/1000 in the planned homebirth group.³ Looking at these statistics, planned homebirths are safer for healthy women with low risk pregnancies than planned obstetric unit births. But if we look at the restricted population of women without a complication at the start of labor we see a weighted incidence/1000 of 3.1 for the obstetric group and 4.0 for the homebirth group. The odds of a primary event was 59 %

² To be sure, empirical concerns may not be the only ones relevant to health policy decisions regarding place of birth. A separate issue may be the weight that a women's autonomy should have, for a thoughtful article on the various dimensions of interest see Howe (2013).

³ Probability weights were used to account for the difference in the probability of woman being selected for the study, differences in units, differences in the participation times of different Trusts and the stratum-specific probabilities of selection of obstetric units.

higher for those planning a homebirth. Looking at these statistics planned homebirths look unsafe.

Consider another comparison in the UK Birthplace Study. Multiparous women planning an obstetric birth had 3.3 weighted primary outcome events per 1000 and for multiparous women planning a homebirth it was 2.3. The odds ratio for planned homebirths in this restricted population was .72, i.e. the odds of a primary outcome was *lower* for multiparous women planning a homebirth than multiparous women planning an obstetric birth. In this population, homebirth appears to be safer. But if we look at nulliparous women, those planning an obstetric birth had 5.30/1000 events and those planning a homebirth had 9.3/1000.

What should be made of the findings from this study? As I discussed above Hollowell and colleagues conclude that their results support a policy of offering all healthy women with low risk pregnancies a choice of birth setting. But given the mixed findings regarding safety, how do they reach this general conclusion? One clue is in the sentence that directly follows:

Adverse perinatal outcomes are uncommon in all settings, while interventions during labour and birth are much less common for births planned in non-obstetric unit settings (Birthplace in England Collaborative Group 2011).

This sentence appears to support their conclusion. We should offer all low risk women a choice of birthplace despite some of the mixed finding regarding safety because adverse outcomes are low in all settings and maternal outcomes are better in non-obstetric units. But then here Hollowell and colleagues go beyond an assessment of the evidence regarding safety of place of birth to make a statement about acceptable risk. Recall that for McPherson assessments of acceptable risk express values. When they write that perinatal outcomes are uncommon they are making an evaluative point about the riskiness of pregnancy (it is not very risky). When they write that interventions during labor and birth are much less common for births in planned non-obstetric units they are making an evaluative point about non-obstetric units (they are valuable because their maternal outcomes are better than obstetric units, e.g. rate of caesarean section (2.8/1000 vs. 11.1/1000), episiotomy (5.4/1000 vs. 19.3/1000), third or fourth degree perineal trauma (1.9/1000 vs. 3.2/1000), etc.)

To be sure these authors do not express themselves in terms of acceptable risk or values. But if they are not making a point about acceptable risk, then what is their point? Everyone agrees that adverse perinatal outcomes are relatively rare and no one disputes the claim that there are more interventions in obstetric units than outside of them. What *is* hotly disputed, however, is the significance of these empirical facts. Indeed Chervenak and colleagues, de

Crespigny and Savulescu and *The Lancet* have all made arguments regarding the significance of these facts, but unlike Hollowell and colleagues they do not take the rarity of adverse perinatal outcomes to support the general safety of birth nor do they take the lower incidence of maternal interventions in non-obstetric units to indicate their value. For instance, when de Crespigny and Savulescu look at the same mortality and morbidity statistics as Hollowell and colleagues they conclude that birth is “inherently risky” (de Crespigny and Savulescu 2014). For Chervenak et al. (2013) as well as de Crespigny and Savulescu (2014) birth is a risky time of life due the fact that adverse perinatal outcomes can and do occasionally occur even in the context of low risk pregnancies.

With regard to the maternal benefit of non-obstetric units, Chervenak et al. (2013), de Crespigny and Savulescu (2014) and *The Lancet* (2010) deny their inherent value. They have all argued that women cannot ethically expose their babies to any additional risk when deciding where to give birth, i.e. there are no benefits that could justify additional risk (*The Lancet* 2010; Chervenak et al. 2013; de Crespigny and Savulescu 2014). This is not to say that they believe maternal morbidity unimportant. Chervenak et al. (2013) argue that we ought to strive to create obstetric units with better rates of maternal morbidity. Nonetheless, when pushed maternal morbidity takes second place to the mortality and morbidity of the baby.

