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# Shift to Cesareans as Preferred Birthing Method: Implications, Risks, and Recommendations

Elizabeth Angelica Bernstein  
*University of South Florida*

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SHIFT TO CESAREANS AS PREFERRED BIRTHING METHOD: IMPLICATIONS,  
RISKS, AND RECOMMENDATIONS

Elizabeth Angelica Bernstein

The University of South Florida

The Honors College

Thesis Director: Dee Jeffers

Committee Member: Dr. Charles Mahan

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## Introduction

There is one recent trend in the birthing process that affects not only international health care systems, but also the health and well being of mothers and their babies all over the world: the increasing rates of both elective and medically advised cesarean sections. This recent trend has prompted many medical professionals to take note, and has also inspired a growing number of journal articles and new studies analyzing not only the cause of the increase in cesarean sections, but also the effects of cesarean sections in normal and low-risk pregnancies, as well as the maternal and fetal risks associated with these procedures. These studies are finding that this relatively invasive surgery is becoming more and more prevalent despite a lack of “available evidence [to] lend support to a current shift in clinical practice” from vaginal birth to cesarean section in low-risk pregnancy (Miesnik & Reale, 2007, p. 605). Meanwhile, the rates of the types of cesareans performed are increasing the most quickly among low-risk pregnancies, a subject that also happens to have the least amount of research properly assessing the risks and benefits (Miesnik & Reale, 2007).

Once a more primitive procedure limited to emergency deliveries to remove a dead fetus in order to save the mother, cesarean sections have become quite common. The total cesarean delivery rate for 2006 was 31.1% (Martin et al., 2009). What was thought in 2006 to be the highest total cesarean delivery level ever reported in the United States has already been topped. In 2007 research demonstrated that the United States had raised its rates even higher, with the total cesarean rate reaching 32%, the highest rate ever reported in the United States currently (National Center for Health Statistics, 2010).

These high rates, combined with the fact that birth outcomes are not getting any better, indicate that this high-risk trend is affecting an inordinately high number of mothers and therefore must be thoroughly examined for the well being of birthing women. The research compiled in this thesis will give detailed insight into the modern causes and factors for increasing rates of cesarean sections, what these rates are, and increasing willingness of obstetricians to perform them. Also discussed will be the potential effects of cesarean rates, both emergency and elective, on maternal and fetal health. Included in the discussion of maternal complications will be long-term effects such as ectopic pregnancies and placental problems, as well as morbidity and mortality. Lastly, this review will cover the role of education about different methods of delivery and the recommendations of health organizations, as well as those attempting to change the practices of health professionals on what needs to be done to reduce these rates.

## Background

### *What is a cesarean?*

A cesarean section is the delivery of a baby through surgery in which an incision is made in both the belly and the uterus of the mother (Jukelevics, 2008). According to an article from the Oxford University Press, “a cesarean section is a major operation, with great potential benefit, but also with substantial risk for both mother and baby. The hazards can be kept to a minimum, first by avoiding unnecessary operations, and, second, by meticulous attention to proper anesthetic and surgical techniques” (Enkin et al., 2000, p. 404). The techniques of a cesarean section are vital because they have the potential to affect not only the mother’s postpartum health and health in recovery, but also the health of the baby.

### *What is the difference between an elective and medical c-section?*

The biggest controversy surrounding cesarean sections is the prevalence of elective versus emergency, or medically necessary, cesareans and which type is contributing the most to overall increasing rates.

An elective cesarean involves scheduling and planning for the cesarean in advance. In this way, elective cesareans allow the mother, her family, and her physicians to prepare even months in advance for the birth. This type of cesarean section is also “usually performed before labor begins, before the membranes have ruptured and before labor is induced” (Jukelevics, 2008, p. 38). Elective cesareans are also commonly considered to be medically unnecessary (Belizan et al., 2007). Examples of elective

cesareans include scheduling a cesarean because of a breech baby or electively choosing to schedule one following a previous cesarean.

An emergency cesarean section refers to “an unscheduled cesarean section that has been decided upon during labor or birth” (Jukelevics, 2008, p.38). Therefore, the decision to perform an emergency cesarean section is often only made within a few hours, or even minutes, before the procedure begins. It should be made clear that there are fine distinctions even among different types of emergency cesareans. For instance, unplanned cesareans, a cesarean that most commonly follows after labor that is not progressing, are often referred to as emergency cesareans even though there is commonly no specific risk to either the mother or the baby. Meanwhile, a true emergency cesarean is one that takes place to save the life of the mother or baby or when there is immediate risk due to a complication such as placenta abruption, fetal distress, placenta previa, or a number of many other threatening complications (Childbirth Connection, 2008).

*Who is having cesareans?*

Despite the government’s declaration of “a national public health goal of reducing C-section rate for [low-risk] births to 15% by 2010,” the actual rate has increased past 30% (Miesnik & Reale, 2007, p. 605). This means that the surgery has expanded to low-risk women. Rates are only increasing, with the number of cesarean births increasing by 71% from 1996 to 2007 (National Center for Health Statistics, 2010). During this same time span cesarean rates have increased for births to mothers in every U.S. state, and by more than 70% in six states, with Florida being one of those six states (National Center for Health Statistics, 2010). In the United States alone, the number of annual cesarean

sections being performed is rapidly increasing. In 2005, the number of births was 4,138,439 with the number of cesarean being 1,248,815 (Declercq, 2009). In just a span of two years, this number has increased to about 1.4 million cesareans performed in 2007, the latest year for which figures are available (Grady, 2010). In the last 20 years in the United States, there has been a steady increase among all age groups with the same rate of about 50% (Declercq, 2009). Similarly, the cesarean rate has increased among white non-Hispanic, black non-Hispanic, and Hispanic women, with black non-Hispanic women having the highest rates at almost 34% (Declercq, 2009). This problem is not only limited to the United States. Studies confirm this trend in virtually every country in the world. Among industrialized countries from the early 90's up until about 2002, cesarean rates steadily increased. Although the rates in a few countries such as Finland and the Netherlands leveled off after 2002, the rates in places such as Germany and Italy have continued to increase, with Italy maintaining the highest incidence of almost 400 cesareans per 1,000 births in 2005 (Declercq, 2009). The rates in developing countries have also soared, reaching almost 40% in places such as Latin America and the rates in Puerto Rico and China are even higher, approaching 50% (Grady, 2010). In Brazil cesarean rates have reached an excess of 80% in some private hospitals (Devendra & Arulkumaran, 2003). These statistics show that increases in cesareans are not just a local trend; they are a global phenomenon.

