

# Risk Assessment and Risk Distortion: Finding the Balance

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Pregnancy and birth have been conceptualized as medically problematic, with all pregnant women considered at risk and in need of medical monitoring. Universal application of risk scoring and surveillance as preemptive strategies in an effort to reduce risk is now standard obstetric practice. Labeling women “high risk” can result in more unnecessary interventions and have negative psychologic sequelae. When perceived pregnancy risk is out of proportion to the real risk, and when risk management procedures are applied to all women with benefit for only a few, the use of technology in caring for pregnant women becomes normalized. A learned reliance on technology can diminish women’s own authoritative knowledge of pregnancy and birth. This may also have the unintended consequence of contributing to birth fear, a phenomena becoming more widely recognized. Health care provider-patient communication about pregnancy risk can be presented in a manner that encourages informed compliance rather than informed choice. Evidence-based risk assessment is essential to providing optimal prenatal care. Using tools such as the Paling Palette can help health care providers present balanced and readily understood information about risk. *J Midwifery Womens Health* 2009;54:191–200 © 2009 by the American College of Nurse-Midwives.

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## INTRODUCTION

Risk assessment as a health promotion and disease prevention strategy is a fundamental purpose of prenatal care. Identification of risk factors allows for education to promote change and institute intervention to reduce risk, potentially avoiding associated poor outcomes. In contemporary Western culture, however, the concept of risk has transformed from an accepted life fact to an unacceptable element to be avoided, and today we live in a risk-adverse society that values control over and security from potential threats.<sup>1</sup> In health care, if an unpredictable outcome happens, it can be perceived as a failure of the health care providers to monitor and intervene.<sup>2,3</sup> Obstetric malpractice cases continue to be the most expensive claims of all medical specialties, accounting for 14% of claims but 32% of dollars paid out.<sup>4</sup>

Definitions of childbearing risk have been broadly assigned by the medical community, leading to a conceptualization of pregnancy and birth as medically problematic. All pregnant women are considered at risk and in need of medical supervision and monitoring.<sup>5</sup> Universal application of pregnancy screening and surveillance methods as preemptive strategies in an effort to reduce risk are now standard obstetric practice regardless of actual risk status.<sup>6,7</sup>

Despite this emphasis on risk screening and surveillance, maternal and infant outcomes have not improved significantly in the last decade.<sup>8</sup> The application of procedures appropriate for situations where there is a significant risk for adverse outcomes has increased, however. As an

example, the use of cesarean delivery has increased by more than 40% since 1996 in the United States, yet childbirth has not become inherently riskier for the mother or fetus.<sup>9</sup> This dramatic rise in operative births has not resulted in a parallel rise in improved health outcomes and has recently been linked with unanticipated secondary health problems.<sup>10</sup>

This article reviews the purpose of risk assessment, examines considerations in practical application of risk assessment in prenatal care, and explores situations that result in exaggerated estimates of childbearing risk, which then increase the perception of pregnancy risk by health care providers and women alike. Unintended consequences of distorted risk assessment and strategies to reduce negative consequences of exaggerated perceptions of risk are discussed.

## THE PURPOSE OF RISK ASSESSMENT

Risk is the likelihood that a particular event will occur. Risk assessment is the clinical process of screening for conditions that could result in adverse perinatal outcomes for which an intervention would improve the health outcome for mother or child.<sup>11</sup> In situations of known risk during pregnancy or birth, intervention can increase the likelihood of positive outcomes. Ideally, risk assessment directs each pregnant woman to the best place for her birth, to the most appropriate care provider, and allocates appropriate resources to foster optimal maternal and infant outcomes.

Risk assessment during pregnancy includes subjective and objective assessment of medical, psychosocial, nutritional, genetic, and environmental factors, done primarily via laboratory testing, client history, and physical examination, and organized by trimester. Risk assessment is ideally begun prior to conception, although preconceptional care has not

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yet been embraced by the health insurance industry and therefore is not universally practiced.<sup>12</sup> Assessment of a pregnant woman's risk status is ongoing throughout her pregnancy and is amenable to change in both directions—toward a lower risk or toward a higher risk.