As with the Birthplace Study these assessments are not assessments of safety, but assessments of acceptable risk and thus as McPherson argues we see implicit values exposed. In arguing that birth is risky because rare events do occur, these authors make an evaluative point about the relative importance of adverse events (they are very important). By suggesting that women cannot put their babies at any additional risk, then *ceteris paribus* these authors make an evaluative point about the relative importance of maternal morbidity. Given these evaluative points of view, it makes sense that the UK Birthplace Study’s conclusion may seem “irrational” and “ideological” (Chervenak et al. 2013) or “a wish to return to the past” (de Crespigny and Savulescu 2014).

The authors that I have been discussing take rather strident positions on whether women should be given the choice to give birth in non-obstetric units. Hollowell and colleagues’ write that all women in the UK should be offered a choice of birthplace; Chervenak and colleagues’ conclude that professional responsibility precludes the participation or support of planned home births. Both sides claim that the empirical data (from the same study) supports their position. But I argue that these positions are less a function of the relative safety of different planned places of birth than they are the non-epistemic values that these authors employ to determine acceptable risk.

3 Non-Epistemic Values

Since the 1950s many philosophers of science have made a distinction between epistemic and non-epistemic values. Traditionally this distinction served to delineate those values that should influence the production of scientific knowledge, e.g. empirical adequacy, from those that should not, e.g. justice. It is now widely recognized that non-epistemic values play a legitimate role in science and some even question the usefulness of the distinction (Elliott and McKaughan 2013; Longino 1996). Nonetheless, in this paper I follow de Melo-Martín and Intemann (2012) in referring to the ethical and social values that play a role in the place of birth debate as non-epistemic.

Instead of conducting the debate over place of birth as if it was entirely a matter of the empirical evidence, de Melo-Martín and Intemann (2012) argue that we ought to recognize that values affect how the evidence is interpreted. They further argue that failing to do so has three negative consequences. First, in the current debate proponents and opponents of planned non-obstetric births talk past one another. Both parties offer reasons in favor of their position, but these reasons are not recognized as good or even relevant by the opposition because they do not share the same value judgments. Second, if the debate is taken to be about empirical findings, then the conclusion of continued debate is likely to be that we must do more research. Yet more research is unlikely to change the values that each party uses to interpret the data. Finally, if we fail to recognize and evaluate these values the evidence-based policies resulting from the evidence may be unsound (de Melo-Martín and Intemann 2012).

In the case of planned place of birth, does attention to the non-epistemic values further the debate? Yes and no. Let me first focus on how such attention might further the debate. De Melo-Martín and Intemann discuss four sources of disagreement between those that argue for and against home birth suggesting that non-epistemic values play an important role in one's position on each issue. Although de Melo-Martín and Intemann do a nice job of describing these sources of disagreement, they are less clear about the non-epistemic values that encode different positions within them. I am sympathetic to the difficulty in making these values explicit since they are typically implied, there are often multiple values at stake woven together in complex ways and indeed sometimes it is not a matter of differing values as it is differing interpretations of values both sides share. Nonetheless, to evaluate the usefulness of attending to these values it is important to work with examples instead of abstract generalities.

For de Melo-Martín and Intemann the four sources of disagreement in this debate are over (1) the weight that

should be given worst-case scenarios, (2) whether there are benefits of non-obstetric births that outweigh its risks, (3) how we should view pregnancy and childbirth, i.e. is it generally safe or risky, and (4) what should count as optimal care during birth. In the UK Birthplace study we have seen how three of these values affect the discussion of the evidence. Holowell and colleagues write that birth is generally safe because worst-case scenarios in low risk pregnancies are rare (Birthplace in England Collaborative Group 2011); Crespigny and Savulescu write that birth is inherently risky because worst-case scenarios sometimes do occur even in the context of low risk pregnancies (de Crespigny and Savulescu 2014), while Chervenak and colleagues argue further that our ability to screen for low risk pregnancies is imperfect (Chervenak et al. 2013). Moreover, while Holowell and colleagues think that the lower maternal morbidity found in planned non-obstetric births is a benefit in favor of them, Chervenak and colleagues do not, instead they argue that lower maternal morbidity is something towards which obstetric units should aspire (Chervenak et al. 2013). In other words, we should tolerate a certain level of maternal morbidity if and until obstetric units can match that of non-obstetric units.