## Vaginal Birth as Preferred Birthing Method

### *Protective Factors and Physical Benefits*

One of the biggest benefits of a vaginal birth after labor is the effect it has on a newborn's respiratory system. The problem with a planned cesarean is that it eliminates the natural ability of pushing to stimulate the baby's breathing response, which is why cesarean babies have a significantly higher rate of respiratory complications. The physical act of pushing a baby through the birth canal helps clear their lungs; as the baby passes through the birth canal, the chest is squeezed and this pressure helps remove some of the fluid (Vyas et al., 1981). Contractions during labor also help stimulate the baby's own breathing mechanism, through chemical signaling which helps prepare the lungs for respiration. This is primarily accomplished through stimulation of catecholamines (Simkin, 1991). During contractions, there are temporary reductions in oxygen to the fetus, which cause the heart rate to slow down, leading to a stress response of increased catecholamine production; these catecholamines aide in the absorption of fluid of lungs, thereby preparing the baby's lungs for breathing at birth (Simkin, 1991). Studies have shown that babies born vaginally have higher levels of catecholamines than babies delivered through a scheduled cesarean, which correlates to the lower risk of respiratory complications for babies born vaginally (Simkin, 1991).

One of the U.S. Healthy People 2010 goals is to have 75% of mothers initiate breastfeeding at birth for 50% to breastfeed until at least the fifth or sixth month of life (U.S. Centers for Disease Control, 2007). However, in 2007 the CDC reported that less than half of the states met these goals, stating that hospital birth practices had a big

influence on the initiation and continuation of breastfeeding. While a cesarean makes it more difficult to initiate and continue breastfeeding, through use of medications like sedatives, as well as separation after birth, vaginal birth allows for a much smoother transition. An intervention-free spontaneous vaginal birth allows for the delivery a healthy unaffected newborn, while medications and procedures administered during labor significantly impact the baby's ability to sufficiently maintain suckling during breastfeeding (U.S. Centers for Disease Control, 2007). The inability to establish satisfactory breastfeeding after birth can affect later infant feeding behavior long after the hospital stay is over; this is why the events that happen in the hospital after birth are vital to a baby's future development. Research has shown that breastfeeding has numerous advantages for both the baby and the mother, and not doing so can be potentially harmful. Studies have shown that breastfeeding significantly reduces many common ailments of young babies. For instance, researchers from the U.S. Agency for Healthcare Research and Quality found that continued breastfeeding not only reduced the risk of ear infections for babies by up to 50%, but also lowered risks of certain types of skin rashes by 42%, and infections of the respiratory tract by 72% (U.S. Agency for Healthcare Research and Quality, 2008). Breastfed children born from a family with history of asthma were 40% less likely to develop it, have lower incidences of acute diarrheal disease, and enhanced vaccine response (U.S. Agency for Healthcare Research and Quality, 2008). According to other research, the serious gastrointestinal tract disease necrotizing enterocolitis occurs ten times more often in babies who are formula fed, than those who are breastfed (U.S. Agency for Healthcare Research and Quality, 2008). Aside from enhanced immunologic

development, breastfeeding has also been shown to promote cognitive and social development. One study showed that children who had been breastfed after birth had a significantly higher IQ at a young age, than those who had not been breastfed, even after making adjustments for different between educational and social differences (Caspi et al., 2007).

While the benefits of breastfeeding for the baby are numerous, there are also many advantages for the mother. Physically, breastfeeding reduces the risk of postpartum hemorrhage by stimulating increased levels of natural oxytocin, causing the uterus to contract (Stuart-Macadam, 1995). It also helps with weight loss and shrinking the uterus back to its pre-pregnancy size more quickly (Freed et al., 1992). The U.S. Agency for Healthcare found that breastfeeding women had up to a 12% reduced risk of diabetes for each year they breastfed, while the risk ovarian cancer was reduced up to 21% and the risk of breast cancer up to 28% after prolonged continuation of breastfeeding (U.S. Agency for Health Research and Quality, 2007). Breastfeeding is also cheaper. Mothers save the expense of formula feeding, while institutions could be saving a significant amount of money, with the United States Breastfeeding Committee estimating that private and government health insurance spend approximately \$3.6 billion annually, treating conditions that could be prevented through breastfeeding (Weimer, 2001).

Vaginal birth also provides the benefits of bonding. Both the World Health Organization and the American Academy of Pediatrics promote skin-to-skin contact between the mother and the newborn as soon as possible after delivery for at least 1 hour

and also until completion of the first breastfeed (Jukelevics, 2008). However, this is much more difficult to accomplish with a cesarean, due to the sedatives and routine post-birth procedures that are not commonly associated with vaginal birth. In fact, according to the Listening to Mothers II U.S. national survey, 43% of women who had a vaginal delivery had their baby in their arms immediately after birth, compared to only 14% of women who had a cesarean (Declercq et al., 2006). The act of holding or touching a healthy or sick baby promotes attachment and also reduces stress in both the newborn and the mother (Storton, 2007). Studies have also shown that direct skin contact between newborn and mother helps stabilize the baby's breathing, heartbeat and glucose level, reduces crying, provides warmth, and helps colonize the newborn's gut with the mother's own normal body bacteria gut (Lindberg et al., 2004). Perhaps the best example of a program that successfully utilizes the benefits of physical bonding between mother and newborn is "Kangaroo Mother Care". Every year in developing countries, up to 1 million pre-term babies die in the first month; however, Kangaroo Mother Care has dramatically helped reduce these numbers. This type of care is based on the premise that pre-term babies need three things: heat, food and love. It promotes using natural heat to replace incubators by having mothers wrap their babies to their chests (Bill & Melinda Gates Foundation, 2010). This program has seen so much success, that since receiving support from USAID and Save the Children in 2002, the program has expanded out of Malawi, it's country of origin, to 11 other countries and in 2003, the World Health Organization formally endorsed Kangaroo Mother Care as an effective treatment to protect newborns (Bill & Melinda Gates Foundation, 2010).

