

What Every Pregnant Woman Needs to Know About Cesarean Section

be informed

know your rights

protect yourself

protect your baby



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It is not intended to provide specific advice or recommendations for any individual.
Please consult your caregivers for advice with regard to your individual situation.*

Preface to Second Revised Edition

The first edition of this booklet for pregnant women was issued in 2004. Since then, the U.S. cesarean rate has continued to rise steadily and is at a record level. With this trend, about one mother in three is giving birth by cesarean section in 2006. The information in this booklet is more crucial and relevant than ever to all women who plan to give birth in the U.S. and other countries with a similar approach to maternity care.

This revised edition includes a number of changes. Estimates of the current cesarean rate have been adjusted upward to reflect changing practice. However, the episiotomy rate has dropped, and this edition uses the 2005 rate of this procedure from Childbirth Connection's second national *Listening to Mothers*® survey, which was recently conducted by Harris Interactive®.

The first edition of this booklet summarized early results from a large international study of cesarean versus vaginal birth for women with babies in a buttocks- or feet-first (*breech*) position. After the booklet was published, the researchers reported results measured two years after the birth. The section on situations that can lead to a cesarean in this edition updates results of this study.

A major focus of the booklet is to help women understand adverse effects that are more likely to occur with one or another way of giving birth. "The Heart of the Matter" section still provides a short, easy-to-read overview of these differences, and the Appendix goes into more detail. Consistent with highest standards for communicating risk, the key to differing levels of risk in the Appendix now uses the same denominator to describe all levels of added risk. This does not change results and will make them easier to understand. We have also added this key and information about the size of differences in risk to a companion at-a-glance chart that compares risks of vaginal and cesarean birth and is available as a PDF file at www.childbirthconnection.org/cesareanbooklet/

Over 30 organizations have endorsed this booklet. Several endorsed it after the first printing, and the names of all current endorsers are listed on the back cover.

Several endorsing organizations have new names, and the list of endorsers reflects these changes. Among these, the name of the issuing organization has changed from Maternity Center Association to Childbirth Connection, while continuing a focus on improving the quality of maternity care that goes back to 1918, when the organization was established. The new edition also reflects Childbirth Connection's new logo and website addresses.

As background for the first edition, we carried out an extensive scientific review to identify and compare all harms that might differ in likelihood depending on how a woman gives birth. Although we have not had the opportunity to update that review, we have closely followed the relevant studies that have appeared since our review was completed. The newer research continues to affirm the earlier overall conclusions. To date, this is the only review that has been carried out to identify all of the adverse effects that are at stake in decisions about how to give birth. This booklet thus continues to be an important tool to help women make informed decisions during pregnancy and while giving birth.

Why and How This Booklet Was Prepared

Cesarean section is on the rise in the U.S. About 1 woman in 3 now gives birth by major abdominal surgery. The increase is due to many medical, legal, social and financial factors, including “defensive medicine” and changing attitudes and values of caregivers and pregnant women.

Considerable controversy exists about risks and benefits of cesarean delivery as compared with vaginal birth. There is growing confusion and disagreement about the safety of vaginal birth, the safety of cesarean section, and the role that cesarean section might play in preventing “pelvic floor” disorders such as incontinence in later life.

One difficulty is that individual studies and media reports comparing different ways of giving birth tend to focus on a small number of possible effects. This gives an incomplete and misleading picture of the full range of harms and benefits that may be of interest to women.

A group of leading national organizations committed to the health of mothers and babies came together to help pregnant women make sense of the conflicting messages. We sorted through available research to help pregnant women make informed decisions. While more high-quality studies are needed, a large body of studies already exists and sheds light on these questions for those who need guidance now.

This booklet summarizes results of the most relevant and better quality studies among hundreds that were examined. It covers a broad range of outcomes – physical as well as emotional effects in mothers and babies, shorter and longer term (including any future pregnancies). It also helps pregnant women understand their legal right to “informed consent” and “informed refusal,” and provides many steps they can take in pregnancy and during labor to increase their likelihood of having a safe and healthy birth.

As far as we know, this booklet is the first of its kind to offer you and your partner complete and up-to-date information on such a broad range of outcomes of cesarean compared with vaginal birth. It covers important information in more detail than you and your caregiver are likely to be able to cover during busy prenatal visits. Rather than just relying on your memory to recall details of discussions with your caregiver, this booklet is a resource for you to read and refer back to as needed. We hope you’ll use it as a guide to learn about these key issues and talk them over with your partner. We also recommend that you share this booklet with your caregiver and talk with him or her about your specific situation. This will help you be better prepared to make informed decisions that are right for you and your baby.

Childbirth Connection, the oldest national U.S. organization advocating on behalf of mothers and babies, took the lead in developing this booklet. Many other national not-for-profit organizations in the field gave input. Feedback from childbirth educators, consumers, doctors, labor support professionals, midwives, nurses and researchers helped to shape its content and ensure accuracy. The back page lists organizations that officially endorse it, along with their websites so you can learn more about these groups.

This booklet and a companion at-a-glance summary comparing the risks of vaginal and cesarean birth are available as PDF files at www.childbirthconnection.org/cesareanbooklet/ Supporting documents detailing the process used to develop the information in the booklet, as well as a list and summary of studies that were consulted, are also on that web page.

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Why Should I Know About Cesarean Section?

The way you give birth can impact you and your family in ways that you might not expect. It can affect your health as well as the health of your baby. Current research suggests that how you give birth can shape such things as how quickly you recover from childbirth, whether you breastfeed, and whether you have emotional difficulties after birth. It can also affect whether you can get pregnant again and the likelihood that a baby in a future pregnancy will die before or shortly after the birth.

The information in this booklet is based on an in-depth look at the best studies that were found on the risks and benefits of cesarean section compared with vaginal birth. When looking at all of the risks that are affected by this choice, cesarean section poses more risks than vaginal birth. Quite a few involve serious health conditions for mothers and/or babies. The appendix in this booklet provides details.

In selected situations, cesarean section is an invaluable and even life-saving procedure for mothers and babies. In such situations, most everyone would agree that strong and compelling benefits of cesarean outweigh the downsides. In many other situations, the benefits of surgical birth for mothers and babies are smaller or questionable. In such cases, it is important for you to weigh anticipated benefits against the risks as a part of your decision-making process.

It's hard to predict if you'll be among the roughly 1 out of 3 women who have a surgical birth. Many women do not know ahead of time that they will be having a cesarean. During pregnancy it's impossible to know exactly what your labor will be like. Situations can arise during your pregnancy and labor that could lead to an unplanned cesarean. Or the possibility of planning a cesarean may come up during your pregnancy.

What key factors can affect whether I have a cesarean or vaginal birth?

The health needs of you and your baby can influence whether you have a cesarean or vaginal birth. Some other key factors include your choice of caregiver and birth setting, your access to supportive care during labor, and the medical interventions you experience during labor and birth. Cesarean rates in the U.S. can range from well under 10% for some caregivers and birth settings to over 50% for others. There are many reasons for this variation. One reason is that caregivers differ in the ways that they support women during labor and in their decisions about when to offer surgical birth (*practice style*). Cesarean rates also vary from one birth setting to another due to differences in policies and values. These are some reasons why your choice of caregiver and birth setting can have a big impact on the type of birth that you will have.

The way you give birth can impact you and your family in ways that you might not expect.

What should I consider to make an informed decision?

To make an informed decision about these important matters, it's important for you to know:

- your legal right to make informed health care decisions (“informed consent” and “informed refusal”)
- the risks and benefits of surgical delivery compared with vaginal birth
- your personal values and preferences concerning these matters
- steps you can take to improve your chances for a safe and healthy birth
- the options available to you through your insurance, in your community, etc.

It is also very important for you to talk over your specific situation with your caregiver and get answers to your questions.

If you have made an informed decision that a cesarean is right for you and your specific situation, it's likely you will find a doctor to perform the surgery. On the other hand, you may decide that you want to avoid a cesarean delivery if you possibly can. As cesarean rates continue to rise, it may be much harder to reach a goal of avoiding a cesarean than having one. There are many tips you can follow during pregnancy and also after labor begins to help reduce your chance of having a cesarean (see “Tips” on page 13).

A Special Note for First-Time Mothers

This booklet is especially important for you. As a first-time expectant mother, you have the greatest opportunity to determine what kind of birth you will have. At this point, many options are open to you. In a very real sense, when you make plans for this first baby, you are making plans for all your babies. For example, if you have a cesarean for this birth, it is highly likely that you will have a cesarean for any and all future babies. If you have a cesarean now, you and your babies in any future pregnancies will face extra risks. If you plan a large family, these concerns are very important.

One woman in 20 gave birth by cesarean in 1970. Today about 1 in 3 do so.

The U.S. Department of Health and Human Services and the American College of Obstetricians and Gynecologists have expressed concern about the growing cesarean rate among healthy, low-risk women. Both issued major reports in 2000 proposing that the U.S. can—and should—achieve a lower rate.