### Risk Scoring Tools

Formal risk scoring systems became popular in the 1960s in an effort to predict unfavorable pregnancy and birth outcomes. Risk factors are commonly noted on a standard prenatal form during the history and physical examination, and the woman is often categorized as either high or low risk. Risk-scoring methods that include psychosocial variables offer an increase in sensitivity because variables such as stress, social support, and resources like housing and finances are factors that affect pregnancy outcomes.<sup>13</sup>

The validity of various scoring tools is undetermined, and the benefit of prenatal risk scoring systems remains undocumented. Definitions of risk factors are not uniform and many are not quantifiable. As Stahl and Hundley<sup>14</sup> point out, the high number of risk factors included in many risk assessment tools results in many pregnant women being labeled “at risk.” However, many of these so-called risk factors are only statistically associated with adverse outcomes, with no evidence of actual causation. It is common for women with risk factors to have a normal pregnancy and birth course, and conversely, women with no risk factors can develop complications.<sup>15</sup> When women are placed in risk categories based on tools with poor predictive value for actual occurrence of complications, this categorization can mislead care decisions.

A recent analysis of 12 scoring tools to predict preterm birth found the tools perform poorly and resulted in more frequent hospitalizations and interventions in the group labeled “at risk,” with no significant improvement in preterm birth rates.<sup>16</sup> Risk scoring systems provide an appearance of benefit that reinforces belief in the value of risk scoring, making the process difficult to question.<sup>17</sup> Reviewing basic principles in the application of risk assessment can aid in understanding the failure of risk scoring to reach the goals of improved outcomes.

### ASPECTS OF SCREENING IN RISK ASSESSMENT

Risk assessment has characteristics similar to screening, a common activity is part of the health promotion and dis-

ease prevention. Screening is the application of tests or procedures to apparently healthy asymptomatic people to discover early, latent, or potential disease. Screening activity is generally part of both primary and secondary prevention programs. Primary prevention involves reducing known risk factors for a disease or adverse condition to prevent the condition from occurring. Secondary prevention involves screening when a disease or condition is present but not yet symptomatic or diagnosed, before it has caused harm or suffering, so that interventions can be instituted to reduce negative health effects of the disorder. Secondary prevention is accomplished by testing apparently healthy asymptomatic people for evidence of disease.

Risk assessment in pregnancy includes both primary and secondary prevention. For example, primary prevention of gestational diabetes might involve screening women preconception for obesity and helping them reduce weight prior to becoming pregnant. Secondary prevention would involve testing healthy asymptomatic pregnant women for evidence of abnormal glucose tolerance to detect those who have gestational diabetes.

Because most women who are offered screening are healthy and will in fact not have the condition one is trying to detect, it is important to consider whether there are any possible health risks associated with the screening. If the screening process is associated with adverse effects, this must be considered in balance with the benefit of detecting a disorder in a small number of people. The public health community has established the following basic considerations for screening programs in the United States.<sup>18</sup>

First, the condition being screened for should be associated with significant morbidity or mortality to ensure the effort of screening is worthwhile. Evaluations of universal risk screening procedures offered to pregnant women have not demonstrated significant reductions in perinatal morbidity and mortality in developed countries.<sup>19</sup>

Secondly, the screening test must be simple, acceptable (to reduce the burden of getting tested), and safe to ensure the absence of harm from the screening procedure itself. For example, screening for genetic disorders may be more acceptable if accomplished by drawing a blood sample rather than by taking a sample of amniotic fluid. There must be effective treatment for the condition if it is found, and treatment begun in the asymptomatic phase should result in a better outcome than treatment begun in the symptomatic phase. Otherwise, one could just wait until the condition actually appears to initiate treatment. This condition is not always met in current obstetric practice, with the ineffectiveness of available therapies for preventing preterm labor a widely accepted example.

A frequently cited caveat is that when screening tests are used to detect disease risk factors rather than the disease itself (primary rather than secondary prevention), the risk factors that are detected should be modifiable. This is because the interventions that are applied when

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**Table 1.** Risk Screening Definitions

Term	Definition	Example
Sensitivity	Proportion of positive screens among those known to have the condition of interest	What proportion of women who are destined to have preterm birth (absent intervention) will have a positive preterm birth risk score
Specificity	Proportion of negative screens among those known not to have the condition	What proportion of women who are destined to deliver at term (absent intervention), will have a negative preterm birth risk score
Positive predictive value	True positives among all with positive screens	What proportion of women with a positive preterm risk score will deliver preterm
Negative predictive value	True negatives among all with negative screens	What proportion of women with a negative risk score will deliver at term

a screening test is positive are aimed at reducing or eliminating the risk factor. For example, screening for smoking, a risk factor for many diseases, can result in interventions designed to reduce or eliminate smoking.