*Mental Satisfaction from Vaginal Birth*

Mothers who have a vaginal birth tend to have a stronger sense of mental satisfaction and empowerment. Research has shown that women who have a cesarean are more likely to experience personal failure, disempowerment, and lower self-esteem (Bailham & Joseph, 2003). Because of this stress, women who have had a cesarean can experience symptoms of hyperarousal, causing sleeping difficulties, directly affecting her ability to tolerate the vulnerability of an infant or establish a close bond; instead the mother feels fearful, sad, and withdrawn (Bailham & Joseph, 2003). Meanwhile, women who experience vaginal births often feel that they were in control of their birthing experience, and therefore exhibit greater feelings of self-confidence and self-esteem (Simkin, 1991). The separation that often occurs between a mother and her newborn after a cesarean also affects her ability to provide an initial response and care, which in turn affects her perception. It has been shown that when mothers and babies are allowed to stay together, the baby cries less, improving the mother's perception of her baby and also enhancing her confidence in her ability to provide care (National Institute for Clinical Excellence, 2004). In this sense, a mother experiences an immediate sense of accomplishment and empowerment that she might have not received otherwise.

*The Power of Natural Hormones: Orgasmic Birth*

Recently, mothers are learning about other added benefits of a natural vaginal birth provided by uninhibited production of natural hormones. Naturally occurring oxytocin, also known as the "love hormone," not only plays a role in eliciting contractions and promotion of bonding, but is also directly associated with orgasms (Moburg, 2003).

Being touched anywhere on the body leads to a rise in oxytocin levels that initiates a cascade of reactions in the body, including the release of endorphins and testosterone, that cause arousal both physically and psychologically (Moburg, 2003). Considering that a woman's oxytocin level is the highest it will ever be after labor, it is not so hard to believe that given the right environment, a laboring mother could achieve mental and physical euphoria that some women are claiming to experience (Rahm et al., 2002).

### Factors Influencing Physician and Consumer Decision

#### *Environment of Birth*

The people who attend the birth, as well as the physical environment in which the birth takes place, not only sets the mood of the birth, but also influences the outcome of the delivery. It is critical for a mother to research what birthing option best matches her birthing experience goals, although a woman experiencing a high-risk pregnancy might not have any alternatives to a hospital. Different types of births can also be associated with higher intervention levels and this must be kept in mind when choosing a birthing environment. For example, "if [a mother] prefer[s] to delay or avoid the use of medications, a busy hospital with a high percentage of epidural usage may not be the ideal environment for [her] to achieve this goal" (Camann & Alexander, 2009, par. 2). More and more mothers are giving birth in hospitals in the U.S. (approximately 98%), and as these numbers increase, it comes as no surprise that the numbers of interventions and cesarean sections increase as well. At a hospital, a birth is likely to be attended by a physician. According to one source, the most one reason cited for choosing to give birth at a hospital is because the woman "want[ed] to be in a place where all or most medical

pain-relief options [would] be available” to her (Camann & Alexander, 2009, par. 6).

This implies that the primary reason why women prefer hospitals is because of the incentive of pain relief through an epidural, one the most common interventions that promote the chain leading to a forced cesarean situation.

An alternative to the hospital birth experience is a birthing center. A birth that takes place in a birth center is usually attended by a midwife and nurse, with a backup hospital nearby in case of emergency. At a birth center, a woman’s labor will never be stimulated or induced with synthetic oxytocin, and interventions such as IVs and continuous electronic fetal monitoring do not take place. In this sense, a woman is given much more freedom and sense of control. Unlike in a hospital, a mother is not limited in how many people she can have at the birth and is free to eat and drink whatever she desires, adding to her sense of control and independence that are so important in achieving a satisfactory birth experience. Many centers have large jacuzzis that can be used during birth and experts have shown that water can reduce pain, relax muscles and make a birth go quicker; in this way, water is a natural alternative to medications that provide similar function. (Benfield, 2004). Bonding between mother and baby is further promoted, with no routine policies or procedures forcing the mother to be separated from her baby; all of his or her examinations and first bath take place in the mother’s room (Camann & Alexander, 2009).

The third most common birthing option is a home birth. A home birth is very similar to a birth that takes place in a birth center in terms of promotion of a natural and comfortable birth. With a home birth a woman is free to enjoy the comfort of familiar

surroundings and move around freely, while avoiding unnecessary use of interventions (American Pregnancy Association, 2007). Not only is satisfaction of mothers who have had a natural birth high, but it also costs one-third the amount of a hospital birth (Camman & Alexander, 2009). Despite the many benefits of having a home birth or a delivery at a birthing center, hospital births still more popular. According to one expert, it is due to a lack of education leading to stereotypes (Davis-Floyd, 1998). Also, to be able to qualify for a home birth or birthing center, a woman must be undergoing a low-risk, healthy pregnancy.

### *Interventions and Induction*

According to recent natality data, “the rate of labor induction in the United States more than doubled since 1990 from 2.5% to 22.5% in 2006, although it is likely that these data are significantly underreported” (Simpson, 2009, p. 45). It has been estimated that up to two-thirds of labor inductions are for nonmedical indications (Simpson, 2009). These statistics indicate that the overall rate of induction is rising faster than the rate of pregnancies involving complications that would actually require a medical induction. The initial intervention that often begins the cascade of interventions resulting in an emergency cesarean situation is the administration of the medication Pitcon™. Pitocin™, also known as oxytocin, is generally used in hospitals to induce and/or speed up labor (Lazor et al., 1993). It is the synthetic form of the naturally occurring oxytocin hormone that is produced by women’s bodies to stimulate uterine contractions (Weiss, 2008). Studies have shown that interventions that promote induction, such as administering synthetic oxytocin, only help in about 5% of cases and are therefore

recommended to be used only in pregnancies that have risk for complications, such as eclampsia or diabetes (Weiss, 2008). However, it is becoming routinely used in elective induction or to make the delivery more convenient for either the physician or the patient (Weiss, 2008). This is alarming to many health professionals, as “oxytocin remains the drug most commonly associated with preventable adverse events during childbirth (Clark et al., 2008, p. 35.e1). Until criteria for administration are more uniformly applied, elective use of oxytocin will continue to occur and therefore both over- and under use of oxytocin, combined with and inordinately high cesarean rates, will remain inevitable (Clark et al., 2008).

