Basic Information About VBACs

A VBAC is having a vaginal birth after having had a cesarean birth in the past. Many doctors and midwives say it's not possible or risky and do not support the trail of labor for women who have had a previous C-section. But it has been found that the majority of healthy women who have the sincere desire to push their baby out can and do just that. I support VBACs and have helped many women have success in this area. VBACs do carry additional risks and these should be discussed thoroughly before deciding on a VBAC. But when considering risks it's also important to look at the additional risks associated with multiple C-sections.

Risks associated with VBAC Attempts Include:

- *Less than 1% possibility of uterine rupture*
- *Possibility of tearing or an episiotomy*
- *The same general discomforts associated with other vaginal deliveries such as pain around the vagina after delivery*
- *Possibility that a repeat C-section will become necessary even after experiencing the discomforts of labor*
- *Risk of infection, blood loss, or other complications*

Risks Associated with a Repeat Cesarean Include:

- *There are standard risks associated with every surgery*
- *Longer hospital stay than the average vaginal delivery*
- *Possibility of developing an infection in the uterus, bladder, or skin incision*
- *Possible injury to the bladder, bowel, or adjacent organs*
- *Greater than normal blood loss and other complications associated with surgery*
- *Development of blood clots in the legs or pelvis after having surgery*
- *On-going pain & discomfort around the incision*
- *The possibility that the baby will have respiratory problems*
- *The more surgeries someone has the greater risk there is of surgical complications. This is important to consider if you are wanting very many more children.*

An excerpt from AmericanPregnancy.org from an article entitled Vaginal Birth After Cesarean: VBAC states the following regarding VBACS:

"If you have experienced a cesarean delivery, you are not alone. If you desire to try a vaginal delivery after having had a cesarean, you should be encouraged by knowing that 90% of women who have undergone cesarean deliveries are candidates for VBAC- vaginal birth after cesarean. Statistically, the highest rate of VBAC involves women who have experienced both vaginal and cesarean births and given the choice, have decided to deliver vaginally.

In most published studies, 60-80% (roughly 3 to 4 out of 5) women who have previously undergone cesarean birth can successfully give birth vaginally. After reading the following information and discussing the possibility with your health care provider, you should be able to make an informed decision about the option of VBAC."
EBB 113 – The Evidence on VBAC
by Rebecca Dekker | Jan 28, 2020 | Podcast

The Evidence on VBAC

In this episode, I am excited to share the evidence on vaginal birth after Cesarean, or VBAC. We have received many requests at Evidence Based Birth® to cover this topic, so I want to share with you the information on VBAC that I present in a class we teach in the EBB Higher Ed program.

Learning Objectives:

1. *In this podcast, I define some common terms related to VBAC and talk about the history of the procedure.*
2. *By the end, you will have the facts on the prevalence and risk factors for uterine rupture.*
3. *You'll also understand some of the maternal, fetal, and newborn risks of VBAC, elective repeat Cesarean, and Cesarean birth after Cesarean.*

The Evidence on VBAC

Hi, everyone. On this podcast, we're going to talk about the evidence on VBAC.

Welcome to the Evidence Based Birth® podcast. My name is Rebecca Dekker, and I'm a nurse with my PhD and the founder of Evidence Based Birth®. Join me each week as we work together to get evidence-based information into the hands of families and professionals around the world. As a reminder, this information is not medical advice. See ebbirth.com/disclaimer for more details.

Hi, everyone, and welcome to this episode of the Evidence Based Birth® podcast. Today, I'm excited to bring to you a focus on the evidence on a really important topic, and that topic is vaginal birth after cesarean or VBAC.

Latest Data on VBAC

Just to give you some background, VBAC rates vary by country, but the latest data that we have from the United States show that the VBAC rate in the U.S. was 13.3% in 2018, which was up from 12.8% in 2017. Now, when I say VBAC rate, this means the percentage of people who have a scar on their uterus from a prior caesarian who go on to have vaginal birth with the current pregnancy. VBAC rates across the United States and in other countries as well can be fairly low even though success rates are high, meaning that the percentage of people who actually achieve a VBAC when they plan one are high.