Age, race, socioeconomic status, and other demographic factors are also risk factors that cannot be modified for some diseases. However, when speaking of risk assessment rather than screening, it is important to identify such nonmodifiable risk factors, as they complete the total picture of potential risk and may strengthen the predictive value of a screening tool. We may assess a 40-year-old pregnant woman as being at higher risk for fetal anomalies. We cannot reduce her age or prevent fetal anomalies, but we can offer screening tests to see if the outcome (a congenital anomaly) has occurred.

Tests used in screening and assessment must also be accurate, and accuracy is evaluated by the sensitivity, specificity, and predictive value of the screening test (Table 1). Predictive values are very dependent on the prevalence of the condition in the population being screened. Prevalence is the number of cases of a condition in a particular population at a given time, or the likelihood that the condition will be found in the population being screened. The prevalence of Down syndrome, for example, is estimated at 12.94 per 10,000 live births,<sup>20</sup> and thus the vast majority of pregnant women being screened for this condition will have healthy normal fetuses. Although it is inarguable that reducing perinatal morbidity and mortality is a worthy goal, it is less clear that it is achievable via risk screening.

Risk screening tools are rarely if ever perfectly (100%) accurate. As a consequence, when screening large groups of asymptomatic women in a population that has a low prevalence of the condition, the number of false-positive screens will increase as more and more healthy women are screened. For example, a 2% false-positive rate applied to 100 healthy women will create two false-positive diagnoses. If the same 2% false-positive rate is applied to 10,000 women, it will create 200 false-positive diagnoses. When screening assessments are applied to large populations, it is important to consider the impact of false-positive screens on healthy women, such as additional testing, possible invasive procedures, labeling of someone as “diseased,” increased maternal anxiety, and potential adverse sequelae of all of these.

## COMMUNICATING RISK AND RISK DISTORTION

Health care providers discuss risk with pregnant women frequently, but providers and women both should understand the different ways risk can be expressed. In general, risk can be expressed in several ways: absolute risk, relative risk, and attributable risk. Consider the following statements when counseling a woman interested in having a vaginal birth after cesarean (VBAC) after having a cesarean birth in her first pregnancy:

- Your risk of uterine rupture in this pregnancy is 0.2% (absolute risk)
- Your risk of uterine rupture in this pregnancy is 37 times higher than a woman who had no previous cesarean birth (relative risk)
- VBAC creates 1.9 additional uterine ruptures for every 1000 cesarean births (attributable risk)

Each of these statements is based on exactly the same underlying data,<sup>21</sup> but each conveys a different perspective. Absolute risk is the probability that an event will occur. The rate of uterine rupture among women having a VBAC after a previous cesarean birth is 2 per 1000, or 0.2%. It is an uncommon event. Relative risk is an estimate of the probability of an adverse event in one group (prior cesarean birth) relative to another group (no prior cesarean birth). The actual risk of 2 per 1000 in women who have had a previous cesarean birth is compared with the risk of uterine rupture in women without a previous cesarean birth, which is 0.06 per 1000. Thus, the risk is increased 37-fold for the women who have had a previous cesarean birth. However, it is important to understand that this large relative risk, when applied to the rare event of uterine rupture, still results in an uncommon event (2 per 1000). Attributable risk refers to how many additional adverse outcomes can be attributed to the risk factor. In this example, approximately two additional uterine ruptures can be expected in every 1000 women who attempt a VBAC. Health care providers can affect how women perceive their own risk by choosing which way to express risk to a woman. Being told that one’s risk of uterine rupture is increased 37-fold by attempting a VBAC conveys a different perception than being told the risk is less than 1%.