Once synthetic oxytocin has been administered, the domino effect of interventions immediately follows. Since fetal distress is more common with administration of oxytocin, the mother will also receive continuous electronic fetal monitoring. Fetal distress is one of the four main reasons cited for performing a cesarean (Banta & Thacker, 1979). The U.S. National Institutes of Health came out with a report in 1981 stating that “while evidence is lacking that the actual incidence of fetal distress has changed...the diagnosis of fetal distress has been made more frequently” (U.S. Department of Health and Human Services, 1981, p. 14). More recently, in 2007 the Coalition for Improving Maternity Services Expert Work Group found that electronic fetal monitoring “did not lower the incidence of low Apgar scores, the number of admissions to newborn special care nurseries, the incidence of cerebral palsy, or perinatal deaths” (Goer et al., 2007, p. 32S). They did, however, find that routine monitoring

increased the number of instrumental deliveries and cesareans, without improving health outcomes (Goer et al., 2007).

Possibly the most wide known intervention, with up to a 90% user rate, is an epidural (Burnstein et al., 2002). Epidural analgesia is clearly the most effective unnatural form of pain relief during labor, but its use is directly associated to negative side effects (Leeman et al., 2003). With such unwanted side effects, the question arises as to why so many women are receiving this specific type of pain relief. It seems that part of the reason is that they *need* it. And the reason why they need it is often due to the use of the previously discussed medication, Pitocin™. Approximately “80% of women who had Pitocin™ say that there is more pain with Pitocin™ than without” and often described the induced contractions as “intense...harsh, sudden, and agonizing” (Weiss, 2008, par. 6). While there has been much controversy about whether epidurals influence the rate of cesareans, it has been clearly shown that the rates of epidurals do correlate to the rates of cesarean sections. One study found that physicians who used epidural analgesia “40% of the time or less had a cesarean section rate of 14.8% for nulliparous patients, while those who used epidural analgesia 71% to 100% of the time had a cesarean rate of 23.4%” (Klein, 2006, pg. 419). Their results of a total epidural rate of 67.2% were also compared with those of a nearby community hospitals rate of 15.4% (Klein, 2006). It was found that among comparable women, the likelihood of having a cesarean section at their tertiary center was 3.4 times greater; and although factors like maternal age and cervical dilation upon admission were influential, the use of epidurals had the largest effect (Klein, 2006). The strong correlation between epidurals and

increased cesarean rates are partly due to the fact that epidurals increase the number of complications during labor. The Cochrane Pregnancy and Childbirth group found that mothers who had epidurals were at higher risk for fetal malposition and a longer first and second stage of labor- both extremely common factors in the decision to perform a cesarean (Anim-Somuah et al., 1998). The effects of epidurals also put the mother in a physical condition in which she is unable to perform a vaginal delivery. The purpose of an epidural is to block sensory nerves in the pelvis, and in doing so, also blocks communication between body and mind. Pain sends signals to the brain, which naturally sends directions back; this cannot happen with an epidural that reduces pain, and thereby the natural hormones released in response to that pain. Ultimately the mother loses her body's natural ability to know when and how to push for a vaginal delivery. This loss of a natural ability to push leads to increased use of instruments such as forceps or vacuum. If an instrumental vaginal delivery fails, a cesarean section will be required.

### *Physical Indications*

A of the primary factor that influences the decision to perform a cesarean section is physical indication. In a true emergency situation in which the potential benefits outweigh the potential risks, a cesarean can be a life- saving procedure. There are many physical medical indicators for a cesarean that can be identified before labor begins, so that a mother may advised that a cesarean should be considered as a safer option, instead attempting vaginal delivery. These indicators include a baby that is in a breech or transverse position, carrying multiple babies, having pre-eclampsia, pregnancy induced hypertension, diabetes, having had heavy bleeding in pregnancy, having had a previous

cesarean delivery, or having an infectious disease that can be transmitted to the baby during vaginal delivery (Krebs & Langhoff-Roos, 2003). Quite a few of these indicators are able to be compensated for, if not entirely removable through less invasive means. For instance, a baby that is in a breech or transverse position can be remedied by attempting to turn the baby prior to birth, therefore removing the need for a cesarean in this case. Although these are the medical indicators for a cesarean before labor, an increasing number of cesareans have occurred in the United States, with no medical indication recorded on the birth certificates (Declercq et al., 2005).

The medical indications for an emergency cesarean are not negotiable and present themselves during labor. Emergency cesareans can become necessary due to heavy, persistent vaginal bleeding, sudden and severe high blood pressure, or if a baby is in distress and cannot cope with labor (Hannah et al., 2000). Other indicators can include if the uterus has ruptured, the umbilical cord has prolapsed, or if the mother is experiencing dystocia- that is, she is not progressing through the first or second stage of labor (Lowe, 2007). “Failure to progress” alone is not a valid reason for a cesarean, but dystocia is a fairly common reason provided by health professionals, contributing up to 30% of cesareans (Turner et al., 1988).

### *Nonmedical Factors*

Studies have shown that nonmedical factors are also influences on the likelihood of having a cesarean delivery. These influences are completely unrelated to the mental or physical indications of the mother and include things such hospital size, size of maternity unit by annual delivery rate, affiliation with a medical school, provision of one-to- one

support in labor, and the availability of a 24-hour anesthesiologist (Mitler et al., 2000). Obstetrician characteristics such as age, experience, gender, and recent medico-legal claims can influence the delivery outcome (Mitler et al., 2000). Hospital regulations can also often place pressure on physicians and patients to conform to a generic labor timeline (Irwin & Jordan, 2009). And there is where the cascade of interventions begins; it is here that if a woman is not dilating according to institutional policies, that she is induced (Irwin & Jordan, 2009).