What values might reasonably encode these disagreements? There is no study to my knowledge that investigates the non-epistemic values at play in this research nonetheless we might speculate. Consider the weight that should be given to worst case scenarios and whether childbirth is generally safe or risky. The position that Holowell and colleagues take might reasonably be motivated by values of respect for nature, individuality, expertise (midwifery), trust and what we might call clinical frugality. The positions that Crespigny and Savulescu, and Chervenak and colleagues could be influenced by values of respect for the unknown, duty, science, control and restraint. On the question of whether the benefits of non-obstetric birth outweigh its risks the values that undergird Holowell and colleagues position might be understood as family, partnership, health, quality of life, intimacy, privacy, transformation, autonomy and strength. Crespigny and Savulescu, and Chervenak and colleagues might be understood as relying on the values of family, partnership, health and quality of life while also emphasizing responsibility, patience and clinical expertise.

One reason it is helpful to consider the values that might be in contention when discussing the Birthplace study is that it clarifies what is at stake, which in turn helps to locate the disagreement. It also may help to illuminate some of the values that undergird policies such as NICE's new Intrapartum Care guidelines (Intrapartum Care: Care of Healthy Women and Their Babies during Childbirth | 1-Recommendations | Guidance and Guidelines | NICE

2015). At the same time de Melo-Martin and Intemann argue that the recognition of these values is not sufficient, we must also discuss and evaluate them. They suggest that discussion and evaluation is necessary in part to help move the debate forward and in part to ensure that the judgments that arise from these values are rationally supported. I would like to examine these two claims beginning with the latter.

In thinking about the way that practical reasoning can be used to justify our values I want to turn to some of the work of Jurgen Habermas. In his discussion of the employment of practical reason Habermas distinguishes among goal-directed questions, ethical questions and normative questions (Habermas 1994). Goal-directed questions employ instrumental rationality where a particular goal is assumed as well as knowledge of the relevant means. Rationality in this case refers to the choice of means that will be more effective in achieving the goal. For instance, if I choose to have an obstetric unit birth, then the construction of a birthing plan is a way of instrumentally directing the means by which such a birth will occur.

Ethical questions, on the other hand, refer to what Charles Taylor calls strong evaluations (Taylor 1985). Strong evaluations are evaluative judgments, the value of which is found in the quality of life they express relative to the life I want to lead. Thus if I prefer a home birth I might locate its value within the privacy and independence it affords me and within the way it allows me to share an intimate experience with my family and thus enrich those relationships. Strong evaluations are rational when individuals practice hermeneutic self-clarification (Habermas 1994). In doing so we adopt a reflective attitude towards our strong evaluations and attempt to interpret them in light of culturally established standards of value. For instance, I might recognize the American values of self-reliance and independence and ask how these values affect my decision to give birth at home. I might also look inward and ask if having a home birth is consistent with the kind of person I am and want to be.

Moral questions are again different from both instrumental and ethical questions. Moral questions ask about the permissibility of actions, e.g. should non-obstetric unit births be permissible options for healthy low-risk women? In doing so they break with the egocentric perspective and require us to focus on the norms of action that can be legitimately expected by all. Thus moral questions encompass a universal perspective not found in instrumental or ethical questions. As such Habermas argues that the rationality of moral questions is discursive. Answers to moral questions are rational when participants to the question are free to raise and challenge claims free from coercion, intimidation and the like. In addition participants must ignore all motives except those concerned with the

search for truth and lastly only the force of better argument can influence one's position (White 1995).

The values that motivate the disagreements in the debate over place of birth are strong evaluations even if in practice these strong evaluations are used in arguments over the permissibility of non-obstetric unit births, i.e. moral questions. As Rebecca Kukla and colleagues correctly point out questions about where and how to give birth are questions that vary among individuals according to the place that giving birth has within their narrative, identity or sense of self (Kukla et al. 2009).

