

# Critical appraisal of the proposed defenses for planned home birth



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Two prominent proposed defenses have been offered of planned home birth. The first focuses on the very low absolute risk of planned home birth, which is considered to be safe because it is so low, irrespective of its significantly elevated relative risk. The second invokes an analogy between trial of labor after cesarean delivery and planned home birth. Because trial of labor after cesarean delivery and planned home birth have similar, very low absolute risks and because the former is an acceptable clinical practice, defenders of planned home birth argue that the latter should be considered acceptable. This article presents a critical appraisal of these 2 proposed defenses of planned home birth. Question 1: Are proposed defenses of planned home birth focused on its low absolute risks consistent with the commitment to patient safety? This commitment to patient safety requires the identification of variation in the processes of patient care and reduction of variation when reduction improves outcomes. Relative, as well as absolute, risks therefore must be identified. Compared with hospital midwives, planned home births have a significantly higher relative total neonatal mortality risk of 3.87 (1.26 vs 0.32 per 1000 births;  $P < .001$ ) and a significantly higher relative risk of 5-minute Apgar score of zero of 18.11 (1.63 vs 0.0/1000 births;  $P < .001$ ).

Planned hospital birth prevents these risks. It follows that planned home birth as a variant in birth setting is not consistent with the commitment to patient safety. Question 2: Is the analogy to trial of labor after cesarean delivery consistent with the philosophic rules of analogic reasoning? The long-established philosophic rules for analogic reasoning require that the 2 cases that are compared are similar in all relevant respects and that all relevant analogies have been considered. The 2 cases are dissimilar because the perinatal risks of planned home births are approximately 3 times higher than trial of labor after cesarean delivery. At least 8 clinical analogies to other situations of very low absolute, but unacceptable, risks are ignored. The clinical implication of the results of this critical appraisal is that obstetricians should respond to expressions of interest in planned home birth based on these proposed defenses with a respectful explanation of the inadequacies, the failure to commit to patient safety, and a recommendation for planned hospital birth.

**Key words:** analogic reasoning, directive counseling, maternal, morbidity, mortality, neonatal, patient safety, planned home birth, trial of labor after cesarean (TOLAC)

Over the last decade there has been an increase in the United States of planned home births, although more recently the number of planned home births has leveled off. There are 2 prominent proposed defenses of planned home birth. The first proposed defense claims that planned home births are reasonably safe based on their very low absolute risks

and that the increased relative death risks are clinically insignificant.<sup>1-4</sup> This defense has been succinctly stated as follows: “1 way to express the difference in neonatal mortality is that in-hospital birth appears to improve neonatal survival over home birth from about 98.5% to 99.95%”<sup>2</sup> and a “... small increment in absolute risk ... might result from a patient’s decision to deliver at home, ...” and “... absolute rather than relative risk should guide individuals’ evaluation of patient choices ...”<sup>3</sup>

The second proposed defense invokes an analogy from the low absolute risks of trial of labor after cesarean delivery (TOLAC) to the similarly low absolute risks of planned home birth. This analogic reasoning claims that, inasmuch as the outcomes of both are clinically similar and inasmuch as TOLAC is an accepted clinical practice, planned home birth should be an accepted clinical practice.<sup>4,5</sup>

The purpose of this article is to provide a critical appraisal of these 2 lines of proposed defense for planned home birth. The first line of the proposed defense assumes that planned home birth is consistent with the commitment to patient safety. Therefore, the following question is the first question in this critical appraisal: Are proposed defenses of planned home birth focused on its low absolute risks that are consistent with the commitment to patient safety? The second line of proposed defense relies for its success on adherence to the long-accepted philosophic rules of analogic reasoning. Therefore the following question is the second question in this critical appraisal: Is the analogy to TOLAC consistent with the philosophic rules of analogic reasoning? We will show that the answer to both questions is “no.” We identify the implications of the results of this critical appraisal for directive counseling of women who express an interest in planned home birth.

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Received Dec. 30, 2018; revised Jan. 3, 2019; accepted Jan. 8, 2019.

The authors report no conflict of interest.

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### Are proposed defenses of planned home birth that are focused on its low absolute risks consistent with the commitment to patient safety?