Your Legal Right to “Informed Consent” and “Informed Refusal”

What does it mean to give “informed consent”?

Informed consent is a process to help you decide what will and will not be done to you and your body. In the case of maternity care, informed consent also gives you the authority to decide about care that affects your baby. The purpose of informed consent is to respect your right to self-determination. It empowers you with the authority to decide what options are in the best interest of you and your baby. Your rights to autonomy, to the truth (as best as it can be known at the time), and to keep yourself and your children safe and free of harm are very basic human rights.

Whenever a medical procedure, drug, test, or other treatment is offered to you, you have the legal right to “informed consent.” This means your doctor, midwife or nurse is responsible for explaining:

- why this type of care is being offered
- what it would involve
- the risks and benefits that are associated with this type of care
- alternatives to this care, and their respective risks and benefits.

You have a right to clear and full explanations about your care. You are entitled to get answers to any and all questions that you may have about your care. You are also within your rights to request a copy of your medical records and to get a second opinion.

Then, by law, you have the right to decide whether to accept the care that is offered. If you disagree with your caregiver and decide not to accept care that is offered to you, this is called “informed refusal.” And, even if you have made your decision and signed a form agreeing to a particular type of care, you have the right to change your mind. Although these are established legal rights, they have been challenged in a few recent cases that you may have heard about.

It can be challenging to carry out the informed consent process in the context of busy health care routines. Yet, you and your caregiver can set aside the time to discuss many of these issues during your pregnancy. You don’t want to be learning about these procedures and options for the first time when you’re in labor and facing such important decisions.

Informed consent is a process to help you decide what will and will not be done to you and your body.

What happens if my caregiver and I disagree?

Your caregiver has rights, too. He or she has the right to agree or disagree to provide care that you may request. For example, if you request a cesarean and have no medical need for this procedure, your caregiver has the right to refuse to do the surgery.

These issues speak to how important it is to have a good collaborative relationship with your caregiver that includes open communication, mutual respect, and shared points of view. Making a careful choice of a doctor or midwife who respects your needs, values and goals can help avoid conflict down the road.

Talking With Your Caregiver

Make a list of your questions before each visit, and take notes on the answers. You may wish to bring your partner or someone else close to you along to listen to what is said. Don't be shy; nothing is off limits.

While talking with your caregiver, don't hesitate to say:

- I don't understand.
- Please explain this to me.
- What could happen to me or my baby if I do that? Or if I don't?
- What are my other options?
- Please show me the research to support what you're recommending.
- Where can I get more information?
- I have some information I'd like to share with you.
- I'm uncomfortable with what you are recommending.
- I'm not ready to make a decision yet.
- I'm thinking about getting a second opinion.

And remember, any question that you have is a question worth asking. It's important to let your caregiver know when you don't understand. Ask again, until you do.

Whenever a medical procedure, drug, test, or other treatment is offered to you, you have the legal right to "informed consent."

The Heart of the Matter: The Safest Way To Give Birth

This section presents our findings from an in-depth review of the current research.

In the Appendix (page 20), you will find a list and descriptions of problems that were found to be affected by whether a woman has a vaginal or cesarean birth. You will also find estimates of the difference that the way a woman gives birth makes to the likelihood that she will experience these problems. You can learn more about the process and studies used to come to these conclusions at www.childbirthconnection.org/cesareanbooklet/

What are the concerns about cesarean birth, in comparison with vaginal birth?

Cesarean birth can be life saving for both a mother and her unborn baby in a small proportion of situations. For most women and babies at the end of pregnancy, the *overall* risks of surgical birth outweigh benefits. Some specific problems and the likelihood that they will occur, however, may be far more important to you than others.

Compared with vaginal birth, cesarean section can increase a woman's risk for a number of physical problems. These range from less common but potentially life-threatening problems, including *hemorrhage* (severe bleeding), blood clots, and bowel obstruction, to much more common problems such as longer-lasting and more severe pain and infection. If a woman has a cesarean, she is more likely to stay in the hospital longer, and is at greater risk of being re-hospitalized. In addition to the increased risk for these physical problems, a woman who has a cesarean delivery may be at greater risk for poorer overall mental health and some emotional problems. A woman who has had a cesarean is more likely to rate her birth experience poorer than a woman who has had a vaginal birth.

Her early relationship with her baby may also be adversely affected. For example, a woman who has a cesarean has less early contact with her baby and is more likely to have initial negative feelings about her baby. The transition from surgery poses challenges for getting breastfeeding under way. A baby who was born by cesarean is less likely to be breastfed and get the benefits of breastfeeding.

Cesarean section can also cause other problems for a baby, who may be cut (usually minor) during surgery. Babies are also more likely to have breathing difficulties around the time of birth and to experience asthma in childhood and in adulthood.

A cesarean section in this pregnancy puts a woman at risk for future reproductive problems, in comparison with a woman who has a vaginal birth. Surgical birth puts her at greater risk for future *ectopic* pregnancies that develop outside her uterus or within the scar. Her future fertility is lower than a woman who has a vaginal birth, due to both less ability to become pregnant again and less desire to do so. In future pregnancies, a woman who has had a cesarean is more likely to experience serious problems with the placenta (see Appendix for details of *placenta previa*, *placenta accreta*, and *placental abruption*). The scar in her uterus may also open (*rupture*). These problems may involve serious complications and medical emergencies. The likelihood of experiencing some of these conditions goes up as the number of previous cesareans increases.

These problems also affect babies in future pregnancies. They are more likely to die before or shortly after the birth. Preterm birth and low birth weight may also be concerns. And, future babies appear to be at increased risk for a physical abnormality or injury to their brain or spinal cord.

Even if you do not plan to have more children, you should consider these risks. In the future, you may change your mind about becoming pregnant or may decide to carry through with an unplanned pregnancy.

A planned cesarean offers some advantages over an unplanned cesarean (which occurs after labor is under way). For example, there may be fewer surgical injuries and fewer infections. The emotional impact of a cesarean that is planned in advance appears to be similar to or somewhat worse than a vaginal birth. By contrast, unplanned cesareans can take a greater emotional toll. However, a planned cesarean still involves risks associated with major surgery. And both planned and unplanned cesareans result in a uterine scar, with similar risks in future pregnancies.

What are the concerns about assisted vaginal birth, in comparison with spontaneous vaginal birth?

An assisted delivery is a vaginal birth that is helped along with vacuum extraction or forceps. At present, about 6% of births in the U.S. are assisted, primarily with vacuum extraction. In selected situations, assisted birth offers important benefits to mothers and babies. For example, it can hasten birth when a baby needs to be born quickly or can help a woman avoid a cesarean.

Having an assisted vaginal birth increases a woman's risk for a number of problems, in comparison with a spontaneous vaginal birth (without vacuum extraction or forceps). However, risk of harm can be greatly reduced by avoiding an episiotomy when possible. A woman who has an assisted birth is more likely to have a tear that goes into the anal muscle, excess bleeding, infection, and a painful vaginal area. She is more likely to be rehospitalized.

A woman who has an assisted delivery is also more likely than a woman with an unassisted vaginal birth to have "bowel problems" of any sort and some leaking gas or feces (*anal incontinence*) in the weeks and months after birth. She may be at increased risk for some leaking urine (*urinary incontinence*) at this time. She is also more likely to have hemorrhoids and sexual problems (such as pain with intercourse).

A woman with an assisted delivery is more likely to have a poor birth experience and to have some emotional problems, compared with a woman who has a spontaneous birth. She is also at risk for poorer physical and emotional functioning in the early weeks after birth.

A baby born by assisted delivery may be at increased risk for injuries to the arm, hand, face and brain.

What are the concerns about vaginal birth, in comparison with cesarean birth?

We found four areas where mothers or babies with vaginal birth had poorer outcomes, in comparison with cesarean birth. First, although a woman with a cesarean birth is more likely to experience more intense and longer-lasting pain overall, a woman with a vaginal birth is more likely to experience pain in the vaginal area in the weeks and months after birth.

A woman with a vaginal birth is also more likely to leak urine (*urinary incontinence*) and to leak gas or, more rarely, feces (*anal incontinence*). You can learn more about these problems in the box on the next page and in the Appendix on pages 26-27.

Finally, in comparison with a baby born by cesarean section, a baby that is born vaginally is more likely to have a nerve injury that affects the shoulder, arm or hand.

The bottom line

Spontaneous vaginal birth involves fewer risks overall than either cesarean section or assisted vaginal birth. If you do not have a clear and compelling need for a cesarean or for the help of vacuum extraction or forceps, a spontaneous vaginal birth is likely to be the safest and most satisfying option for you.

If you want to have such a birth, there are no guarantees. However, you can take many steps to increase your chances for this type of birth. Advance preparation in pregnancy could make all the difference. Careful choice of a caregiver with a conservative practice style, a birth setting with low rates of medical intervention, and a trained or experienced woman who will be available to provide continuous labor support may be the most important things you can do. The "Tips" section of this booklet gives you detailed guidance about these and other tips (see page 13).

How Does Incontinence Relate to Vaginal Birth?