De Melo-Martin and Intemann suggest that an evaluation of the values that underpin the disagreement in the place of birth is needed in part to ensure that these values are rationally supported. But unlike moral questions the rationality of strong evaluations rests on our ability to adopt a reflective hermeneutic stance. Thus while every strong evaluation is not necessarily rational there are nonetheless a wide array of rational visions of a good life. Moreover, the rationality of strong evaluations does not depend on garnering the agreement from others or even making myself intelligible to all others. Rather strong evaluations should provide me with authentic motivations for action, undistorted expressions of feelings and intelligibility with some other members of my culture (White 1995). It is difficult to see how an evaluation of these values in terms of their rationality will significantly move the debate forward, e.g. it is rational to understand the benefits of homebirth in terms of enriched family relationships just as it is rational to understand the drawbacks of homebirth in terms of threatened family relationships.

Furthermore, at least part of de Melo-Martin and Intemann's motivation for suggesting such an evaluation is to ensure that the policies that emerge from debates such as the one over place of birth are sound. But at least from a Habermasian perspective, this move is a category mistake. A policy such as NICE's intrapartum care guidelines outline national permissibility and support for non-obstetric unit births, as such it is the answer to a moral question, not an ethical one. Consequently, in the next section I want to move away from an explicit discussion of non-epistemic values and focus on aspects of the debate that are less contentious. In doing so I see myself as following a weak Habermasian agenda by constructing the beginning of a moral argument that could obtain agreement from all sides.

4 Evidence Redux

Much has been made over the last 60 years about the theory or value-laden quality of science. In the late 1950s and early 1960s Norwood Russell Hanson and Thomas Kuhn famously argued that scientific observations are

theory-laden. More recently philosophers of science such as Helen Longino and Heather Douglas have correctly pointed to the way values affect scientific practice (Longino 1990; Douglas 2009). They argue that values affect not only the topics that are seen as worthy of research, but also way these topics are modeled, the questions that are asked of these models and how in the face of uncertainty data is characterized. This critique of value-free science has also correctly been applied to evidence-based medicine (Goldenberg 2006).

In light of critiques such as these de Melo-Martin and Intemann (2012) are not alone in recommending that we pay explicit attention to the subjective and non-epistemic values involved in scientific and medical epistemology (Longino 1990; Douglas 2009; Goldenberg 2006). Although I agree that scientific and medical practice as well as the evidence it provides is laden with values in many of the ways these critics suggest, I argue in what follows that in planned place of birth we ought to return to different parts of the evidence base in order to side-step the strong evaluations that have come to characterize this debate.

To this end, I suggest we attend more carefully to the UK Birthplace study's findings of relative risk, i.e. safety of planned non-obstetric units vs. planned obstetric units. These findings are worth discussing more carefully for at least three reasons. First, unlike questions about the safety of birth, the relative risk of planned non-obstetric unit births have a clear gold standard, i.e. planned obstetric units births. Second, unlike questions of the importance of maternal morbidity, everyone agrees that adverse perinatal outcomes are important and should be avoided. It is the combination of these two reasons that lend credibility to the application of Macpherson's notion of safety as objective in this context. Third, the comparison of relative risk is precisely what the Birthplace Study was designed to achieve, i.e. it was not designed to make a claim about the safety of birth in the UK.

The results of the comparisons of risk between planned homebirths and planned obstetric unit births in the UK Birthplace study are mixed. Planned homebirths appear to be safer than planned obstetric unit births when we look at all the women in the study who gave birth in these two venues. It also appears to be safer when we restrict the population to multiparous women. But when the population of women is restricted to nulliparous women, then planned homebirths appear to be less safe than planned obstetric unit births. Also when we restrict the population to women without a complication at the start of labor planned homebirths appear less safe than planned obstetric unit births. While Hollowell and colleagues discussion of the results focuses on the unrestricted analysis, Chervenak and colleagues discussion focuses on the analysis of the group restricted for complications at the start of labor.

But why emphasize only one aspect of the findings? It is not difficult for such a singled lensed emphasis to appear disingenuous to the opposition and for strong evaluations to come again into play. It should not surprise us that when strong evaluations come into play participants often speak past one another: strong evaluations are not oriented toward agreement or universal intelligibility. Instead of emphasizing the restricted or unrestricted analysis, why not recognize the nuance and indeed limitations of the study and move on with suggestions where further research might be of help?