Does the perception of risk induce adverse effects in the person being given the information? Zikmund-Fisher et al.<sup>22</sup> presented a hypothetical prenatal genetic screening test to 1387 women in an Internet survey. All participants were given the same test result, but it was presented differently. Women were randomly assigned into two groups: those told they were at high risk for abnormalities and those told they were at low risk for abnormalities. The experimental manipulation was how the information was presented to women. One-third of the participants were told simply that the test indicated a 5 per 1000 risk of chromosomal abnormalities. Another third were first told either that the test results were “positive” and there was an increased risk of chromosomal problems (higher risk), or that the results were “negative” and there was a decreased risk of chromosomal problems (lower risk); this information was followed by the numerical estimate of 5 per 1000. Another third were told either that results were “abnormal” or “normal,” and then given the same numeric risk of 5 per 1000. All participants reacted similarly when receiving simple numeric results. However, women who received the labels of positive or abnormal test results perceived themselves to be at much higher risk than women who received negative or normal interpretive results, despite the same actual risk of 5 per 1000, and they showed greater interest in further diagnostic testing. The authors concluded that applying interpretive labels to results can induce large changes in a woman’s perception of her risk and further affects her behavioral intentions to act on that risk. Women made decisions based on their perceptions as to whether their risk had increased or decreased, rather than on the actual numeric risk.

### **Informed Compliance**

Risk communication patterns can lead a woman to a health care provider–desired decision. The term *informed compliance* refers to communication patterns about medical risk that are biased to influence women’s decision.<sup>23</sup> O’Cathain et al.<sup>24</sup> conducted a randomized controlled study that investigated the effects of educational leaflets on informed choices by pregnant women. Pregnant and postpartum women in England (N = 6452) were assigned to four separate groups. Participants were given written leaflets on various pregnancy and postpartum topics such as choices for genetic testing and choices during labor and birth. Participant’s perceptions about the role they took when making choices on those topics and if they believed they had enough information to make a choice were measured. No significant difference was found between those women given leaflets and those not given leaflets with regard to their perception of being given informed choice. However, study findings suggest that the term *informed choice* as women understood it meant receiving an explanation of treatments and care practices predetermined to be beneficial by the health care provider.<sup>24</sup> Women felt they were

being given information but not necessarily being given an informed choice.

Often, the principles of informed choice are not uniformly applied when tests are considered by health care providers as routine or necessary. As an example, consider the common clinical scenario of a pregnant woman at one of her first prenatal care visits. She is provided literature about the serum quad screen, informed that this is done at 16-weeks gestation, and instructed to let the health care provider know if she has questions. When the quad screen is presented this way, the result is informed compliance rather than informed choice. Because pregnant women value professional opinion and are receptive to clinical direction,<sup>25</sup> informed compliance is concerning and may be more common than true informed choice.

### **Illusion of Choice**

Provider information about risk can also be framed toward offering a superior choice over another to avoid perceived risks. Edwards and Elwyn<sup>26</sup> term this practice “illusion of choice.” This concept is illustrated by the situation of a pregnant woman at 38 weeks’ gestation assessed by the health care provider as having “a big infant.” The woman is offered the choice of labor induction at 38 weeks to avoid potential problems related to suspicion of macrosomia. The discussion focuses on possible fetal risks without quantification of those risks. The woman is not equally informed about labor induction risks, the relative plasticity of the pelvis in late pregnancy, and the capacity of the fetal head to mold during labor, and so this woman does not have a complete picture of the various risks and factors to judge and weigh for herself. The woman feels she is being offered a decision that empowers her to avoid a potential threat. In reality, the potential for harm by waiting for natural labor may be quite remote, whereas a decision to induce labor puts her at new and undisclosed-yet-quantified risks with potential for maternal and fetal harm.

### **WOMEN’S PERCEPTION OF PREGNANCY RISK**

As can be seen from the discussion so far, a woman’s perception of her pregnancy risk is influenced by many factors, including social constructs, prior life experiences,<sup>27</sup> and the influence of her health care providers. A qualitative study of 376 postpartum women found that women’s expectations of pregnancy risk were closely aligned with those of their care providers.<sup>28</sup> Women also perceive themselves to be at risk during pregnancy to a degree that is out of proportion to their actual risk.<sup>27,28</sup> Both healthy and high-risk pregnant women rely on health care providers in determining risk status and in providing measures to reduce risk.<sup>29</sup>