Professionalism in medicine requires all physicians to commit to patient safety, which becomes the required context for the assessment of absolute and relative risks of the processes and outcomes of patient care. *Risk* is defined as the potential of losing something of value that is weighed against the potential of gaining something of value. Values such as physical health can be gained or lost.<sup>6</sup> Risk assessment is more often than not expressed in relative risks rather than absolute risks.<sup>7,8</sup>

The concept of patient safety is linked directly to the commitment to quality of patient care, which is understood to be the responsible reduction of variation in the processes of patient care. This is the reason that the National Academy of Medicine considers patient safety “indistinguishable from the delivery of quality health care.”<sup>9</sup> The commitment to patient safety therefore requires the physician—and every other healthcare provider—to identify variations in the processes of patient care and to reduce variations when doing so results in improved outcomes (ie, reduced relative risk of death and morbidity). Even when absolute risks are low, patient safety requires physicians and other healthcare providers not necessarily to reduce them to zero but to minimize such risks responsibly and continuously. In the context of patient safety, the fact that absolute risks are very low does not by itself make these risks acceptable. Even when there are very low absolute risks, from the perspective of patient safety, a variant in the setting of childbirth should be considered acceptable therefore if, and only if, clinicians have minimized its very low absolute risks responsibly.

The focus on absolute risk is not a scientifically or clinically adequate basis for a determination that a clinical practice is consistent with the commitment to patient safety; relative risks must also be identified. Planned home births in the United States have been shown to be associated with significantly increased

absolute and relative risk of neonatal death and morbidity.<sup>10-14</sup> Although absolute risks of total neonatal mortality rates in planned home births are low (1.26/1000 live births), absolute risks of planned home births are significantly higher than midwife hospital births (1.26 vs 0.32/1000 in midwife hospital births) with an elevated relative risk of 3.87 ( $P<.001$ ).<sup>10</sup> Absolute risks for 5-minute Apgar score of zero in planned home births is low (1.63/1000 live births) but significantly higher when compared with hospital midwives (1.63 vs 0.09/1000 in midwife hospital births) with a relative risk of a 5-minute Apgar score of zero of 18.11 ( $P<.001$ ).<sup>11</sup>

The only way to reduce the preventable increased relative risks of planned home birth, which is a variant in the setting of birth, is planned hospital birth, which is another variant in the setting of birth, or its equivalent such as in-hospital birthing centers. Professionalism requires the absolute commitment to patient safety. Because the commitment to patient safety requires the reduction of variation when such reduction improves outcomes, planned home birth, because of its preventable increased relative risks, is not consistent with the commitment to patient safety.

The concept of the paramount value of human life is at the heart of the commitment to patient safety. According to the Talmud: “...whoever saves a life, it is considered as if he saved an entire world...”<sup>15</sup> Although this concept has ancient roots in Judaism, it has become a transreligious component of patient safety. This concept has been extended to medicine by the World Health Organization: “Safe surgery saves lives.”<sup>16</sup> A logical corollary to this concept in obstetrics is “Safe obstetrics saves babies’ and mothers’ lives.”

### Is the analogy to TOLAC consistent with the philosophic rules of analogic reasoning?

Analogic reasoning, which is based on comparison of cases, has been a component of philosophic reasoning for many centuries. The philosophic rules of analogic reasoning therefore are very

well-established.<sup>17</sup> Analogic reasoning proceeds on the basis of comparison of an accepted practice with another practice, the acceptability of which is not established. When the latter case is similar to the former case in all relevant respects, the latter case is acceptable because the former case is acceptable.

Adherence to 2 fundamental rules of analogic reasoning is essential for its success. The first rule is that the 2 cases are similar in all relevant respects. The second rule is that all relevant analogies and their implications are identified. The second question of this critical appraisal of defenses of planned home birth therefore becomes 2 subquestions.

### Are planned home birth and TOLAC similar in all relevant respects?

There are 2 reasons that the answer to this question is “no.” First, the perinatal mortality rate for trial of labor in the hospital has been reported to be 1.3 per 1000<sup>18</sup> and for planned home births has been reported to be 3.9 per 1000.<sup>14</sup> The perinatal risks of TOLAC and planned home birth are dissimilar: the perinatal risks of home births are approximately 3 times higher than TOLAC in the hospital. Second, planned home birth and TOLAC are performed under different standards of patient safety. There are evidence-based clinical guidelines for the management of TOLAC in the hospital.<sup>18</sup> Adherence to these guidelines results in the responsible minimum management of relative risk; the implementation of maximum precautions, such as proper screening of patients and the availability of anesthesia and surgical services, lowers intrapartum risks of TOLAC.