You may have heard that “vaginal birth” increases a woman’s risk for “pelvic floor” problems, such as leaking urine (urinary incontinence) and leaking gas or feces (anal incontinence). What does current research tell us about this question?

About a year after birth, a few women in every hundred who had a vaginal birth have some continuing experience of urinary or anal incontinence that arose after the birth. Most of these women appear to have mild and infrequent symptoms (see Appendix, page 27).

More and more research finds that some practices that are used with vaginal birth at the time of pushing, but could often be avoided, increase the likelihood of pelvic floor injury. For example, the combination of forceps and episiotomy puts women at high risk for tears into the anal muscle and for anal incontinence. Interventions that pose risks for mothers and babies include:

- cutting an episiotomy
- using vacuum extraction or forceps to help bring the baby out
- having women give birth while lying on their backs
- using caregiver-directed pushing, which is often more forceful than having the woman and her reflexes guide pushing
- pressing on the woman’s abdomen to help move the baby out
- pressing against the opening to the vagina as the baby’s head is born.

Many women experience several of these during vaginal birth.

Is vaginal birth in and of itself harmful? It is common to hear that “vaginal birth” causes pelvic floor problems. Of hundreds of studies examined, however, **not one** attempted to avoid or limit the use of practices that can injure a woman’s pelvic floor to try to determine whether vaginal birth itself plays a role. It is wrong to conclude at this time that the cause of pelvic floor problems is giving birth through the vagina.

Are the practices listed above necessary? Rates of using these practices vary quite a bit. Caregivers with a conservative practice style use them only when they offer a clear benefit and may avoid some of these altogether. Not one study found an advantage to frequent or routine use of such practices as episiotomy and assisted birth.

Is “vaginal birth” the culprit in the high levels of incontinence that women experience in later life? Studies that take a longer view find that new problems with urinary and anal incontinence that appear after birth lessen over time. These problems tend to completely disappear by the time of menopause. Older women experience high rates of incontinence, but this appears to be due to other factors. For example, excess weight and smoking play a role.

Does cesarean section prevent incontinence? Routine cesarean section would only prevent continuing symptoms of incontinence in a small portion of birthing women. For most women, it would pose numerous risks without benefit. And it would offer no protection against experiencing incontinence in later years. As no research has found that vaginal birth itself causes incontinence, there are more sensible ways to prevent these problems:

1) avoid when possible the use of birth interventions that can injure your pelvic floor, and 2) focus on keeping a healthy weight, avoiding smoking and other risk factors. Also, for those women with bothersome incontinence, treatments are available, ranging from special exercises (which can be tried first) to drugs to surgery (last resort).

What Situations Can Lead to Cesarean Birth?

The reasons for having a cesarean birth fall into three general categories. Each of these is reviewed below.

1. Urgent Health Situations

In a small portion of pregnancies, situations arise that pose an urgent threat to the health or life of the mother or baby. For example, if the mother is bleeding heavily (*hemorrhage*) or the baby's oxygen supply is blocked, a cesarean is needed. Such urgent situations can occur before or during labor. This booklet doesn't cover the small proportion of situations when just about everyone would agree that a cesarean delivery is necessary.

2. Non-Urgent Health Situations

More commonly, your caregiver may recommend a cesarean for quite a few non-urgent situations involving a concern about your health or the health of your baby. These situations can occur before or during labor. They increase your chances for having a cesarean delivery: some women in these situations have a cesarean and some do not.

Learning More About Your Specific Situation

This booklet briefly discusses the more common reasons why your doctor or midwife may recommend a cesarean. Less common reasons are not discussed. Regardless of the reason why your caregiver recommends a non-urgent cesarean, it is essential that you seek information beyond what is provided in this booklet. Your caregivers are an important source of this information.

Things to discuss with your caregivers when a cesarean is proposed:

- *why a cesarean is being recommended*
- *whether there are any special considerations for your specific situation*
- *what benefits a cesarean is expected to offer (including several listed in the Appendix to this booklet, pages 26-27)*
- *whether expected benefits of a cesarean outweigh the risks (including the full range of risks listed in the Appendix, beginning on page 20)*
- *what other options exist: their pros and cons, whether you have access to these options.*

If a non-urgent cesarean is proposed before you are in labor, time is on your side. You have the opportunity to do your own research to learn more about the complex issues involved. This will help prepare you to discuss the issues with your caregiver and partner, and make your decision.

Since the decision about whether to have a vaginal birth or a cesarean can impact you and your baby in many ways, it is essential that you understand the full range of possible risks to you and your baby (see Appendix, page 20). Too often, discussions of the value of cesarean section for non-urgent reasons only consider a rather small number of possible risks. This gives a misleading picture. As the person receiving care and mother of your baby, you are in the best position to decide what risks are important to you. You have the right to full and accurate information before making a decision.

As the person receiving care and mother of your baby, you are in the best position to decide what risks are important to you.

The most common non-urgent situations that lead to cesareans are:

Previous cesarean section: There's a lot of controversy and disagreement on the question of how a woman should give birth if she had a cesarean in the past. Caregivers vary in their recommendation about planning a VBAC (vee-back, vaginal birth after cesarean) or another cesarean this time around. The main concern turns around the fact that the woman's uterus has a scar, which can separate (*rupture*) in a future pregnancy or labor. On the one hand, having a repeat cesarean lowers the likelihood of a separation with problems at the time of the birth. A recent government report estimates that for every 10,000 women who plan a VBAC, 1.5 babies will die due to this problem. On the other hand, a surgical birth poses its own set of risks. (See Appendix, pages 20-24.) As the number of previous cesareans goes up, some of the serious risks for any future pregnancies increase sharply.

If you've had a previous cesarean, we recommend that you learn all you can about these and other tradeoffs involved with this decision and talk these matters over completely with your caregiver before making your decision. Be sure that your caregiver and any others who may be attending your birth agree with your decision.

Unfortunately, it's becoming harder to find a hospital and caregiver that will leave the choice in the woman's hands. Hospitals without 24-hour anesthesia services may ban VBACs altogether, requiring that any woman who has previously given birth by cesarean have a repeat cesarean if giving birth in their facility. If you want to have a VBAC, you may need to search for a caregiver and hospital that will offer you this. In some communities, this may not be available.

Prolonged labor or "failure to progress": The length of labor varies from woman to woman. Your labor may be shorter, longer, or somewhere in the middle. If your contractions aren't strong, your cervix isn't opening, or your baby is not progressing down the birth canal, you may be told that you have *prolonged labor*. Caregivers vary in how they might prevent or respond to a slow labor, and their degree of patience for a long labor. For example, some will try to rest the uterus or stimulate contractions with drugs before turning to a cesarean. They may try such things as ensuring that the mother is getting enough fluids, or encouraging her to change positions or walk around rather than lying flat on her back. Others will be quicker to turn to a cesarean. As long as you and your baby are doing well, there is no medical reason to decide on a cesarean.

If you hold out until “active labor,” when your contractions are likely to be strong and your cervix is opened to 5 or more centimeters (it is fully open at about 10 centimeters), there is a good chance that your body’s power can get you there on its own. Having continuous supportive care from a woman trained to help women in labor (*doula*), or a female friend or family member who is experienced with labor can help you get through a long and challenging labor. This kind of support can also help meet your partner’s needs and help your partner support you. It’s a good idea to talk with your caregiver, well before labor begins, about how he or she handles a long labor. Then you can think about what you might do if you are faced with this situation.

Baby in “breech” position: Nearly all babies are in a head-first position by the end of pregnancy. When they are in a buttocks- or feet-first (*breech*) position, labor poses some increased risks for both mother and baby. Because a cesarean poses its own set of risks, you may want to find a caregiver who has hands-to-belly skills to turn the baby to a head-first position (*external version*) in the last weeks of pregnancy. Sometimes it is not possible to turn a baby with this technique, and sometimes a turned baby will flip back to a breech position. However, most women who try this technique go into labor with the baby in a head-first position, and their likelihood of having a cesarean is cut in half.

If you go into labor with a baby in the breech position, most caregivers will recommend a cesarean. However, a large international study that compared planned cesarean and planned vaginal birth for women with breech babies found that a cesarean offered no advantage two years after the birth. There were no differences between groups in the likelihood that babies would die or experience serious developmental problems and in the likelihood that mothers would experience a broad range of problems. The study did not measure numerous effects on mothers and babies in future pregnancies, which favor vaginal birth (see Appendix, page 20.) If you find yourself with a breech position baby at the end of pregnancy, it is important to discuss this matter with your caregiver and to learn all you can about these and other specific trade-offs involved with this decision. Be sure that you and your caregiver agree ahead of time about your birth plan. If you decide to plan a vaginal breech birth, it is important that your caregiver and any others who may be attending your birth have skills and experience with this type of birth.