#### *Vaginal Birth After Cesarean (VBAC)*

A first birth that has difficulties leading to the use of instruments or an emergency cesarean can be so traumatic, that in subsequent births, a woman would rather have a planned cesarean in order to avoid experiencing labor again (Saisto et al., 1999). However, a VBAC is a safe alternative to a routine repeat cesarean and offers many advantages. Each cesarean delivery after the initial one increases risk of complications for mothers and their babies; compared with women who have planned vaginal births, women who have repeat cesareans have increased risk for scarring, infection, placental complications, hemorrhage, and ectopic pregnancies (Goer et al., 2007). Increased risks for a baby being delivered from a mother with a repeat cesarean include serious respiratory problems (Goer et al., 2007). While there is the risk of a previous uterine scar separating either partially or completely during labor, a majority of studies have shown that the risks associated with uterine rupture caused by separation of the uterine scar is less than 1% (Caughey et al., 1999). Research shows that 79.5% of women who attempted to have a VBAC in rural hospitals had a normal birth, while urban hospitals

had a success rate of 83.3% (Zweifler, 2006). The many benefits of a VBAC prompted Healthy People 2010 to make one of its priorities to reduce the number of repeat cesareans and increase the number of planned VBACs, in order to improve maternal and fetal health; to accomplish this a target of a national VBAC rate of 63% was set (Jukelevics, 2008). However, it seems that this goal was no closer to being reached by 2010 than when it was first initially set. More and more women are being forced into having repeat cesareans because many hospitals no longer support VBACs. The International Cesarean Awareness Network documented that by 2004, over 300 hospitals in the United States no longer provided care for planned VBACs (Jukelevics, 2008). Reasons behind VBAC bans in hospitals were not directly related to them not being safe. Instead, hospitals' decisions to not support VBACs stemmed from financial and legal reasons. In 1999, the American Congress of Obstetricians and Gynecologists issued new guidelines stating that anesthesia and an obstetrician must be "immediately available throughout active labor," meaning institutions that supported VBACS but did not have in-house availability, as is the case with most U.S. hospitals, could be left subject to medical-legal liability (Hirer, 2002). When taking into consideration medical malpractice payments, the cost of current recommendations for a constant team to be available while mother labors, and reimbursement methods, cesareans often make more financial sense for a hospital than a VBAC does. Until this changes, it is likely that mothers will continue to be forced into having repeat cesareans.

*Culture of Convenience and Fear*

Culture impacts both the physician and the mother when deciding upon a cesarean, especially in the decision to have an elective or planned cesarean. The first way in which culture influences the decision is through convenience. Social convenience has become more important to women, especially with harder economic times. According to National Vital Social Statistics, planned cesareans stemming from social convenience increased by 3% from 2005 to 2006 in the U.S. (National Center for Health Statistics, 2010). One study revealed that this was caused in part by working mothers who attest to the difficulties of arranging childcare at short notice when they go into labor; scheduling an elective cesarean section allows mothers the luxury of scheduling absence from work to better plan their maternity leave (Devendra & Arulkumaran, 2003). The United States is one of the only developed countries that do not offer extended time off with pay for new mothers, which is certainly motivation enough for some mothers to schedule their labor. Other women elect for the surgery so that they can “deliver before a holiday, before the end of the tax year, or when relatives are in town” (Nightingale, 2009, par. 10). This is perpetuated in the media through popular shows like “Sister Wives” on TLC in which a father and mother realize during her labor that their 13<sup>th</sup> child could be born on the 13<sup>th</sup> day of the month and lobbied for an induction to make sure that it happened.

While maternal requested cesareans do take place, evidence shows that it is impossible for this to be responsible for such a steep increase in overall rates of cesareans. A study performed in England in The Glasgow Royal Maternity hospital compared the rates between the years 1962 and 1992 and revealed that no single cause

contributed more than 30% to an increased rate of cesareans from 6.8% to 18.1% (Leitch & Walker, 2005). Furthermore, the main indications in both years were similar with failure to progress accounting for 36.7% of the cesareans and fetal distress accounting for 18.9% (Leitch & Walker, 2005). These statistics indicate that there has been a practice change; that there has been a lowering in the overall threshold concerning the decision to perform a cesarean (Leitch & Walker, 2005). This means that obstetricians are becoming more willing to comply with, if not prefer, a planned cesarean for their own convenience as well. An article published in the American Journal of Obstetrics & Gynecology concludes that “the underlying force driving much of the misuse of oxytocin today is the administration of this agent for provider or patient convenience” (Clark et al., 2008 pg. 35). The time of day or night may influence the initiation or pace of oxytocin administered for induction as often as true prolonged latent phases, documented inadequate contractions, or arrest of dilation (Clark et al., 2008). Cited convenience issues for physicians include desire to attend birth of primary patient for reimbursement issues, avoidance of interruptions of office hours, weekends, or evenings and ability to schedule more than one patient on the same day (Simpson, 2009). This is not to say that physicians have poor intentions. The fact that “avoidance of sleep deprivation by scheduled induction of labor in some women” is a common occurrence among obstetricians, indicates the existence of a flawed system in which these obstetricians are doing their best to provide good care, albeit an ultimately suboptimal response (Clark et al., 2009, pg. 35.e3).

The second major way that culture influences cesarean rates is through fear. Media has created a culture of fear that society indulges in. On television shows it is common to see pregnancy portrayed as a woman being rushed down the hall, screaming in agonizing pain. Soap operas are some of the most popular types of shows among women, yet they depict some of the most unrealistic births. Even documentaries like TLC's "I Didn't Know I Was Pregnant" depict giving birth as terrifying, with some women even claiming that they felt like they were dying. These negative media images are taking a toll on women, which is evidenced in a study published in the *British Journal of Obstetrics and Gynaecology*. The aim of this study was to examine comparisons between cesarean section on maternal request, cesarean section due to breech presentation, and controls planning a vaginal delivery by sampling 496 first-time mothers in week 37-39 of gestation (Beier, 2008). The study found that "mothers requesting a cesarean section had more negative expectations of a vaginal delivery...and 43.4% of women in this group showed a clinically significant fear of delivery" (Beier, 2008).