Women’s perceptions of pregnancy risk are also influenced by public information, which in Western culture frequently frames birth as a danger. Reality television depicts

birth in dramatic emergency situations to engage viewers, providing millions of women with an unrealistic perception of pregnancy danger. A study assessing college students' knowledge of childbirth found that they perceive pregnancy as fraught with potential hazards best managed by physicians in a hospital.<sup>30</sup>

Perception of pregnancy risk affects women's behaviors and decision making. Perception of increased risk is significantly related to greater uncertainty about what to expect, greater external locus of control, higher psychological distress, and lower perceived self-efficacy.<sup>31</sup> If a woman believes herself to be at greater risk in pregnancy, the health care provider is seen as the authority for direction to reduce perceived risks. Women have great trust in expert knowledge and medical-technical measures to provide security and protection from risk during pregnancy and birth.<sup>6</sup> Loewenstein et al.<sup>32</sup> theorize that emotional reactions to risky situations drive decisions and behavior that increase women's acceptance of authoritative direction during pregnancy. Most women feel little power to challenge medical authority,<sup>33</sup> and pregnancy is an especially vulnerable time for a woman due to concerns for health and safety of self and fetus, and anxiety of the unknown. A heightened perception of pregnancy risk out of proportion to clinical realities can increase this dependence.

## PROVIDER PERCEPTION OF PREGNANCY RISK

Pregnancy risk is perceived by health care providers through the lens of litigation fears, which is an acute problem in the United States. In a recent survey of high-risk specialists, 94% of physicians, including obstetricians, indicated that they practice defensive medicine, including use of imaging technology without indication.<sup>34</sup> This approach has not led to improvement in health outcomes or a decrease in the number of malpractice suits filed.<sup>35</sup> Enkin<sup>36</sup> describes this "risk to the doctor" as a distinct component in obstetric decision making. He argues that it is the inevitable reaction to unreasonable expectations that scientific technology can remove all risk and result in a perfect perinatal outcome. Current medical obstetric training includes regular sessions on legal risk management to limit risk exposure and occurs in technology-intensive settings where all pregnant women are likely to be considered at risk.<sup>37</sup>

## UNINTENDED CONSEQUENCES OF RISK SURVEILLANCE AND MANAGEMENT

### Normalization of Technology

The proliferation and acceptance of prenatal testing and surveillance has caused prenatal care to become a platform for testing as a technological imperative: "we have the technology; therefore we must use it."<sup>38</sup> Pregnant women expect technological interventions, although evidence is lacking for efficacy in routine use.<sup>39,40</sup> For example,

women have come to view receiving ultrasound examinations as an essential component of routine prenatal care.<sup>41</sup> Fetal ultrasound offered by nonmedical businesses for entertainment has become more commonplace. Expert obstetric groups continue to advocate for using ultrasound only when there is a medical indication,<sup>42,43</sup> yet the vast majority of pregnant women in the United States receive at least one ultrasound, and more than half receive multiple ultrasounds.<sup>44</sup> Even though there is some evidence that routine ultrasound use in normal pregnancy has contributed to earlier detection of multiple gestation, its use has not reduced perinatal mortality with the exception of a reduction of live-birth anomalies due to increased termination.<sup>7</sup> However, ultrasound is promoted in the literature to view placental location, confirm fetal growth and development, confirm presentation prior to labor, and assess normalcy as a matter of routine, even in a normally progressing pregnancy.<sup>45</sup> Studies of the long-term effects of multiple ultrasounds using contemporary high-frequency machines have not been done. Frequent visualization of the fetus fosters the illusion of risk control and security for both the health care provider and the pregnant woman.

## Unnecessary Interventions

The cascade of technology resulting from attempts to preempt risk is well documented with regard to birth interventions,<sup>46</sup> but effects during prenatal care are less well studied. Subtle or unusual findings on routine ultrasound scans can be the stimulus for more testing. A recent report in the literature of finding a unilateral short femur without other significant anatomic abnormalities in three fetuses described how the fetuses were then repeatedly "extensively examined for other skeletal anomalies and global skeletal dysplasia" and in all, no problems could be found.<sup>47</sup> The original finding has no known significance. If neither reassurance of normalcy nor treatment for an actual problem can be part of the plan that emerges from the fetal surveillance data, what is the psychologic effect on the woman and her family?