Changes in the fetal heart rate: Changes in the fetal heart rate may signal a problem for the baby. In some situations, undesirable changes are easy to correct. For example, a caregiver can ask a mother who is lying on her back to move to another position, give her oxygen or fluids, or lower a high dose of synthetic *oxytocin* (a hormone to strengthen contractions). These precautions can also be used to prevent such problems. When the fetal heart rate is very high, very low, or irregular, your caregivers may be concerned about the baby’s oxygen supply. If this cannot be corrected and the baby is not about to be born, a cesarean may be recommended. Electronic fetal monitors sometimes suggest that the baby is in trouble when this is not the case. Further testing can help identify which babies may need help.

Multiple births: Giving birth to more than one baby poses unique challenges. However, there is no strong research support for routine delivery of twins by cesarean section. Most caregivers will recommend a cesarean when there are three or more babies. As always, it’s important to learn as much as you can about the expected benefits

Be sure that you and your caregiver agree ahead of time about your birth plan.

and risks of cesarean compared with vaginal birth and discuss your individual situation with your caregiver before making your decision. If you are having twins and want to have a vaginal birth, you may need to seek out a caregiver who will support this.

3. Non-Medical Situations (“Elective” Cesareans)

Your caregiver may propose, or you may be considering, a cesarean for reasons that have nothing to do with your health or your baby’s health in the present pregnancy. The most common non-medical reasons for “elective” cesarean are described below.

Concerns about pelvic floor disorders: More and more, we are hearing that an elective cesarean will prevent later-life problems with leaking urine, feces or gas (*incontinence*). The research does not support this claim. You can find details about what we found in the Appendix on page 27, and in the box on page 7. In short, though the way that we give birth has some effects, studies suggest that these fall off over time and disappear by about age 50. Incontinence in later life seems to be related to other health and lifestyle factors, such as excess weight and smoking (see “Tips” on page 16).

Birth practices do have an impact in the weeks and months after giving birth, and continuing beyond to about age 50. Current research suggests that it would be wise to avoid whenever possible maternity practices that can injure the pelvic floor (such as routine *episiotomy*), but does not support avoiding vaginal birth itself. (An episiotomy is a surgical cut made just before birth to enlarge the opening of the vagina.)

Profound fear of childbirth: A small proportion of women, both first-time and experienced mothers, have an extreme fear of childbirth. Certainly, almost every expectant mother at one time or another will experience some degree of fear or apprehension. But, here we are talking about something altogether different. A series of counseling or psychotherapy sessions during pregnancy can help many women with these deep fears of vaginal birth overcome their fears and give birth vaginally. Continuous support during labor by a trained labor support companion (*doula*) may be of special value to a woman in this situation. If you decide to seek counseling, be sure to get help from a trained individual who has both good counseling skills and an understanding of maternity issues. Despite counseling, if you still have deep fears of childbirth you may decide to have a cesarean birth. Be sure to talk this over with your caregiver as early as possible in your pregnancy, and work together to help ensure a safe and satisfying birth.

Convenience: As attitudes toward cesareans become more casual, and as they are performed more “routinely,” your caregiver or you may have an interest in planning a cesarean for reasons of convenience. Or you may think of a cesarean as a pain-free way to give birth. Before committing to this path, it is important to investigate whether this choice truly offers you what you believe it will (such as greater convenience or less pain). And it is also important for you to make an informed decision with full understanding of the trade-offs that are involved (see Appendix, page 20).

More and more, we are hearing that an elective cesarean will prevent later-life problems with leaking urine, feces or gas (incontinence). The research does not support this claim.

Why is the Cesarean Rate Higher than Ever, and Rising?

Many factors play a role in the rising cesarean rate. These include:

Under-use of care that can enhance the natural progress of labor and birth, for example:

- *continuous labor support (by a trained or experienced companion)*
- *encouraging women to be upright and moving during labor (not on their backs, a position that can inhibit labor)*
- *ensuring that women in labor are well-rested and well-nourished*

Side effects of widely used medical interventions, for example:

- *when caregivers try to cause labor to start (induction), the likelihood of a cesarean often goes up*
- *when caregivers use continuous electronic fetal monitoring (EFM), the likelihood of a cesarean goes up*

The comfort level of some caregivers with moving to cesarean section before trying less invasive measures that may avoid a cesarean, for example:

- *failing to attempt to turn “breech” babies to the head-first position in late pregnancy with hands-on-belly movements*
- *performing a cesarean due to time pressures in busy hospitals when all is well with mother and baby*

Pressures on caregivers today to practice “defensive medicine”, for example:

- *given the way our legal, liability insurance, and health insurance systems work, caregivers may feel that performing a cesarean reduces their risk of being sued or of losing a lawsuit*

Failure to offer women with a previous cesarean birth a choice between VBAC (vaginal birth after cesarean) and repeat cesarean:

- *more and more hospitals and caregivers are adopting a ‘no-VBAC’ policy, and a woman who wishes to have a VBAC may be unable to have one due to these restrictions*

Loss of skills or unwillingness to offer vaginal birth to women in some situations, for example:

- *a woman with a baby in a breech position may have trouble finding a caregiver who is experienced and willing to attend a vaginal breech birth*
- *a woman who is expecting twins may have trouble finding a caregiver who is experienced and willing to attend the vaginal birth of twins*

The growing perception that a cesarean birth, and especially a planned cesarean, is “safe”:

- *although cesareans are safer now than before, the surgery still carries a broad range of short and longer-term risks for mothers and babies*
- *although planned cesareans offer some advantages in comparison with unplanned cesareans, this surgery, too, poses a series of risks in comparison with vaginal birth*

These factors can increase your odds for having a cesarean. But, in the next section you will find many tips you can follow to reduce the likelihood that they will come into play in your situation.

Tips for Avoiding Unnecessary Cesareans, Assisted Vaginal Births and Pelvic Floor Injuries

Studies that were used to develop the Tips in this section are listed in a PDF file available at www.childbirthconnection.org/cesareanbooklet/

If you make an informed decision to have a cesarean section, it's likely that you will find a caregiver who will work with you to meet this goal. If you make an informed decision that you want to avoid a cesarean section, as well as assisted delivery and pelvic floor injury, it may be harder to reach your goals. Most of the tips that follow are supported by very strong research. You can use them to increase the likelihood of having a safe and satisfying spontaneous vaginal birth.

I. THE BASICS: BEST OVERALL TIPS

In Pregnancy:

- **Find a Doctor or Midwife With Low Rates of Intervention:**

Some caregivers have much lower rates of intervention than others. Although there are many exceptions, family physicians tend to have lower rates than obstetricians, and midwives generally have the lowest rates of all. Styles of practice can also vary a lot within each of these groups. There is often striking variation even when the women being cared for are at similar risk. (See page 17 for more help with this decision.)

- **Discuss Your Goals and Preferences with your Caregivers:**

Find out how they will work with you to meet your goals and preferences. If their response does not satisfy you and you have other options, seek a better match. (See page 17.)

- **Choose a Birth Setting with Low Overall Rates of Interventions:**

Some hospitals have far lower rates of intervention than others, so do your homework. In general the rates of intervention are much lower for out-of-hospital birth centers and at home births. (See page 18.)

- **Create Your Own Birth Statement:**

Writing down your values, preferences, and goals can help you clarify your own thinking and feelings. Moreover, this effort will make you better prepared to discuss these issues with your partner and your caregivers.

- **Arrange for Continuous Labor Support from Someone with Experience:**

Arrange for someone other than your partner to provide continuous labor support. You can work with a trained labor support companion (*doula*) or invite a woman friend or family member to be with you. If you decide to invite a friend or relative, try to choose someone experienced and comfortable with birth. Care that “mothers the mother” considerably lowers your risk for cesarean section and assisted vaginal birth (see page 18). Having such a person with you can also help your partner by sharing the work and seeing that your partner’s needs are also met.

- **Explore Your Options for Pain Relief:**

Avoiding epidural analgesia can increase your chances for a spontaneous vaginal birth. If you wish to do this, it would be wise to consider your options and make arrangements for other ways of coping with labor pain well before labor. Many women find that tubs, showers, large inflatable “birth balls” and other measures are quite helpful for comfort during labor. *Doulas* can offer many “comfort measures.”

During Labor:

- **Work with Your Caregivers to Delay Going to the Hospital:**

If you are having a hospital birth, wait until you are in “active labor.” If you arrive too soon, check to see if you can go home and return later.

- **Receive Good Support Throughout Labor:**

Support from a *doula* (trained labor companion), or a female friend or family member who is comfortable with birth, reduces the risk for cesarean section and assisted vaginal birth.

- **If Possible, Avoid Continuous Electronic Fetal Monitoring:**

Continuous electronic fetal monitoring (EFM) increases your risk for both cesarean section and assisted vaginal birth. With some types of interventions, such as epidural analgesia, you may be required to use EFM. Talk with your caregiver and check hospital policies to find out whether they will listen to your baby’s heart rate with a hand-held device or occasional use of EFM instead of continuous EFM.

- **Avoid Epidural Analgesia:**

Epidurals reduce your chances for a spontaneous vaginal birth and increase your chances for episiotomy. Epidurals also increase your risk for deep tears that can injure your pelvic floor. Be sure to learn about the wide variety of comfort measures and other strategies, including continuous labor support, that can help you effectively cope with labor pain.