#### Implications of Rates on Maternal and Fetal Health

##### *Maternal Morbidity and Mortality*

Childbirth is the most common reason for hospital admission (Simpson, 2009). In fact, 6 out of 15 of the most common hospital procedures in the United States involve childbirth, with cesarean sections being the most frequent procedure performed (Childbirth Connection, 2008). Despite the high number of hospitalizations, in terms of maternal mortality the United States ranks last, with a rate higher than any other industrialized country (Declercq, 2005). Between the years 2000 and 2005, the United

States made no improvement in maternal mortality rates; instead, these rates increased by 54% (Declercq, 2005). Meanwhile, other industrialized countries not only started at a lower rate, but also decreased by 16% (Declercq, 2005).

### *Complications from Induction*

Although culture has come to accept the notion that elective induction is more “convenient,” clinically it can lead to a long labor, birth of an infant too early, exposure to high-alert medication, unnecessary cesarean birth, and maternal and neonatal morbidity (Clark et al., 2009). The medications that are used in inductions come with their own risk factors, best exemplified by oxytocin. Some of the biggest problems with excessive use of oxytocin are the detrimental effects it has on the baby, as well as the difficulty with monitoring. While the body’s natural oxytocin hormone is secreted in bursts, synthetic oxytocin is administered as a regulated steady flow; therefore, the contractions that are stimulated through synthetic oxytocin are different from natural contractions, both in strength and effect (Weiss, 2008). The stronger induced force of the contractions can decrease uterine blood flow for a longer period of time and more often than with a natural contraction, thereby reducing the oxygen to the baby (Weiss, 2008). Evidence shows that this elevated uterine activity, increases the risk of fetal acidosis at birth (Vahratian et al., 2005). According to one article, “few drugs in the entire medical armamentarium have such an unpredictable therapeutic index” as oxytocin (Simpson, 2009, p. 44). Research shows that “the effects of any given dose of oxytocin in a specific woman may range from sustained hypertonic contractions and fetal asphyxia to no discernible effect on uterine contractility” (Clark et al., 2008, p. 35.e2). The management

dilemma surrounding administration of oxytocin is exacerbated by the fact that “there exist only inexact technical means of measuring the effects of oxytocin in the uterus” (Clark, 2008, p. 35.e2). Another study recently demonstrated an inverse relationship between the number of contractions and fetal pH, citing data that showed “incomplete recovery of fetal oxygen saturation (SaO<sub>2</sub>) to previous baseline levels” from the types of contractions that synthetic oxytocin stimulates (Vahratian et al., 2005).

Epidural analgesia is associated with its own set of risks. A recent systematic review found that epidurals are consistently associated with lower rates of spontaneous vaginal delivery, longer labors, and higher rates of instrumental vaginal deliveries, particularly in nulliparous women (Klein, 2006). Epidurals are also associated with increased incidence of maternal fever that correlates to increased antibiotic use in mothers and newborns, and increased occurrences of operative perineal trauma (Howell, 2000). A meta-analysis reported that among patients receiving epidural analgesia, perineal trauma doubled, partly due to an increase in the use of forceps and vacuum (Lieberman & O’Donoghue, 2002).

#### *Maternal Risks Associated With Cesareans*

Cesarean section after induction of labor carries increased complications. When compared with spontaneous labor, it is known to be associated with more intensive monitoring, higher healthcare costs caused by increased interventions, longer intrapartum and postpartum length of stay, and risk of maternal and neonatal morbidity (Allen et al., 2006). The costs of cesarean birth after failed induction are almost double those associated with spontaneous vaginal birth (Agency for Healthcare Research and Quality,

2006). As mentioned, part of these costs is due to increased length of stay. One of the major downsides to cesareans, postpartum length of stay was 4.2 days for cesarean deliveries after failed labor induction, 3.8 days for repeat cesarean birth, and 2.0 days for vaginal birth (Simpson, 2009). Aside from costs, there are numerous physical risks that pertain to both elective and emergency cesareans. Cesarean sections are major abdominal surgery, so it follows that there will be an uncomfortable and lengthy recovery time. Lengthened recovery time, combined with general effects and pain from surgery, has the potential to affect ability to be with the baby soon after birth, as well as the ability to care for the baby in the first few weeks at home. The surgery itself makes the mother vulnerable to pulmonary infection (Rogers, 1988). In addition to infection from surgery, mothers also run the risk of surgical injuries. During the procedure, inadvertent injuries to the urinary and gastrointestinal tract can occur, with increased risk for injuries in future pelvic surgeries (Goer et al., 2007). Because of this, the “risk for complication for women with one or more prior cesareans was 18.3% compared to 3.58% for women without a prior cesarean” (Boukerro et al., 2003, p. 1136). This risk is due, in part, to post-surgical adhesions that can cause pain long after giving birth and pose complications for future surgeries (Women’s Health Resource Center, 2008). Blood clots are a serious risk and often form in veins as a result from a surgical procedure. Blood clots commonly develop within the deep veins of the legs, which are also termed deep vein thrombosis. If these blood clots detach, they can travel and cause a pulmonary embolism. Deep vein thrombosis and pulmonary embolisms are the leading causes of maternal death associated with cesarean sections (Women’s Health Resource Center, 2008). The risk for blood

clots, as well as complications from blood clots, are much higher with cesareans; for instance, having a stroke from a blood clot is rare, but the risk is 4 times higher for mothers who have a cesarean than for mothers who have a spontaneous vaginal birth (Maternity Care Association, 2008). A study in Sweden that followed over 1 million births between 1987 and 1995 found the risk for a pulmonary embolism was 7 times higher for women who had a cesarean when compared to women who had a spontaneous vaginal birth (Maternity Care Association, 2008).