There's a lot of confusion around the topic of VBAC, and many times what I see as a lack of true informed consent. Organizations like the National Institutes of Health and the American Congress of Obstetricians and Gynecologists use words like safe, reasonable, and appropriate when they talk about VBAC. However, in many places in the U.S., families are steered away from VBAC with frightening language that's used by their providers. The truth is, whether or not to pursue a VBAC with a subsequent pregnancy is a very preference sensitive decision and families deserve full information about the benefits and risks of all their options, so that they can make the decision that is best for their family.

In fact, VBAC is considered a good option for most people who have a scar in their uterus. There are only a few what we call contraindications to VBAC. These are things that make a VBAC much less safe or more unsafe. These contraindications include having a prior classical or inverted T uterine scar, a previous hysterectomy or myomectomy entering the uterine cavity, a prior uterine rupture, a presence of a contraindication to labor such as having placenta previa, or a baby in transverse lie position, or someone who was declining a VBAC and requesting a repeat cesarean.

So by the end of this podcast, my hope is that you'll be able to define some common terms related to vaginal birth after cesarean. You'll understand a little bit about the history of VBAC, you'll be able to talk about the prevalence and risk factors for uterine rupture, and you'll understand some of the maternal fetal and newborn risks with VBAC, elective repeat cesarean and cesarean birth after cesarean.

VBAC Definitions and Acronyms

So let's start with some definitions. With VBAC, there are a ton of acronyms. We have vaginal birth after cesarean or VBAC. You also might see people spell out VBA2C or VBA3C. This means a vaginal birth after two prior cesareans or a vaginal birth after three prior cesareans. Often you'll hear people refer to a trial of labor after cesarean and abbreviate that as TOLAC.

An elective repeat cesarean is often abbreviated ERCS, and cesarean birth after cesarean is often abbreviated CBAC, and a home birth after cesarean is often abbreviated HBAC.

So what's the difference between some of these terms?

Well, VBAC is a vaginal birth and anyone who's had a prior cesarean. A TOLAC or a trial of labor after cesarean is someone who is attempting to have a vaginal birth after they've had a prior cesarean. An elective repeat cesarean or ERCS is someone who chooses to have a repeat cesarean instead of planning a VBAC.

A cesarean birth after cesarean or a CBAC happens when someone is planning a VBAC, but for whatever reason, they have a cesarean birth. That is different than elective repeat cesarean, which is a planned cesarean, someone who chose to have a repeat cesarean. So choosing to have a repeat cesarean is an elective repeat cesarean, but planning a VBAC and ultimately having a cesarean is called CBAC.

The term CBAC was created by women from the International Cesarean Awareness Network or ICAN as an alternative to calling something a failed VBAC. They say that calling someone or saying that someone had a failed trial of labor or a failed VBAC, that this terminology is insensitive and judgmental. People giving birth are not failures and do not fail.

ICAN says that the important thing is that CBAC is self-defined and that women should get to call the experience that they have whatever they prefer. For clarity's sake, for the rest of this podcast, I will refer to CBAC when I'm talking about people who were planning or working towards a VBAC and didn't get one.

Even the term trial of labor after cesarean or TOLAC, which is extremely common in the medical literature and in hospitals, this is very common terminology but some people find it extremely offensive. "What do you mean?" They might say, "You're letting me try to labor?" And you hear people talking, medical professionals talking about women who failed at their TOLAC.

So before we talk about the research evidence on VBAC, I want to go back into history and look at the history of vaginal birth after cesarean. And to do so, we have to go back to the history of cesarean surgery.

History of Cesarean Surgery

It's thought that the first cesarean to happen upon a living person was supposedly done in the year 1500 by a Switzerland husband upon his wife. However, the first documented version of a cesarean was performed in Ireland in 1739 and the operation was successful. However, out of the next 37 cesareans performed by physicians in great Britain in the 1700s, only three women survived.