II. UNNECESSARY CESAREANS: TIPS TO REDUCE YOUR RISK

In Pregnancy:

- **If a Cesarean is Proposed and You’re Not in an Emergency Situation:**

Ask your caregivers (1) why it’s being recommended, (2) the benefits and risks of the surgery, (3) other possible solutions to the problem, including just waiting longer, and (4) the benefits and risks of those. If you aren’t in labor when the cesarean is proposed, you will probably have time to do your own research, and talk things over with your partner and caregivers before making a decision.

- **If you had a Cesarean with a Previous Birth:**

Become informed about pros and cons of VBAC (vaginal birth after cesarean) versus repeat cesarean. Talk with your caregivers and do your own research to learn about the many issues. Information in this booklet comparing risks of cesarean and vaginal birth is relevant to this decision. Although the research supports VBAC as a reasonable choice, you may have to search to find a caregiver and hospital that offer this option.

- **If Your Baby is in a Buttocks- or Feet-First Position (*Breech*):**

First, ask your caregiver about turning the baby to a head-first position (*external version*) when you reach “term” (about the 37th week of pregnancy). Many babies can be safely turned and born head-first through the vagina. You may need to search to find a caregiver who has skills and experience with this hands-on-belly technique. If you are not able to get the baby turned to a head-first position, learn about the risks and benefits of planning a vaginal birth or choosing a cesarean. Be sure to talk your situation over with your caregiver before making your decision. If you want to plan a vaginal breech birth, you will need to find a caregiver who has skills and experience and will support you in this choice. Finding such a person will likely be difficult.

- **If You Wish to Plan a Cesarean Due to an Intense Fear of Childbirth:**

Consider a series of psychotherapy sessions with someone who is informed about childbirth and has good counseling skills. About half of the women with deep fears who undertake therapy are able to reduce their fears and plan a vaginal birth. If you have a lot of anxiety and fear about your birth, the continuous presence of a trained labor support companion (*doula*) may make a big difference for you.

During Labor

- **Try to Avoid Routine Use of Medical Interventions When Possible:**

In addition to concerns about epidurals and EFM mentioned above, you can lower your chances of having a cesarean by avoiding whenever possible *labor induction* (use of drugs or techniques to try to start labor). Also be sure that your bag of waters is not broken by a caregiver (*artificial rupture of membranes*) before or in early labor. It is also good to avoid arbitrary time limits for your labor. There is no need to turn to a cesarean if you and your baby are doing well. Talk with your caregivers about these practices and how to avoid them.

- **If a Cesarean is Proposed and You're Not in an Emergency Situation:**

Ask your caregivers (1) why it is being recommended, (2) the benefits and risks that you can expect, (3) other possible solutions that can safely address the problem, including just waiting longer, and (4) and the benefits and risks of those. Information in this booklet comparing risks of cesarean and vaginal birth in present and future pregnancies is relevant.

III. UNNECESSARY ASSISTED VAGINAL BIRTH: TIPS TO REDUCE YOUR RISK

During Labor

- **Push in an Upright Position or a Side-Lying Position:**

Try pushing in an upright position, or lying on your side. Avoid lying on your back. Some hospital beds can be adjusted to help you with these positions. A trained labor support companion (*doula*) can help support you in these positions. You can also get help from the nursing staff or your partner.

- **Don't Set Time Limits:**

Ask your caregivers to be flexible when setting time limits for the pushing phase of labor, provided that you and the baby are doing well and some progress is being made. This is especially important if you have had an epidural.

- **Let Your Body Guide Your Pushing When Possible:**

If your cervix is fully dilated and there is no medical reason to hurry, consider waiting to push until you have the "urge to push" or your baby's head is about to be born. Waiting up to 2 hours or more for these situations increases your likelihood of having a spontaneous vaginal birth and helps avoid a difficult delivery if you are a first-time mother who has had an epidural, and perhaps for other mothers as well.

IV. UNNECESSARY PELVIC FLOOR INJURY: TIPS TO REDUCE YOUR RISK AROUND THE TIME OF BIRTH AND THROUGHOUT YOUR LIFE

In Pregnancy

- **Talk With Your Caregivers About Routine Use of Interventions that Can Increase Risk for Pelvic Floor Disorders:**

Talk with your caregivers to understand their attitudes about the following interventions that may be used during the

pushing stage of labor: episiotomy, lying on your back (versus various upright or side-lying positions), caregiver-directed (versus mother-directed) pushing, applying pressure to your belly (*fundal pressure*) to help get the baby out, applying pressure against the tissue at the opening of the vagina as the head is being born, and vacuum extraction or forceps. These interventions can injure your pelvic floor. Tell your caregivers that you want to avoid them unless there is a clear, compelling medical reason. If they are not willing to work with you to achieve this goal, consider looking for others who will work with you on this.

- **Exercise Your Pelvic Floor Muscles Regularly:**

Consider doing “Kegel” exercises regularly. Some, but not all research finds that these exercises in pregnancy can help prevent urinary incontinence.

During Labor

- **Avoid Routine Use of Interventions While Pushing:**

Whenever possible, avoid routine use of the following interventions in the pushing stage of labor: episiotomy, lying on your back (choose an upright or side-lying position), caregiver-directed (versus mother-directed) pushing, applying pressure to your belly (*fundal pressure*) to help get the baby out, applying pressure against the tissue at the opening of the vagina as the head is being born, and vacuum extraction or forceps. These interventions can increase your risk for pelvic floor injury. Let your caregiver know that you don’t want these interventions during your labor unless there is a clear, compelling medical reason.

After Birth

- **Continue Your Pelvic Floor Muscle Exercises:**

These exercises (*Kegels*) may help to resolve leaking urine (*urinary incontinence*). (The role of these exercises in helping to resolve leaking gas or stool (*anal incontinence*) and in preventing any of these problems is unclear.)

Tips Throughout Your Life

- **Maintain a Healthy Body Weight:**

Losing excess pounds can reduce symptoms as well as reduce your chance of developing diabetes, a condition that may also be associated with urinary incontinence.

- **Avoid Smoking:**

If you cannot quit completely, limit the number of cigarettes per day to decrease your chances of urinary incontinence.

- **Keep Doing Your Pelvic Floor Muscle Exercises:**

Kegels may be able to both prevent and treat leaking urine.

- **Minimize Repeated Urinary Tract Infection and Irritation:**

These are associated with urinary incontinence. Treatment can improve symptoms.

- **Avoid Having a Hysterectomy, When Possible:**

A hysterectomy increases your likelihood of having urinary incontinence.

Finding a Caregiver and a Birth Setting with Low Rates of Intervention

Choosing a caregiver and a birth setting with low rates of labor and birth interventions may be the single most important way for you to avoid the risks of unnecessary interventions. Values and practice styles (including rates of cesarean section, assisted vaginal birth, episiotomy, and other practices) vary greatly among caregivers and among birth settings. If you have a choice of caregivers and birth settings in your community and health plan, you can explore these matters when considering a particular caregiver or birth setting. If your insurance plan does not offer someone with the practice style you prefer and you can afford to pay someone who is a better match, the cost may well be worth it. (You may need to ask not only about an individual doctor or midwife, but also about an entire practice, as someone else may be “on call” when you are giving birth.)

Questions to Ask When Interviewing Potential Caregivers:

- **“How do you feel about epidurals?”**

Epidurals are effective for relieving pain, but have many drawbacks, including increasing your chances for having either cesarean section or assisted vaginal birth and increasing your chances for serious tears. If your caregiver is enthusiastic about epidurals and does not bring up the disadvantages for you and your baby, this may be a sign of a high-intervention practice style. It also raises questions about the person’s commitment to informed choice.

- **“How do you feel about labor induction?” (starting labor artificially)**

More and more women experience labor induction. A side effect of undergoing labor induction is being at increased risk for an unnecessary cesarean. This increase is often due to the procedure itself rather than a reason that might have led to the induction. The medical research does not support some of the common reasons given for recommending induction such as concern that the baby will grow too big. Enthusiasm about induction could be a sign of a high-intervention practice style.

- **“How often do you cut episiotomies?”**

Across the nation, about 25% of women with a vaginal birth have an episiotomy, but some caregivers have very low rates. Research supports not using episiotomy liberally or routinely. Among concerns with this cut to enlarge the opening of the vagina is the increased chance of a serious tear back into anal muscles with pressure at the time of birth. This, in turn, increases a woman’s risk for leaking gas or feces (*anal incontinence*). It would be good to find a caregiver who is concerned about the harm that can come from this intervention and is cautious about using it.

- **“What are my options if my labor slows down or stalls?”**

Look for a caregiver who is patient with a slow labor and who tries alternative measures before turning to a cesarean. No-risk strategies include good labor support, rest, drinking fluids, movement and position changes (being upright, walking or lying on the side may be more effective than lying on the back), and a calm and peaceful environment. Giving synthetic *oxytocin* (a hormone that stimulates contractions) may help, but has trade-offs. These include being connected to an IV drip and an electronic fetal monitor and contractions that may be very intense. Deliberately breaking the bag of waters (*artificial rupture of membranes*) is another option to try in this situation.