### *Mental Health*

The physical pain associated with cesareans should be considered, as it can delay the mother's recovery. Despite the fact that women are often told that they can expect to fully recover within 6 weeks, research has shown that 8 out of 10 women in U.S. hospitals who had a cesarean experience pain as problem up to 2 months after their surgery, with 18% of them experiencing persistent pain for at least 6 months (Declercq et al., 2006). This partially contributes to an unsatisfactory birth experience that can lead to a mother's feeling of disappointment, failure, and depression. In the United States in 2005, it was reported that when compared women who had a vaginal birth, more women who had a cesarean felt weak, scared, helpless, agitated, and overwhelmed (Declercq et al., 2006). These feelings, as well as feelings of lower self-esteem, failure, and loss of control are especially associated with unplanned cesareans (Declercq et al., 2005). Depending on the mother's previous experiences, she could experience posttraumatic stress disorder, with incidence of this ranging from 1.5% to 6% (Creedy et al., 2000). Some reports have revealed that the use of invasive procedures, such as catheters, vaginal

exams and use of IV's can trigger traumatic responses from women who have experienced past sexual abuse or domestic violence (Simkin & Klaus, 2004). These factors can cause some women to experience their cesarean section as a physical assault and a form of institutional violence (Simkin & Klaus, 2004).

#### *The Aftermath: Future Complications*

The potential complications of a cesarean do not disappear after the surgery is complete. The aftermath of a cesarean delivery can be seen long after a woman has healed, often causing problems in subsequent pregnancies. It has been shown that women who have had a cesarean are more likely to have trouble conceiving, with up to 10% of women experiencing this complication (Goer et al., 2007). Placental abnormalities associated with previous cesareans are also significant factors in making future pregnancies more difficult. A placenta that forms in a uterus that has scars from previous cesareans may have abnormalities that prevent it from providing oxygen and nutrients to the growing fetus, compared to a placenta growing in an unscarred uterus. This can lead to premature birth, poor fetal development, bleeding during the pregnancy and miscarriage (Kroeger & Smith, 2004). The risk for placenta previa and abruption, as well as placenta accreta, increta, and percreta, are all significantly higher for a woman who has had a previous cesarean. Placental abruption and placenta previa both occur in about 1 to 9 out 1,000 women who have had one previous cesarean, which can cause hemorrhaging (Engle et al., 2007). These conditions require another cesarean section to be performed in order to prevent injury, or even death, to the baby. One of the most severe potential complications is an ectopic pregnancy. With a prior cesarean, an embryo

can be attach at the site of the uterine scar from the previous cesarean, causing an ectopic pregnancy that must terminated since it is considered life-threatening to the mother.

According to a World Health Organization analysis, hemorrhage that results from an ectopic pregnancy is on the leading causes of maternal deaths in the United States (Khan et al., 2006).

### *Effects on Babies*

As more research is conducted, health professionals are learning that “what affects the mother ultimately affects her baby” (Kroeger, 2004, pg. 1). This is why it is just as important to consider the effects any intervention or procedure might have on the baby. Some of the biggest complications for babies delivered through cesareans are associated with respiratory problems. Infant respiratory distress syndrome, most commonly associated with scheduled cesareans, was the most expensive condition of all hospital stays in 2005 and newborns were hospitalized for an average of 25.7 days (Jukelevics, 2008). With scheduled cesareans babies are more likely to be born preterm before their lungs have fully developed, causing them to be more at risk for difficulty breathing on their own. Since the risk of being born preterm is much higher with planned cesareans, these babies have a higher risk for the life-threatening condition, persistent pulmonary hypertension; this risk is 4 times higher for babies delivered through elective cesarean than those born vaginally (Coalition for Improving Maternity Services, 2008). Cesarean delivery is the number one risk factor for developing transient tachypnea of newborn, also known as “wet lungs,” a respiratory condition that occurs when fluid does not leave the lungs as quickly as it should after birth (Shearer, 1991). One of the main

causes of why fluid might not clear from the lungs quickly enough is because cesarean delivered babies, when compared to babies born vaginally, do not respond as well to chemical signals during labor.

Another major problem that plagues a majority of cesarean babies is the decreased likelihood of skin-to-skin contact with the mother after delivery. Although skin-to-skin contact has been shown to have adaptive benefits for a newborn, pain medications that are given after the procedure sedate the mother and can affect the initiation of bonding (Simkin, 1991). The anesthesia drugs given during a cesarean also affect the baby by crossing the placenta and therefore make it more difficult for babies to initiate breastfeeding, which is another way to begin bonding (Loftus et al., 1995). Because respiratory complications are so common, it is possible that they may be serious enough to require admission into a special care nursery, which further decreases time for bonding.

### *Neonatal Death Rates*

The rate of cesareans being performed on low-risk women is rising, with the number of cesareans being performed without any medical indication in the United States increasing 49% between 1996 and 2001 (MacDorman et al., 2006). Between these years, the CDC reported that newborns delivered through planned cesareans were more likely to die in the first 4 weeks of life, carrying three times the risk than those who were delivered through a vaginal birth (MacDorman et al., 2006). The infant mortality for first-time mothers who had a planned cesarean had a 56% higher rate than for mothers who had a spontaneous vaginal birth (MacDorman et al., 2006).

## Recommendations

### *Culture: Women Supporting Women*

The conditioning to fear birth is a relatively new phenomenon. It is believed that the change occurred as the tradition of women supporting and caring for each other throughout birthing began to diminish; as this tradition died, women lost their culture of birthing, as well as their confidence and trust in birth (McNiven et al., 2007). As this happened, the valuable component of personal emotional support, physical support, and encouragement was lost. However, there is evidence that suggests that this aspect of childbirth must be revived. Research has shown that individual nonmedical support is valued highly among women, and is also significantly effective in improving health outcomes, while reducing the likelihood of a cesarean section being performed (Hodnett et al., 2003). A review of studies found that with continuous nonmedical one-to-one support, women were less likely to request pain medication during labor, require the use of instruments during their delivery, and have postpartum pain, and were more likely to have an overall positive experience and feel in control of their birth than women who did not receive this type of care (Hodnett et al., 2003).