By the 1860s in England, the reported maternal mortality rate with cesarean surgery was 85%. However, over the next 80 years or so, there were different discoveries and medical inventions and breakthroughs that occurred that increased the chances of survival with cesarean.

In 1882, silver sutures were first used in Germany, which drastically increased the chances of the uterus being able to be sewn up together and to stay together without infection. In 1901, the concept of blood type was discovered, which eventually led to the ability to give blood transfusions after surgery.

Starting in 1916, physicians first wrote in medical journals the phrase "once a cesarean, always a cesarean", echoing the belief that once a woman had to resort to cesarean surgery, she would always need to have cesarean for any future births. This was because back then, many people who needed a cesarean had misshapen or misformed pelvises from rickets, which is a type of vitamin deficiency.

So the thought was cesareans were so rare that if you really needed one back then, you would likely always need one in the future.
In the 1940s, antibiotics were discovered and that also increased the chances of survival if you developed an infection after surgery. In the early 1970s in the U.S., the cesarean rate was only 1% to 5%. However, rates began to rapidly increase in the mid 1970s.
Today, the most recent data from the CDC show that the cesarean rate in the year 2018 was 31.9%. By 1982, ICAN or the International Cesarean Awareness Network was founded. And in the 1980s, professional groups began recommending that people have VBACs after a prior cesarean. And by the 1990s, insurance plans or HMOs in the U.S. began requiring VBAC, in some cases, not allowing women to plan repeat surgery.

Decline of VBAC
By 1998, the VBAC rate in the U.S. peaked at 28%. However, according to Jen Kamel of vbacfacts.com, a great resource about VBAC, she says that at that time when VBAC rates were really high, women were having their VBACs in crowded hospitals with most of them being induced or having medically induced labors. Uterine rupture rates were really high and there were a lot of lawsuits. We'll talk more about uterine rupture later on.
In the years 1998 and '99, OB malpractice insurance premiums began rising drastically. And by 1999, ACOG or the American Congress of Obstetricians and Gynecologists issued a statement saying that anesthesia must be "immediately available" for women who were attempting a VBAC.
This meant that hospitals that did not have 24/7 access to anesthesia were not meeting ACOG guidelines if they offered VBAC without the ability to have an anesthesiologist present in the event of emergency surgery. These problems, the malpractice insurance premiums and the immediately available clause, had a chilling effect on VBAC rates in the U.S.
By 2004, the VBAC rate had dropped drastically to 9.2%, and in 2009, ICAN reported that VBAC bans, where hospitals literally banned VBAC, existed in 30% of U.S. hospitals and that there were de facto bans in additional 14%. What a de facto ban means is they don't have a policy explicitly banning VBAC, but because there were no physicians willing to do a VBAC, it was not an option at their facility.
In 2010, the National Institutes of Health in the United States hosted a consensus development conference. At this conference, they openly criticized ACOG and they called VBAC "safe and reasonable".
They stated, "Given the low level of evidence for the requirement for immediately available surgical and anesthesia personnel and current guidelines, we recommend that the American College of Obstetricians and Gynecologists and the American Society of Anesthesiologists reassess this requirement." This consensus at the National Institutes of Health did influence ACOG.
In that same year, ACOG changed the immediately available clause in their paper on VBAC.
In their 2010 Practice Bulletin, ACOG stated that most people are candidates for a trial of labor after cesarean and should be offered one. They continue to recommend that TOLAC be undertaken at facilities capable of emergency deliveries with staff immediately available.
However, they went on to say that when resources for immediate cesarean delivery are not available, the college recommends that providers and patients discuss the hospital's resources and that respect for patient autonomy supports that patients should be allowed to accept increased levels of risk.