Finding a Caregiver and a Birth Setting with Low Rates of Intervention (continued)

Questions to Ask When Choosing a Birth Setting:

- **“During labor, can I have my baby monitored with a hand-held device or occasional electronic fetal monitoring (EFM) rather than continuous EFM?”**

Continuous electronic fetal monitoring increases the likelihood of cesarean delivery and of assisted vaginal birth. Use of hand-held devices has repeatedly been found to be safe and effective to monitor the baby. Another option is occasional (*intermittent*) EFM.

- **“What are your rates for cesarean section, assisted vaginal birth, and episiotomy?”**

You can lower your risk for unnecessary procedures by giving birth in a setting with rates that are well below the national average for cesareans (about 33%) and for episiotomy (about 25% of vaginal births). The national rate for assisted deliveries has become quite low, about 6%.

- **“What is your epidural rate?”**

If most or nearly all women have an epidural at a particular hospital, it could mean that women who wish to avoid an epidural will find little support for their choice and few alternatives to help them cope with the pain of labor.

The Power of Labor Support by a Trained Professional or Experienced Woman

Throughout history, women have supported one another during labor. Although supportive care during labor was briefly abandoned in many areas of the world in the last century, the support of an invited friend, family member or doula (trained labor support companion) is making a comeback. In modern maternity settings, such care often includes: assisting with physical and emotional support, helping involve the woman’s partner (as desired by the couple), and helping the mother communicate her needs and wishes to nurses and other caregivers.

The combined results of many high-quality studies indicate that this care affords truly impressive benefits. In comparison with women who did not have this care, those who received continuous supportive care from a woman who came into the hospital for the purpose of providing this support were:

- *26% less likely to give birth by cesarean section*
- *41% less likely to give birth with vacuum extraction or forceps*
- *28% less likely to use any pain medications and*
- *33% less likely to be dissatisfied with or negatively rate their birth experience.*

Continuous labor support is an important tool to improve your chances for a safe and satisfying childbirth experience.

Closing Message

A safe and satisfying childbirth experience provides an excellent foundation for taking on the new responsibilities of parenthood. These are exciting and challenging times to be having a baby. We have more information now than ever before about how to have a safe and healthy birth. Weighing the information, making sense of complex issues, thinking about your values and preferences, and putting your care arrangements into place may take lots of time and energy. But, it's worth the effort.

We wish you well as you embrace this opportunity and responsibility. We hope this booklet will guide you through this process in the days and months ahead.

We would like to hear about your experiences and whether this booklet has been helpful. And, we welcome suggestions for ways to improve it. Please contact Childbirth Connection at www.childbirthconnection.org/contact/ You can reach other groups involved with this project through the websites listed on the back page.

be informed

know your rights

protect yourself

protect your baby

Appendix

The Safest Way to Give Birth: Lessons from a Careful Look at the Research

What do the Capitalized Words Mean?

The conclusions in this section were reached after reviewing the best studies that were found comparing different ways of giving birth. They are collected into three lists:

- 33 areas where cesarean section was found to involve more risk than vaginal birth
- 15 areas where assisted vaginal birth (with vacuum extraction or forceps) was found to involve more risk than vaginal birth without these procedures, and
- 4 areas where vaginal birth was found to involve more risk than cesarean section.

The capitalized words tell you the extra likelihood of experiencing a specific problem (such as infection or excessive bleeding) if you give birth with the care that involves more rather than less risk. In some cases, there was not enough information to make this type of estimate. It is possible that additional research about these problems could lead to a different conclusion or identify new problems for the three lists.

Extra likelihood of having a specific problem	Compared with the safer form of care, the care with more risk may cause problems for an additional
VERY HIGH	1,000 to 10,000
HIGH	100 to 999
MODERATE	10 to 99
LOW	1 to 9
VERY LOW	less than 1

} of every 10,000 mothers or babies

As you face health decisions, this system can help you think about the issues when some risks are quite common and others are quite rare. Even if you disagree with the labels (such as “very high” or “moderate”), you can use the column on the right to understand what is at stake in these decisions. This system will allow you to estimate how a decision will affect your likelihood of experiencing a particular problem. You can focus on the risks and problems that are especially important to you or on overall trends.

Studies that were used to reach the conclusions below are summarized in detailed “evidence tables” that are available in full at www.childbirthconnection.org/cesareanbooklet/

1. CONCERNS ABOUT EFFECTS OF CESAREAN SECTION

Having a cesarean section rather than a vaginal birth increases risk for the following problems (see box above for the meaning of the words in capital letters).

a. Concerns about effects of cesareans on mothers around the time of birth

- **maternal death:** some studies found that the surgery itself, not any problems that led to surgery, appeared to cause some additional maternal deaths in women who have a cesarean
Added likelihood for a woman with a cesarean: LOW to VERY LOW for maternal death

- **emergency hysterectomy:** a woman with a cesarean is more likely than a woman with vaginal birth to have emergency surgery to remove her uterus (*hysterectomy*) in the early weeks after birth
Added likelihood for a woman with a cesarean: MODERATE for emergency hysterectomy
- **blood clots and stroke:** a woman with a cesarean appears to be more likely than a woman with vaginal birth to have blood clots, including clots blocking blood vessels in the lungs (*pulmonary embolism*) and blocking blood flow to the brain (*stroke*)
Added likelihood for a woman with a cesarean: LOW for blood clots and stroke
- **injuries from surgery:** all women who have a cesarean have a wound; a woman with a cesarean may also be injured from accidental cuts to nearby organs such as the bladder or bowel or ureter (the tube that carries urine from the kidney to the bladder), especially if the surgery is done in haste.
Added likelihood of accidental cuts from surgery could not be determined from studies examined
- **longer time in hospital:** a woman who has a cesarean usually stays in the hospital a day or two longer than a woman who has a vaginal birth for post-operative monitoring and care, and this stay may be extended if she has complications.
Added likelihood for a woman with a cesarean: VERY HIGH for a longer time in the hospital
- **going back into the hospital:** a woman who has a cesarean is more likely than a woman with vaginal birth to be readmitted to the hospital in the weeks after birth
Added likelihood for a woman with a cesarean: MODERATE for going back to the hospital
- **infection:** a woman with a cesarean is at risk for wound infection and may be much more likely than a woman with vaginal birth to have an infected uterus; women with a cesarean generally receive routine antibiotics to try to prevent infection
Added likelihood for a woman with a cesarean: HIGH for infection
- **pain:** in the first days and weeks after birth, a woman who has had a cesarean is likely to have more intense and longer-lasting pain than a woman with vaginal birth; most women with a cesarean use pain medication after birth and consider pain at the cesarean wound to be a problem
Added likelihood for a woman with a cesarean: VERY HIGH for more severe and longer-lasting pain
- **poor birth experience:** a woman with a cesarean tends to give lower ratings to her birth experience than a woman with a vaginal birth, both early on and over time; she may be less likely to have her partner or other support people present, and to feel that she had control
Added likelihood for a woman with a cesarean: VERY HIGH to HIGH for poor birth experience (unplanned cesarean is worse than planned cesarean, vaginal birth with vacuum extraction or forceps is worse than vaginal birth without these procedures)
- **less early contact with her baby:** a woman with a cesarean is less likely to see and hold her baby soon after birth than a woman with vaginal birth
Added likelihood for a woman with a cesarean: VERY HIGH for seeing and holding the baby later
- **unfavorable early reaction to her baby:** early on, a woman with a cesarean is more likely to have negative feelings about her baby and to evaluate her baby less favorably than a woman with vaginal birth
Added likelihood for unfavorable early reaction to babies could not be determined from studies examined

- **depression:** a woman who has had a cesarean may be at higher risk for depression than a woman with vaginal birth
Current evidence is mixed on whether cesarean increases likelihood of depression
- **psychological trauma:** a woman who has an unplanned cesarean during labor is at higher risk than other mothers for having traumatic symptoms (such as fear and anxiety) and for meeting criteria of Post-Traumatic Stress Disorder (PTSD)
Added likelihood for a woman with an unplanned cesarean: HIGH for having traumatic symptoms and for meeting criteria of PTSD (unplanned cesarean or vaginal birth with vacuum extraction or forceps pose HIGH extra risk in comparison with planned cesarean or vaginal birth with no vacuum/forceps)
- **poor overall mental health and self-esteem:** a woman who has a cesarean section may be at greater risk for poorer overall mental health and lower self-esteem than a woman with vaginal birth
Added likelihood for poor overall mental health and self-esteem could not be determined from studies examined
- **poor overall functioning:** a woman who has a cesarean section may face greater challenges than a woman with vaginal birth for physical and social functioning and carrying out daily activities in the early weeks after birth
Added likelihood for poor overall functioning could not be determined from studies examined

b. Concerns about ongoing effects of cesareans on mothers

- **ongoing pelvic pain:** a woman who has had a cesarean may have ongoing pelvic pain, possibly due to scarring and the growth of “adhesion” tissue
Added likelihood for ongoing pelvic pain could not be determined from studies examined
- **bowel obstruction:** a woman who has had a cesarean may develop twisted and blocked intestines in the years after surgery as a result of scarring and “adhesion” tissue in the abdomen
Added likelihood for a woman with a cesarean: MODERATE for bowel obstruction

c. Concerns about effects of cesareans on babies

When mothers experience physical or emotional problems as a result of a cesarean birth (see above), it may interfere with their ability to take care of their babies. In addition, we found the following:

- **surgical cuts:** a baby born by cesarean section may be accidentally cut (usually minor) during the surgery
Added likelihood for a baby born by cesarean: HIGH for accidental surgical cuts
- **respiratory problems:** a baby born by a planned cesarean before the 39th week of pregnancy is at higher risk for mild to serious lung and breathing problems than other babies born at the same time
Added likelihood for a baby born by cesarean: HIGH to MODERATE for respiratory problems with a planned cesarean before 39 weeks
- **not breastfeeding:** a mother who has had a cesarean faces extra challenges in getting breastfeeding under way, and her baby is less likely to be breastfed than a baby born vaginally
Added likelihood for a baby born by cesarean: VERY HIGH to HIGH for not breastfeeding
- **asthma:** a person who is born by cesarean section appears to be at higher risk than a person born vaginally for asthma, both in childhood and in adulthood
Added likelihood for a person born by cesarean: HIGH for greater risk for asthma

d. Concerns about effects of cesareans on mothers in future pregnancies and births

All pregnant women should be aware of these risks. A woman who does not expect to have more children may change her mind or decide to continue with an unplanned pregnancy.

In future pregnancies, the placenta, embryo and fetus that grow in a uterus with a scar may not function as well as those that develop in an unscarred uterus. The likelihood of the following problems may increase as the number of previous cesareans increases.

- **infertility:** a woman who has had a cesarean is more likely than a woman with a previous vaginal birth to have difficulty conceiving another baby and is less likely to ever have another baby
Added likelihood for a woman with a previous cesarean: VERY HIGH to HIGH for infertility (not by choice)
- **reduced fertility:** a woman who has had a cesarean is more likely than a woman with a previous vaginal birth to have negative feelings and attitudes about childbirth, to decide not to have additional children, and to point to these feelings and attitudes as the reason for this decision
Added likelihood for a woman with a previous cesarean: HIGH for reduced fertility by choice
- **maternal death:** in future pregnancies and births, a woman whose uterus has a cesarean scar is more likely than a woman with a previous vaginal birth to have life-threatening problems with the placenta and the scar (see next points)
Added likelihood for a woman with a previous cesarean: has not been measured well, may be VERY LOW for maternal death related to scar
- **ectopic pregnancy:** a woman whose uterus has a cesarean scar is more likely than a woman with an unscarred uterus to have an embryo grow outside her uterus, including a *cesarean scar pregnancy*; in such cases, the pregnancy must be ended to save her life, and she may have severe bleeding, emergency surgery, which may include emergency removal of her uterus (*hysterectomy*), and other complications
Added likelihood for a woman with a previous cesarean: MODERATE for ectopic pregnancy
- **placenta previa:** a woman whose uterus has a cesarean scar is more likely than a woman with an unscarred uterus to have a future placenta attach near or over the opening to her cervix; this increases her risk for serious bleeding, shock, blood transfusion, blood clots, planned or emergency cesarean delivery, emergency removal of her uterus (*hysterectomy*), *placenta accreta* (see next), and other complications
Added likelihood for a woman with a previous cesarean: MODERATE for placenta previa in a future pregnancy after having one cesarean; HIGH for placenta previa in a future pregnancy after having more than one cesarean
- **placenta accreta:** a woman whose uterus has a cesarean scar is more likely than a woman with an unscarred uterus to have a future placenta grow through the uterine lining and into or through the muscle of the uterus; this increases her risk for a “ruptured” uterus (see below), serious bleeding, shock, blood transfusion, emergency surgery, emergency removal of her uterus (*hysterectomy*), and other complications
Added likelihood for a woman with at least one previous cesarean: MODERATE for placenta accreta in a future pregnancy
- **placental abruption:** a woman whose uterus has a cesarean scar is more likely than a woman with an unscarred uterus to have a future placenta detach from her uterus before the baby is born; this increases her risk for severe bleeding, shock, blood transfusion, blood clots, planned or emergency cesarean delivery, and other complications, and it may reduce oxygen and nutrients to her baby
Added likelihood for a woman with a previous cesarean: MODERATE for placental abruption

- **rupture of the uterus:** a woman whose uterus has a cesarean scar is more likely than a woman with an unscarred uterus to have an unplanned opening of her uterus (*rupture*), especially a separation of the scar, in a future pregnancy or labor; this increases her risk for severe bleeding, shock, blood transfusion, blood clots, planned or emergency cesarean delivery, emergency removal of the uterus (*hysterectomy*), and other complications; whether a woman plans a repeat cesarean or a VBAC (vaginal birth after cesarean), she is at greater risk for a ruptured uterus than a woman with no previous cesarean

Added likelihood for a woman with a previous cesarean: MODERATE for rupture of the uterus

e. Concerns about effects of cesareans on future babies (when a baby grows in a uterus with a cesarean scar)

A placenta that grows in a uterus with one or more scars from a previous cesarean section may not do as well at providing oxygen and nutrients to the developing fetus compared with a placenta growing in an unscarred uterus. This may cause life-threatening problems. The likelihood of the following problems may increase as the number of previous cesareans increases.

- **death:** a baby that develops in a uterus with a cesarean scar appears to have an increased risk of dying before (*stillbirth*) or shortly after birth compared with a baby that develops in an unscarred uterus
Added likelihood for a baby that grows in a uterus with a cesarean scar: MODERATE for death of the baby
- **low birth weight and preterm birth:** a baby that develops in a uterus with a cesarean scar may be at higher risk for low birth weight and for being born too soon (*preterm* birth) than a baby that develops in an unscarred uterus
Added likelihood for low birth weight and preterm birth could not be determined from studies examined
- **malformation:** a baby that develops in a uterus with a cesarean scar may be at higher risk for having a physical malformation that develops before birth than a baby that develops in an unscarred uterus
Added likelihood for malformation could not be determined from studies examined
- **central nervous system injury:** a baby that develops in a uterus with a cesarean scar may be at higher risk for having a brain or spinal cord injury than a baby that develops in an unscarred uterus
Added likelihood for central nervous system injury could not be determined from studies examined

2. CONCERNS ABOUT EFFECTS OF ASSISTED VAGINAL BIRTH

Having an assisted vaginal birth (with vacuum extraction or forceps) rather than a spontaneous vaginal birth increases risk for the following problems (see page 20 for the meaning of the words in capital letters).

With growing recognition of the risks listed below, just about 6% of U.S. births are now by assisted vaginal delivery. This is a valuable tool for mothers and babies in selected situations. Risks of the procedure can be reduced by avoiding episiotomy whenever possible.

a. Concerns about effects of assisted vaginal birth on mothers

- **tears in the perineum that extend into or through the anal muscle:** a woman who has an assisted vaginal birth (and especially a forceps delivery) is at increased risk for tears from the opening of the vagina back into the anal muscle, in comparison with a woman with spontaneous vaginal birth (research suggests that almost all of these serious tears can be avoided if women with assisted birth do not also have an episiotomy)
Added likelihood for a woman who has vacuum extraction: VERY HIGH to HIGH for a tear extending into the anal muscle
Added likelihood for a woman who has forceps: VERY HIGH for a tear extending into the anal muscle