### *Reducing the Odds*

There are many things that woman can do to reduce her risks for having a cesarean both during her pregnancy and during her labor. As has been shown, who attends the birth, as well as the environment in which the birth takes place in, influences a woman's chances of having a cesarean. Aside from taking care in the decision of where to have her baby, there are many things a woman can do during her labor to reduce the odds of

a cesarean being performed. A key piece of advice is to arrive at the hospital when the woman is in active labor. All too often women are admitted into the labor and delivery unit in a hospital before they have begun active labor, meaning that their contractions are not stable, the cervix has not yet thinned, and the membranes are still intact (Jukelevics, 2008). The characteristics make it more difficult for the labor to progress according to hospital policies and usually lead to an induction (Lauzon & Hodnett, 2001). A low-risk woman in labor should also try to avoid the unnecessary use of interventions such as continuous electronic fetal monitoring. There are alternative methods, such as intermittent fetal monitoring through a handheld Doppler device or auscultation with a stethoscope, that promote face time between the mother and caregiver, allow for free movement, and decrease the risk for cesareans or use of instruments (Alfirevic et al., 2006).

### *The Value of Patient Education*

Knowledge is the number one tool that aids women in the decision of what their specific ideal birthing experience should be like and how to achieve that. Part of why women are not receiving the best education about birthing methods is because of inaccurate sources. Research has shown that 3 out of 4 women in the United States turn to the Internet to search for pregnancy information (Declercq, 2006). However the Internet often provides conflicting information, depending on it is obtained from. It is imperative that women who use the Internet to find important medical information learn how to search for reliable resources, as websites can provide information that is biased, outdated, not comprehensive in terms of listing all complications, risks, and alternatives,

or is not always evidence-based (Jukelevics, 2008). Information from the Internet should never replace firsthand knowledge from a trusted caregiver.

A great way to receive accurate knowledge is through the context of childbirth classes. This type of education can be very effective in informing women about the risks of elective induction of labor. One recent study of 3,300 women who received this type of education found that this type of education was also very effective in reducing the amount of women who chose to have an elective induction (Simpson et al., 2008). Although physicians' suggestions for elective induction acted as a significant counterinfluence, the study found that despite this influence, almost two-thirds of women who did not have the induction stated that the information provided in their childbirth classes had been a main factor in their decision (Simpson et al., 2008). However, the number of women attending these classes is steadily declining, with a steep drop from 70% attendance in 2002 to only 56% in 2005 (Declercq et al., 2006). Stimulating increased interest in childbirth classes would help enhance mothers' knowledge about pregnancy and birth.

#### *Fiscal Components*

The use of financial incentives is a key addition to any strategy aiming to reduce rates of cesareans. As the culture in hospitals seems to shift from safety-based to convenience-based, it follows that current reimbursement processes are not always conducive to care that entails that best interests of mothers and their babies. Currently there are only financial incentives for cesarean birth and unnecessary interventions that

inhibit spontaneous vaginal birth, yet no financial disincentives; if this is going to change, there must be financial disincentives for performing elective labor induction for nulliparous women with an unfavorable cervix before 41 weeks gestation (Agency for Healthcare Research and Quality, 2006). There should also be direct financial rewards to providers and facilities that are consistently high-performing, with higher reimbursement for spontaneous vaginal birth in healthy nulliparous women (The Joint Commission, 2009). Through these strategies, quality care and payment for care are aligned (Childbirth Connection, 2008).

### *Reorganization of Care*

The duties of an obstetrician take a large toll on them; their days are long and filled with constant work, from starting initial rounds, to performing surgeries, to maintaining office hours, to performing more rounds (Simpson, 2009). More and more obstetricians are finding this type of lifestyle unsustainable, especially women who work in the field who want to participate in motherhood and an active family life (Simpson, 2009). The only way for an obstetrician to make their time more efficient and manageable, is through convenient scheduling of elective cesareans. To eliminate this need, some experts have proposed a laborist model in which “primary obstetricians would provide all prenatal and outpatient postpartum care but have the option of handing off care during labor, birth, and the immediate postpartum period to an in-house obstetrician” or so-called “laborist” (Simpson, 2009, p. 47). This model of care would require the laborist to work 12 hour shifts, providing services for the woman in labor upon admission, during labor and birth, and during the immediate postpartum period; this would allow for the obstetrician to have

more chances for rest, while still being on call for emergency situations (Weinstein, 2003).

### *Collaboration Among Professionals*

One group of researchers assert that until widespread adoption and patient acceptance of a model of care in which “criteria for induction, augmentation, and cesarean delivery for labor arrest are uniformly applied, and the timing of delivery is completely irrelevant to the provider,” the planned use and timing of elective inductions and oxytocin administration will continue (Clark et al., 2009, p. 35.e3). This is why the collaboration among health care professional is imperative. Leaders must work together to develop widespread criteria for elective labor induction. By doing this, the medical community can promote higher quality standards.

### Conclusion

Unwarranted increased rates of cesareans are taking place all over the world. As the annual numbers of cesareans being performed increase, so do the number of maternal deaths, demonstrating that the increased rates of cesarean births are not conducive to positive health outcomes for a mother or her baby. It should be noted that cesarean sections do have life-saving capabilities. However, when cesareans are used for the purposes of convenience rather than medical necessity they become more harmful than helpful. Because of this it is important to consider the serious risks of surgery, especially for low-risk women who carry all of the risks of the operation but none of the counter risks that would warrant the risk of surgery.

The only way to reduce the number of cesareans is through mutual cooperation

between politicians, hospital administrators, doctors, and most importantly of all, the patients and their families. Health care professionals from every arena must come together and lobby for this cause. Stigma and negative treatment of midwives in hospitals must be eradicated. Instead, family physicians, obstetricians, nurses, midwives, and doulas must learn to accept each other and work together in providing efficient and effective care that focuses on the best interests of their patients. Financial costs and reimbursement methods should be re-strategized in order to promote higher performance and better health outcomes. Women must take action, come together, and fight for their right to experience the birthing experience that they want to know the inherent risks behind any procedure that they undergo, especially those that involve themselves and their child simultaneously, thereby creating an environment where they can make an educated decision as to how exactly they wish to conduct their labor and delivery. To do this, women must be fully informed of their options, remain actively involved in all decisions regarding their care, and be supported in their decisions.

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