Selection of patients for planned home births by countries with midwife organizations, such in England, Canada, and The Netherlands, follows strict selection criteria. For example, the Royal Dutch Organisation of Midwives has defined collaborative guidelines together with obstetricians on how to select and exclude patients for planned home births.<sup>19</sup> In stark contrast, most planned home births in the United States have no established guidelines. The refusal to

establish clear guidelines for planned homebirths can best be described by a statement from the American College of Nurse Midwives: "...guidelines would impact [midwives'] autonomy..." and "might not support midwives if they choose to attend the home birth of a woman with a breech presentation or a twin gestation or a woman who desires a trial of labor after a previous cesarean."<sup>20</sup> The result is an absence of clear guidelines and not even a list of contraindications in the home birth position paper by the Midwife Alliance of North America.<sup>21</sup>

In addition, in the United States, many birth attendants at planned home births are often not well-credentialed or trained. Midwives with less training have worse outcomes.<sup>22</sup> In addition, planned home births continue to include patients at significantly increased risks,<sup>23</sup> anesthesia and surgery are not available at planned home births, and access to them requires time-consuming transport that does not exist in the hospital setting.

### Have all relevant analogies and their implications been identified?

We have identified at least 8 valid clinical analogies to other very low-absolute-risk clinical situations and their implications that defenses of planned birth have not identified. These highly clinically relevant analogies concern the application of the commitment to patient safety at the population level to situations in which absolute mortality risks are far lower than the absolute risk of neonatal death of planned home births but are nonetheless considered unacceptable because reducing variation results in improved outcomes.

**Folic acid.** The absolute risk of neural tube defects is relatively low at approximately 1 per 1000 births, and these low absolute risks can be reduced by up to 50% with supplemental folic acid.<sup>24</sup> It is recommended therefore that all women of childbearing age should be counseled to take a folic acid supplement. Consequently, mandatory fortification of enriched cereal grain

products with folic acid was authorized in the United States in 1996 and implemented fully in 1998. Studies of outcomes in the United States, with the use of various methods, have shown decreases of up to 28–35% in the prevalence of neural tube defects overall since the implementation of folic acid fortification in 1998. Not only neural tube defects but also the risk of other complications, such as cardiovascular defects and limb defects, can be decreased significantly with the supplementation of folic acid and multivitamins.<sup>25</sup>

**Neonatal group B streptococcal (GBS) disease in newborn infants.** The incidence of early GBS is approximately 1.7 per 1000 live births without antibiotic prophylaxis. With routine testing for GBS at 35–37 weeks gestation and treatment if the test result is positive, prophylaxis has become the recommended standard of care in the United States. Consequently, guidelines implemented in the United States in the 1990s have resulted in an 80% decrease in early GBS from an already low risk of 1.7 per 1000 live births to <0.4 per 1000 live births.<sup>26</sup>

**Influenza in pregnancy.** Pregnant women are at increased risk for morbidity and death with influenza illness; newborn infants born to mothers with influenza during pregnancy are at increased risk of adverse outcomes. Although the absolute risk of pregnancy-related maternal mortality ratio for influenza A infection deaths is low (0.22/100,000 live births or approximately 1/454,545 pregnancies), this mortality rate can be reduced significantly with vaccination against influenza during pregnancy. Therefore, "...influenza vaccination during pregnancy is a key strategy to prevent influenza and influenza-related complications in pregnant women and their infants."<sup>27</sup>

**Syphilis.** The incidence of syphilis in the United States in 2017 was a very low (21/100,000 population); the rate of congenital syphilis was 23.3 per 100,000 live births.<sup>28</sup> Koumans et al<sup>29</sup> reported

that improved prenatal screening and administration of indicated treatments or interventions (particularly for syphilis, GBS, chlamydia, and gonorrhea) further protect newborn infants from infection. Recognition and appropriate treatment of reproductive-age women must be a priority; the recommendation is that syphilis testing should be performed at the initiation of prenatal care and twice during the third trimester in high-risk patients.<sup>30</sup>

**Human immunodeficiency virus (HIV).** The incidence of HIV among female adolescents and adults in the United States is approximately 2 per 1000 births.<sup>31</sup> Despite these low absolute risks, the United States Preventive Services Task Force recommends that HIV testing should be a routine component during pregnancy.<sup>32</sup>