For instance, consider the restricted analysis of women without a complication at the start of labor. This analysis was done because somewhat surprisingly almost 20 % of the women in the obstetric unit group had at least one complicating condition at the start of care in labor compared with ≤ 7 % in each of the other settings. This difference implies that the women in the non-obstetric groups were in fact lower risk women than those in the obstetric group. Unlike randomized control trials which ideally (but only ideally e.g. Worrall 2002) control for known and unknown confounding factors, cohort studies at best can only control for known confounders. The riskiness of one's pregnancy is a known confounder in determining the relative risk of birthplace. The women in this study were screened for the medical and obstetric risk factors listed in the NICE intrapartum care guideline, but the percentage of complications in the obstetric unit group at the start of labor suggests that this screening was not sufficient. What should we make of this result?

On the one hand, we might worry with Chervenak et al. that we cannot accurately assess the riskiness of a pregnancy (Chervenak et al. 2013). "Low risk women" may not be low risk and allowing such women choice of birthplace could be risky indeed. On this view, in the restricted analysis of the Birthplace study we finally see the true effect of birthplace on outcomes. On the other hand, there may be alternative explanations to the larger percentage of complications at the start of labor in the obstetric unit group. For instance, the complications could be iatrogenic. One of the complications that the obstetric group had was prolonged rupture of the membranes >18 h. Another was hypertension. It is no secret that those who support out of hospital births believe that the stress of an unfamiliar environment often found in obstetric units can halt labor and increase hypertension.

We might also wonder if pregnancy risk factors are purely physical, e.g. age at first gestation, diabetes, hypertension, etc. or if they are also psychosocial. If the latter, it may be that we cannot assess the riskiness of a pregnancy from a checklist. In other words, perhaps Chervenak et al. are correct: we cannot accurately assess the riskiness of a pregnancy given the criteria we currently

use. Other factors matter. Midwives, for instance, may develop good judgment regarding who to steer towards and away from out of hospital births; women who self-select homebirth may be the kind of women who do well in that context. On this view we might see the higher rate of complications in the obstetric unit as a sign that risk assessment, expert judgment and individual choice work well together in determining a safe birthplace.

It seems to me that the unexpected complications at the start of labor in the obstetric unit group of the UK Birthplace Study raises questions: Can obstetric units cause complications in labor? How, if at all, do psychosocial variables affect the riskiness of a pregnancy? I do not know the answers to these questions, but they are questions to which epidemiology and qualitative research may be able to shed some light. In shedding this light we may inch our way closer to agreement regarding the moral question of professional and moral responsibility in supporting and choosing out of hospital birth. If I am correct, then this UK study illustrates an instance where further research helps further the birthplace debate and does not stall it as de Melo-Martin and Intemann suggest.