## Labeling a Woman High Risk

What happens to pregnant women when the label "high risk" is applied to them? Saxell<sup>48</sup> reported a small study in which women described a loss of control at being labeled high risk. In other reports, women labeled high risk after being hospitalized in pregnancy have less positive expectations of birth,<sup>49</sup> and those deemed at high risk of premature labor and enrolled in home uterine-activity monitoring programs have more stress and more negative emotions.<sup>50</sup> Handwerker<sup>51</sup> suggested that when women with nonmodifiable demographic factors such as advanced maternal age or low socioeconomic status are labeled as high risk, we somehow hold them accountable for

adverse outcomes and may increase their feelings of anxiety and guilt.

Stahl and Hundley directly examined whether a high-risk label given to pregnant women who were essentially low risk would have psychologic effects.<sup>14</sup> Women completed a 52-item risk assessment form developed in Germany that was designed to categorize women as high risk (needing obstetrician-led care) or low risk. One group of women were labeled high risk based on the German criteria, but were considered low risk with the same data on risk assessment forms used to screen women in the Netherlands and Scotland. A second group was considered low risk in all three assessments. A structured psychometric questionnaire measured the participants' psychologic status. There were significant differences in psychologic state based on whether or not the woman found herself with a high-risk label ( $P < .001$ ), and the authors concluded that labeling women at risk may negatively affect them.

### Social Control

As childbirth has become safer for the mother, the focus on reducing risk to the fetus has increased. Arney<sup>52</sup> argues that the fetus has become a primary patient, with obstetricians serving as fetal advocates—maternal behavior is monitored, evaluated, and judged in relation to the fetus. The ability to see the fetus has advanced the ability and perceived right by outsiders to judge a woman's behavior during pregnancy.<sup>53</sup> Pregnant women can be touched, taught, and advised by outsiders.<sup>54</sup> Friends, relatives, and health care providers expect a pregnant woman to participate in available fetal testing and surveillance, and women may feel pressure to conform to these expectations of others.<sup>55</sup> The medical profession is viewed as having the highest interest in the well-being of the fetus, whereas the pregnant woman herself is perceived as requiring medical direction and behavior control to fulfill this interest.

### Detachment From Pregnancy Knowledge and Experience

The advent of birth technology and medical dominance in pregnancy care has led to the transfer of authoritative birth knowledge from women themselves to medicine.<sup>39</sup> Surveillance technology can replace a woman's experiential knowledge, making her a passive recipient rather than the active partner in care.<sup>56</sup> Medical personnel can make direct contact/visualization with/of the fetus, becoming the primary advocate for the fetus in place of the mother. A recent study investigated the relationship between maternal genetic screening and prenatal attachment. Women over age 35 ( $N = 101$ ) completed a Prenatal Attachment Inventory, and differences between those undergoing elective genetic screening and those declining screening were examined. Attachment levels were significantly lower in women who participated in genetic screening than those who did not have screening ( $P = .02$ )<sup>57</sup> Effects of decreased fetal attachment

**Table 2.** The Seven Simple Strategies for Helping Patients Understand Risks\*

1. Prepare by first learning about the actual difficulties that patients experience in attempting to understand risks.
2. Accept the challenge that patients' emotions will invariably filter the facts and cannot be ignored.
3. Revise the way you explain probabilities to patients. The most commonly used methods can be greatly improved with small changes.
4. Try to avoid speaking to patients in terms of relative risks. Ensure you provide context so patients get "information" and not just "data."
5. Never just give the negative perspective but, instead, make sure the positive perspective is always provided as well.
6. Explain the risk numbers by using visual aids. These give context as well as achieving understanding for the largest number of patients.
7. Realize that sharing visual aids with patients can serve to reinforce the health care provider-patient bond, enhance trust, and encourage acceptance of the health care provider's message.

\*Adapted with permission from J. Paling.<sup>64</sup>

in the first half of pregnancy are unknown. Detachment from the pregnancy experience and ceding of authoritative birth knowledge can further disempower women and increase reliance on medical direction during pregnancy.