**Chromosomal anomalies.** Even though at the age of 30 years the absolute risk of trisomy 21 in the second trimester is <1 in 1000 pregnancies, the risk of trisomy 18 is approximately 1 in 3000 pregnancies, and the risk of trisomy 13 is approximately 1 in 12,000 pregnancies, screening for these and other chromosomal anomalies during pregnancy is recommended for all women, including those <30 years old.<sup>33</sup>

**Seatbelts and air bags in cars.** In 2016, the fatal motor vehicle crash rate was a very low: 1.16 per 100 million vehicle miles traveled.<sup>34</sup> Because lap shoulder belts reduce the mortality rate by 72%,<sup>35</sup> the use of seat belts is required by law for all drivers and passengers in cars in the United States.

**Child car seats.** In 2013, child mortality rates in car crashes was a very low incidence of approximately 1 in 470 million miles driven or 0.00000213 per 1000 miles driven. Car seat use reduces the risk for injury in a crash by 71–82% for children when compared with seat belt use<sup>36</sup>; 49 states and the District of Columbia have passed laws that require child seats for young children under 6 years old.<sup>37</sup>

### Implications for directive counseling of women who express an interest in planned home birth

Every physician and healthcare provider has the strict professional responsibility to communicate accurately and honestly with patients.<sup>9</sup> To achieve accuracy, the provider should describe outcomes using both relative and absolute frequencies, to prevent confusion.<sup>38</sup> To achieve honesty, when the evidence is strong, the physician should engage in directive patient counseling in the form of making recommendations. Fulfilling this professional responsibility is essential for achieving patient safety in obstetrics and every other field of medicine. For example, providers should recommend immunization against influenza to all pregnant women, recommend screening for syphilis, HIV, and GBS during pregnancy, for cesarean delivery for placenta accreta,<sup>39</sup> against TOLAC after classic cesarean delivery,<sup>18</sup> for flu vaccination,<sup>27</sup> and against placentophagy.<sup>40</sup> Failure to undertake such directive counseling is an egregious clinical ethical error.

The evidence shows that planned home births have increased absolute and relative risk of neonatal death and morbidity significantly.<sup>10-14</sup> It is a professional error to focus on low absolute risks and to ignore both increased relative and absolute risks and to not make recommendations against planned home births. Counseling women who express an interest in planned home birth therefore should be directive in the form of a strong recommendation against planned home birth, even though it has very low absolute risk, because these low absolute risks can be minimized with planned hospital births. In addition to counseling for planned hospital births because of improved patient safety, professionals should also address some of the issues that lead women to consider planned home births (such as the implementation of provider training and support programs to increasing the availability and rates of twin vaginal birth)<sup>41</sup> and make TOLAC more easily available in hospital settings by promoting vaginal birth that is tailored to hospital needs and characteristics.<sup>42</sup>

Some caregivers take the view that making recommendations is incompatible with the ethical principle of respect for patient autonomy, and they assert that recommendations discount patient values.<sup>4,5</sup> These objections should not be considered persuasive because they assume that women are helpless pawns who will affirm whatever their obstetrician recommends. This assumption also profoundly disrespects the capacity of women to make their own healthcare decisions after having been empowered by their obstetricians with evidence-based clinical judgments and recommendations. Making a recommendation to improve outcomes does not diminish a woman's autonomy but empowers her to make an informed decision and still allows her to choose among options. Making recommendations is a mainstay of obstetric care, and the obstetrician should not hesitate to engage in directive counseling when it is justified.<sup>43</sup>

### Conclusion

This critical appraisal of proposed defenses for planned home birth that appeal to its very low absolute risks and that assert an analogy to TOLAC asked and answered 2 questions. Is planned home birth consistent with the commitment to patient safety? No. Is the analogy to TOLAC consistent with the philosophic rules of analogic reasoning? No. It follows that these proposed defenses should no longer be made in an attempt to justify planned home birth.

In response to women who express the belief that the very low absolute risk of planned home birth is acceptable to them, the obstetrician should recommend, respectfully but firmly, against planned home birth and for planned hospital birth because a planned hospital birth reduces the greatly increased absolute and relative risks of neonatal death and morbidity of planned home birth.

In response to women who express the belief that planned home birth is acceptable by analogy to TOLAC, the obstetrician should recommend, respectfully but firmly, against planned home birth and for planned hospital

birth because this analogy is not successful, given that the 2 clinical cases differ in clinically significant ways, and suggest that the woman consider the successful analogies described earlier. ■

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