References

- Birthplace in England Collaborative Group (2011) Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the birthplace in England National Prospective Cohort Study. *BMJ* 343:d7400. doi:10.1136/bmj.d7400
- Bogdan-Lovis E, de Vries RG (2013) Ethics and the architecture of choice for home and hospital birth. *J Clin Ethics* 24(3):192–197
- Catling-Paull C, Coddington RL, Foureux MJ, Homer CSE, on behalf of the Birthplace in Australia Study, and the National Publicly-funded Homebirth Consortium (2013) Publicly funded homebirth in Australia: a review of maternal and neonatal outcomes over 6 years. *Med J Aust* 198(11). <https://www.mja.com.au/journal/2013/198/11/publicly-funded-homebirth-australia-review-maternal-and-neonatal-outcomes-over-6>
- Chervenak FA, McCullough LB, Brent RL, Levene MI, Arabin B (2013) Planned home birth: the professional responsibility response. *Am J Obstet Gynecol* 208(1):31–38. doi:10.1016/j.ajog.2012.10.002
- Clark DM (2013) Publically funded homebirth in Australia: a review of maternal and neonatal outcomes over 6 years. *Med J Aust* 199(11):742–743
- Cohain JS (2014) Response to: homebirth and the future Child de Crespigny L, Savulescu J. *J Med Ethics*. http://jme.bmj.com/content/early/2013/10/08/medethics-2012-101258/reply#medethics_el_16923
- de Crespigny L, Savulescu J (2014) Homebirth and the future child. *J Med Ethics*. doi:10.1136/medethics-2012-101258
- de Melo-Martín I, Intemann K (2012) Interpreting evidence: Why values can matter as much as science. *Perspect Biol Med* 55(1):59–70. doi:10.1353/pbm.2012.0007
- de Vries R, Lemmens T (2006) The social and cultural shaping of medical evidence: case studies from pharmaceutical research and obstetric science. *Soc Sci Med* 62(11):2694–2706. doi:10.1016/j.socscimed.2005.11.026
- de Vries R, Lemmens T, Bosk C (2008) The subjectivity of objectivity: the social, cultural and political shaping of evidence-based medicine. SSRN Scholarly Paper ID 1126443. Social Science Research Network. Rochester. <http://papers.ssrn.com/abstract=1126443>
- de Vries RG, Paruchuri Y, Lorenz K, Vedam S (2013) Moral science: ethical argument and the production of knowledge about place of birth. *J Clin Ethics* 24(3):225–238
- Douglas H (2009) *Science, policy, and the value-free ideal*, 1st edn. University of Pittsburgh Press, Pittsburgh
- Elliott K, McKaughan D (2013) Non-epistemic values and the multiple goals of science. Preprint. <http://philsci-archive.pitt.edu/10027/>
- Goldenberg MJ (2006) On evidence and evidence-based medicine: lessons from the philosophy of science. *Soc Sci Med* 62(11):2621–2632. doi:10.1016/j.socscimed.2005.11.031
- Intrapartum Care | Guidance and Guidelines | NICE (2014) Accessed 30 June. <http://www.nice.org.uk/resource/GID-CGWAVER109/html/c/intrapartum-care-update-full-guideline?id=dk27tqufc3w4iixbcchdjvpsdy>
- Habermas J (1994) *Justification and application: remarks on discourse ethics*. Translated by CP Cronin, Reissue edn. The MIT Press, Cambridge
- Hollowell J (2014) Homebirth and the future child: factual inaccuracies in commentary on the birthplace study. *J Med Ethics*. http://jme.bmj.com/content/early/2013/10/08/medethics-2012-101258/reply#medethics_el_16923
- Howe EG (2013) When a mother wants to deliver with a midwife at home. *J Clin Ethics* 24(3):172–183
- Ieraci S, Tuteur AB (2013) Publically funded homebirth in Australia: a review of maternal and neonatal outcomes over 6 years. *Med J Aust* 199(11):742
- Intrapartum Care: Care of Healthy Women and Their Babies during Childbirth | 1-Recommendations | Guidance and Guidelines | NICE (2015) Accessed 27 Apr. <http://www.nice.org.uk/guidance/cg190/chapter/1-recommendations#place-of-birth>
- Kukla R, Kuppermann M, Little M, Lyerly AD, Mitchell LM, Armstrong EM, Harris L (2009) Finding autonomy in birth. *Bioethics* 23(1):1–8. doi:10.1111/j.1467-8519.2008.00677.x
- Longino HE (1990) *Science as social knowledge: values and objectivity in scientific inquiry*. Princeton University Press, Princeton
- Longino HE (1996) Cognitive and non-cognitive values in science: rethinking the dichotomy. In Nelson LH, Nelson J (eds) *Feminism, science, and the philosophy of science*. Synthese Library 256. Springer Netherlands, pp 39–58. http://link.springer.com/pallas2.tcl.sc.edu/chapter/10.1007/978-94-009-1742-2_3
- Macpherson JAE (2008) Safety, risk acceptability, and morality. *Sci Eng Ethics* 14(3):377–390. doi:10.1007/s11948-008-9058-5
- McLaren E (2013) Office for National Statistics. *Births in England and Wales by characteristics of birth 2, 2012*. Office for National Statistics. November 21. <http://www.ons.gov.uk/ons/rel/vsob1/characteristics-of-birth-2-england-and-wales/2012/sb-characteristics-of-birth-2.html>
- Products—Data Briefs—Number 144—March 2014 (2014) Accessed 24 Oct. <http://www.cdc.gov/nchs/data/databriefs/db144.htm>
- Taylor C (1985) *Philosophical papers: volume 2, philosophy and the human sciences*, 1st edn. Cambridge University Press, Cambridge
- The Lancet (2010) Home birth—proceed with caution. *Lancet* 376(9738):303. doi:10.1016/S0140-6736(10)61165-8
- White SK (ed) (1995) *The Cambridge companion to habermas*. Cambridge University Press, Cambridge
- Worrall J (2002) What evidence in evidence-based medicine? *Proc Philos Sci Assoc* 2002(3):316–330