### Birth Fear

Contemporary emphasis on pregnancy danger and risk may contribute to increasing birth fear, or tocophobia, a newly emerging topic of study in Western culture. Birth fear and anxiety are primarily shaped by cultural and societal factors.<sup>58</sup> Women learn about childbirth from media, family, and the medical community,<sup>59,60</sup> and research indicates that these same sources are also the sources of significant fear of childbirth.<sup>61,62</sup> A qualitative investigation in Australia examined birth fear and prenatal testing in 376 postpartum women and found that routine pregnancy surveillance and testing reinforce and amplify preexisting fears about pregnancy and confirm perceptions that all pregnancies are at risk.<sup>28</sup> Some anxiety about birth is normal, functioning as a prompt for women to seek safety and security. However, escalated fear can lead to a woman's reliance on measures and interventions to escape unharmed from another vague but ever present pregnancy and birth danger.

### Clinical Implications

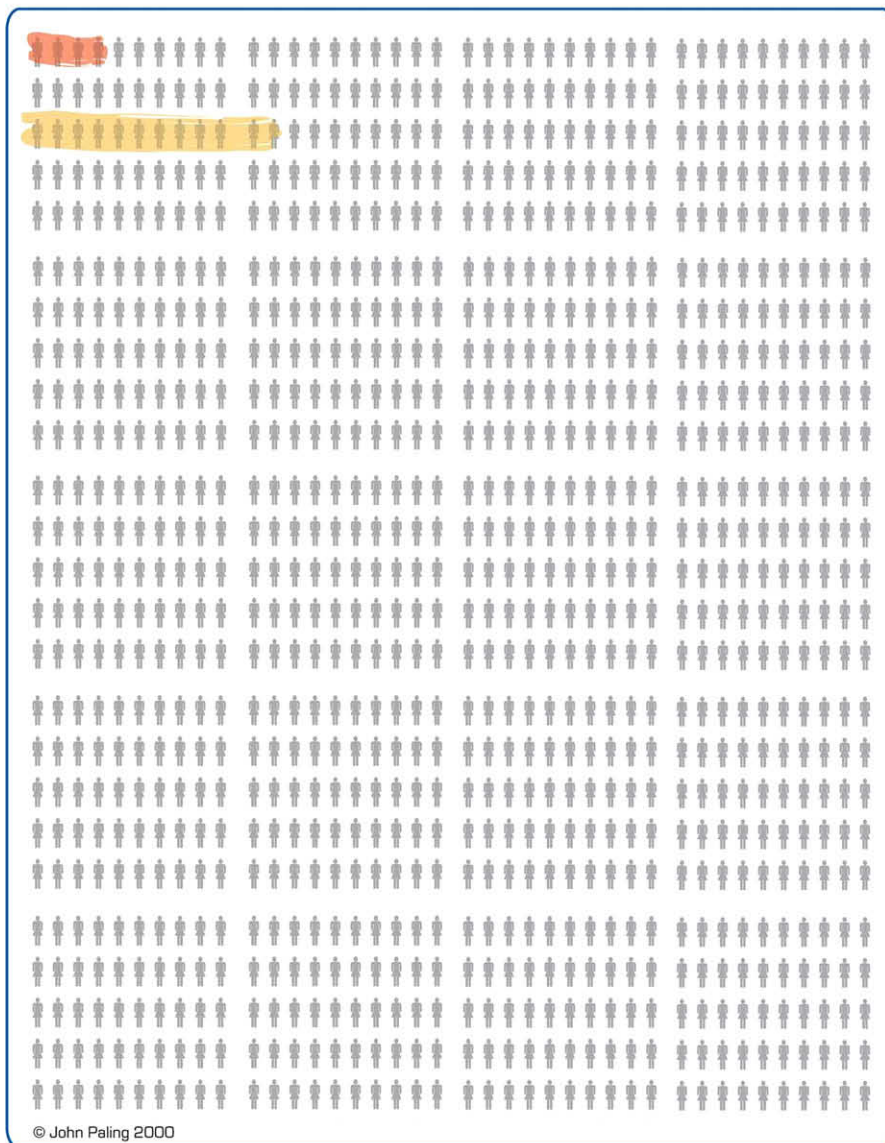
A risk surveillance approach to prenatal and birth care has its foundation in the Western cultural construct of risk aversion, making it difficult to challenge even in the absence of data to support this approach.<sup>63</sup> How can midwives begin to make a difference? Skinner<sup>2</sup> asserts that midwifery is the ideal profession to make a change in the risk paradigm as midwifery is "all about connection and protection." Prenatal care visits are a good starting point for educating women about appropriate use and limitations of technology. Midwives must make risk-based clinical decisions thoughtfully by asking challenging

# One Thousand People

- Pictures to Help You

See Your Odds

We can only show you averages. It is impossible to predict whether your results will be positive or negative.