- **excessive bleeding and transfusion:** a woman who has an assisted vaginal birth is at increased risk for excessive bleeding (*hemorrhage*) and blood transfusion around the time of birth, in comparison with a woman with spontaneous vaginal birth
Added likelihood for a woman who has an assisted vaginal birth: HIGH for excessive bleeding; HIGH to MODERATE for transfusion
- **going back into the hospital:** a woman who has an assisted vaginal birth is at increased risk for needing readmission to the hospital in the weeks after birth, in comparison with a woman with spontaneous vaginal birth
Added likelihood for a woman who has an assisted vaginal birth: MODERATE for being re-hospitalized
- **infection:** a woman who has had assisted vaginal birth appears to be at increased risk for infection in her uterus and – if she has had an episiotomy or a tear in her vaginal area – for infection of that wound, in comparison with a woman with spontaneous vaginal birth
Added likelihood for a woman who has an assisted vaginal birth: VERY HIGH to HIGH for infection of the perineum; HIGH for infection within the uterus
- **painful vaginal area:** a woman who has had assisted vaginal birth is at increased risk for a painful vaginal area in the weeks and months after birth, in comparison with a woman with spontaneous vaginal birth
Added likelihood for a woman who has an assisted vaginal birth: VERY HIGH for a painful perineum
- **poor birth experience:** in comparison with spontaneous vaginal birth, a woman who has had assisted vaginal birth tends to rate her birth experience more negatively, both early on and over time; she may be less likely to feel that she had control over what happened to her; she may be more likely to say she had a bad or disappointing birth experience, and she may be more afraid to give birth again, both initially and after several years
Added likelihood for a woman who has an assisted vaginal birth: VERY HIGH for having a poor birth experience
- **bowel problems:** a woman who has had assisted vaginal birth is at increased risk for bowel problems of any sort in the weeks and months after birth, in comparison with a woman with spontaneous vaginal birth
Added likelihood for a mother who has an assisted vaginal birth: VERY HIGH to HIGH for bowel problems
- **urinary incontinence:** a woman who has had a forceps delivery may be at increased risk for leaking urine (*urinary incontinence*) in the weeks and months after birth, in comparison with a woman with spontaneous vaginal birth (vacuum extraction does not appear to increase the risk)
Added likelihood for a woman who has forceps cannot be determined in light of mixed results among studies
- **anal incontinence:** a woman who has had forceps delivery is at increased risk for leaking gas or feces (*anal incontinence*) in the weeks and months after birth, in comparison with a woman with spontaneous vaginal birth (vacuum extraction may or may not increase the risk of having this problem)
Added likelihood for a woman who has forceps: VERY HIGH to HIGH for some leaking gas or stool in the period after birth
Added likelihood for a woman who has vacuum extraction cannot be determined in light of mixed results among studies
- **hemorrhoids:** a woman who has had assisted vaginal birth is at increased risk for hemorrhoids in the weeks and months after birth, in comparison with a woman with spontaneous vaginal birth
Added likelihood for a woman who has an assisted vaginal birth: VERY HIGH to HIGH for hemorrhoids

- **sexual problems:** *a woman who has had assisted vaginal birth is at increased risk for sexual problems (such as pain with intercourse) in the weeks and months after birth, in comparison with a woman with spontaneous vaginal birth*
Added likelihood for a woman who has an assisted vaginal birth: VERY HIGH for sexual problems in the weeks and months after birth
- **psychological trauma:** *a woman who has had assisted vaginal birth is at increased risk for having traumatic symptoms (such as fear and anxiety) and for meeting criteria of Post-Traumatic Stress Disorder (PTSD), in comparison with a woman with spontaneous vaginal birth*
Added likelihood for a woman who has an assisted vaginal birth: HIGH for PTSD diagnosis
- **poor overall functioning:** *a woman who has had an assisted vaginal birth is at risk for poorer physical and social functioning in the early weeks after birth than a woman with spontaneous vaginal birth*
Added likelihood for poor overall functioning cannot be determined from studies examined

b. Concerns about effects of assisted vaginal birth on babies

When mothers experience physical or emotional problems as a result of assisted delivery (see above), it may interfere with their ability to take care of their babies. In addition, we found the following:

- **brain injury:** *in comparison with spontaneous vaginal birth, a baby born by assisted vaginal birth may be at increased risk for some types of brain injury*
Added likelihood for a baby born with assisted delivery: LOW for brain injury
- **other birth injury:** *in comparison with spontaneous vaginal birth, a baby born by assisted vaginal birth may be at higher risk for nerve injury affecting the shoulder, arm or hand (brachial plexus injury), and a baby born by forceps may be at higher risk for facial nerve injury*
Added likelihood for a baby born with assisted delivery: MODERATE for certain injuries to the body and face

3. CONCERNS ABOUT EFFECTS OF VAGINAL BIRTH

Having a vaginal birth rather than a cesarean section increases risk for the following problems (see page 20 for the meaning of the words in capital letters). In general, differences are greater for assisted delivery and smaller for spontaneous birth).

a. Concerns about effects of vaginal birth on mothers

- **painful vaginal area:** *a woman who has a vaginal birth is more likely than a woman who has a cesarean to have a painful vaginal area in the weeks and months after birth*
Added likelihood for a woman with vaginal birth: VERY HIGH for a painful perineum in the weeks and months after birth
- **urinary incontinence:** *a woman who has a vaginal birth is more likely than a woman who has a cesarean to leak urine*
Added likelihood for a woman with vaginal birth: depends on how this is defined, time elapsed since the birth, and procedures and practices used during vaginal birth (see box on next page)
- **anal incontinence:** *a woman who has a vaginal birth is more likely than a woman who has a cesarean to have leakage of gas or, more rarely, of feces*
Added likelihood for a woman with vaginal birth: depends on how this is defined, time elapsed since the birth, and procedures and practices used during vaginal birth (see box on next page)

b. Concern about effects of vaginal birth on babies

- **birth injury:** in comparison with cesarean birth, a baby born by spontaneous vaginal birth may be at higher risk for nerve injury affecting the shoulder, arm or hand (*brachial plexus injury*)

Added likelihood for a baby born with assisted delivery: LOW for brachial plexus injury

Notes About Incontinence

In comparison with cesarean section, women with vaginal birth are more likely to experience new problems with leaking urine, gas or, more rarely, feces. It is difficult to determine the level of increased risk and severity from existing studies. Studies often combine women with very mild symptoms (for example, loss of “a drop or two” of urine) with those who experience more severe problems. The definition of anal incontinence in existing studies may include any leaking gas or any sense of urgency without leakage of gas or feces. The studies do not tend to clarify how often the leakage occurs or how troublesome women find their symptoms.

The proportion of women who leak urine decreases sharply over the first year after birth, and the problem tends to become milder for the women who continue to experience it.

Among women with anal incontinence, leaking gas is more common than leaking stool. The proportion of women with anal incontinence also decreases in the first year after birth, but less sharply, and symptoms may be milder for those who still have them.

Roughly 3 women in 100 who did not have urinary incontinence before or during pregnancy still report this about a year after their vaginal birth. The same is true for anal incontinence (HIGH added likelihood for each of these). For most, symptoms are infrequent, and severity is minimal to mild. By about age 50, differences between women who had vaginal and women who had cesarean births disappear for both urinary and anal incontinence. The later-life incontinence that many women experience appears to be related to other factors (for example, excess weight and smoking).

Many women in these studies may have experienced interventions during labor that injured their pelvic floor and contributed to these problems. For example, routine or frequent episiotomy use has been the norm in many settings, even though research is clear that casual use of this practice involves harm without benefit. We did not find any research to clarify whether safest vaginal birth practice is associated with increased risk for incontinence in comparison with cesarean section.

For more details, please see the box, “How Does Incontinence Relate to Vaginal Birth?,” on page 7. See also “Tips for Avoiding Unnecessary Cesareans, Assisted Vaginal Births and Pelvic Floor Injuries” on page 13.

Childbirth Connection

Our Mission

To promote safe, effective and satisfying maternity care for all women and their families through research, education and advocacy.

This booklet and a companion at-a-glance summary comparing the risks of vaginal and cesarean birth are available without charge as PDF files at www.childbirthconnection.org/cesareanbooklet/

Documents with details of the process and sources used to draw conclusions are also available on that web page.



Organizations Endorsing This Booklet as of December 2006

- Alliance for Transforming the Lives of Children** www.atlc.org
- American Academy of Husband Coached Childbirth** www.bradleybirth.com
- American Association of Birth Centers** www.birthcenters.org
- American College of Nurse-Midwives** www.midwife.org
- Association of Labor Assistants and Childbirth Educators** www.alace.org
- Association of Nurse Advocates for Childbirth Solutions** www.anacs.org
- BabyBodyBirth** www.babybodybirth.org
- Birth Works** www.birthworks.org
- Boston Association for Childbirth Education** www.bace-nmc.org
- Center for Medical Consumers** www.medicalconsumers.org
- Cesarean Awareness Network Australia** www.canaustralia.net
- Cesarean Awareness Recovery Education Support South Australia** www.cares-sa.org.au
- Childbirth and Postpartum Professional Association** www.cappa.net
- Childbirth Connection** www.childbirthconnection.org
- Citizens for Midwifery** www.cfmidwifery.org
- Coalition for Improving Maternity Services** www.motherfriendly.org
- DONA International** www.dona.org
- Foundation for the Advancement of Midwifery** www.formidwifery.org
- International Cesarean Awareness Network** www.ican-online.org
- International Childbirth Education Association** www.icea.org
- Lamaze International** www.lamaze.org
- The Lawton and Rhea Chiles Center For Healthy Mothers and Babies** www.chilescenter.org
- Midwives Alliance of North America** www.mana.org
- National Advocates for Pregnant Women** www.advocatesforpregnantwomen.org
- National Association of Mothers' Centers** www.motherscenter.org
- National Association of Nurse Practitioners in Women's Health** www.npwh.org
- National Healthy Mothers, Healthy Babies Coalition** www.hmhb.org
- National Women's Health Network** www.nwhn.org
- Our Bodies Ourselves** www.ourbodiesourselves.org
- Postpartum Support International** www.postpartum.net
- Society of Teachers of Family Medicine** www.stfm.org