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Odds for a 39 year old woman of producing a child with Down Syndrome or other chromosome abnormality: 12 out of 1,000

Odds of a woman having a miscarriage as a result of amniocentesis: 4 out of 1,000

Figure 1. Paling Palette. Reprinted with permission from J. Paling: The Risk Communication Institute, 2008.

questions: Does this test, technology, or intervention yield information that will promote health? Is it evidence based to be beneficial? Will this application cause distress or other harm? We must be able to provide rationale for our care practices and share this information with our clients and colleagues.

### Communicating Risk

Childbearing is not without risk. However, the translation of theoretic and potential risk into a meaningful probability statement and determination of benefits and risks associated with screening is the key to accurate risk communication.

**Table 3.** Elements of Informed Consent

The known or possible diagnosis requiring treatment
The nature and purpose of proposed treatments
The benefits and risks associated with proposed treatment
Potential complications and side effects
Likelihood of treatment success for this patient
Reasonable alternatives available
Benefits and risk associated with alternatives

Effective risk communication requires different approaches and tools than traditional discussions of risk among health care professionals. John Paling lists seven simple strategies in his book *Helping Patients Understand Risks*<sup>64</sup> (Table 2). Studies have shown that people tend to misinterpret risk when it is stated as a probability with a numerator of one. For example, some persons will interpret 1 per 384 as a higher risk than 1 per 112.<sup>65,66</sup> Thus, conversion of various risk probabilities into rates based on a standard denominator will facilitate communication. As an example, when talking with a pregnant 26-year-old woman about her chances for a successful VBAC and her risk for uterine rupture during VBAC, all related risks should be presented as rates with a denominator of 1000 and placed in a context that includes the probability that no adverse event will occur. Visual aids such as the Paling Palette in Figure 1 are useful adjuncts to the discussion.<sup>64</sup>

The risk discussion should culminate in a mutually agreeable decision about how to proceed with the risk information presented. Informed consent is not a signature on a document; it is a process of exchange between woman and health care provider to foster her ability to make the best decision about what to allow to be done to her.<sup>67</sup> Applying informed consent principles to commonly used technology like nonindicated ultrasound, genetic screening, and elective induction allow depth of information for an informed decision and permit informed refusal without sanction (Table 3).

Appropriate risk communication also acknowledges that the inherent inequalities in power and status between patient and provider have a great influence on what happens to women in pregnancy care.<sup>68</sup> Equalizing the power balance between a pregnant woman and her health care provider in a caring relationship promotes open dialogue. When women are able to form a trusting relationship with their providers, they are more likely to have increased confidence to ask questions and make choices about their care, rather than simply being “compliant.”<sup>69</sup>

Fostering the transition of authoritative childbirth knowledge from the health care provider to the pregnant woman should be a prenatal care goal. Validating and affirming a woman’s experiential knowledge of pregnancy can empower her to rely less on outsiders’ opinions on her pregnancy needs and allow her to make more autonomous care decisions.

## CONCLUSION

Risk assessment is a key component of prenatal and birth care and has demonstrated benefits in promoting improved outcomes in some situations. However, when perceived pregnancy risk is out of proportion to real risk, and when risk management procedures are applied to all pregnant women with benefit for a few, unintended and harmful consequences may result. Cultural norms of risk aversion and obstetric provider interests have led to an exaggerated perception of pregnancy risk and the ability of our health care system to reduce risk. Transforming risk assessment into universal applications of prenatal surveillance and risk management strategies regardless of actual risk lacks evidence of improved outcomes and introduces new potential for harmful consequences. According to Donovan, “risk aversion in pregnancy care has contributed to the ideological climate in which it is becoming challenging to experience pregnancy as a normal embodied state.”<sup>63</sup> If, we as midwives, are the guardians of normal pregnancy and we believe in the inherent value of supporting this perspective for childbearing women, then we must advocate for cautious evidence-based risk assessment that safeguards the physical, psychologic, and emotional health of the women in our care.

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