So if ACOG backtracked a little bit and soften their guidelines, why do we still have fairly low VBAC rates in the U.S.?
The truth is there are lot of restraining forces that prevent the VBAC rate from rising significantly. There continue to be very high malpractice insurance premiums for providers and hospitals who offer VBAC. They're afraid of lawsuits. There's also time commitments involved to supporting a labor. A labor can take a lot longer than simply wheeling someone in for a repeat surgery.

Many people still saw the ACOG guidelines as still causing trouble because they still had that immediately available phrase in their recommendations.

And then finally, culturally, VBAC is seen as "not safe". A lot of people still believe that phrase from the 1916, once a cesarean, always a cesarean.

In 2017, ACOG updated their Practice Bulletin on VBAC. There weren't any really big changes. The main changes were an increased emphasis on VBAC "success calculators" or using mathematical formulas to decide how likely someone is to be successful. They added some stronger wording about not coercing clients into repeat surgery.

They clarified that epidurals should not be considered necessary if you're attempting a VBAC. I believe this comes from the fact that there are many hospitals across the United States that require people who are attempting a VBAC to have an epidural and ACOG said that was not necessary. They also added a new statement saying that home birth was contraindicated for VBAC.

In the 2019 ACOG guidelines, they called this an interim update and they made one small update to their guidelines about people giving birth after a prior uterine rupture. They suggest that people who have experienced a uterine rupture in a prior labor should have a planned repeat cesarean before the start of labor and they suggest planning that between 36 weeks to 37 weeks.

VBAC and Risk of Uterine Rupture

So I've mentioned uterine rupture a few times. So what is it that I'm talking about? Well, uterine rupture is defined as an anatomic separation of the uterine muscle with or without symptoms. Uterine rupture is fairly rare, so you need to have at least 5,000 people in a study to determine how often it occurs.

Also, the manner in which a uterine rupture is defined can greatly affect the rates that are reported, because there's a difference between uterine rupture and uterine dehiscence. The risk of uterine rupture for people who are having a trial of labor after cesarean is about 0.47%. The risk of uterine rupture for people who are having an elective repeat cesarean is about 0.026%.

Things that can increase your risk for experiencing a uterine rupture above and beyond that baseline risk include having a prior uterine rupture, having a classical cesarean scar or an inverted T shaped scar.

Having your labor induced medically can also increase the risk of uterine rupture. The risk is about 1.1% if you have Pitocin, about 2% if you have prostaglandins, and 6% if you're given misoprostol to induce labor. There's also a link between having your labor augmented with Pitocin and uterine rupture.

There are also some protective factors that can lower your risk of having uterine rupture. Having had a prior vaginal birth has a protective effect. It doesn't matter if your vaginal birth was before or after your prior cesarean. Waiting more than 24 months or two years between giving birth is protective and having spontaneous labor, meaning you go into labor without the use of medications is also protective.

Now, because the risk of uterine rupture is so low, it's very difficult to predict exactly who's going to have a uterine rupture, so it's important to know the signs and symptoms. Unfortunately, pain has found to be an unreliable sign of uterine rupture. However, someone might have abnormal pain or change in their pain or change in the level of concern about pain.

Fetal heart rate abnormalities are the most common sign associated with uterine rupture. Problems with the fetal heart rate had been reported in up to 70% of cases of uterine rupture. Because of this, ACOG says that there's limited or inconsistent scientific evidence for continuous fetal heart rate monitoring during labor for VBAC.

Other potential signs and symptoms of uterine rupture include the mother having low blood pressure or a high heart rate, having blood in the urine, excessive vaginal bleeding, or the mother being restless, or the loss of of fetal station, meaning the baby was coming down, but now, all of a sudden, they're not.

Rupture of the uterus can be a catastrophic event for both the birthing person and the baby and requires emergency interventions. Fortunately, the majority of babies who experience a uterine rupture will survive. The chances that the birthing person will need a hysterectomy or their uterus removed surgically after the uterine rupture, ranges from 14% to 33%.
The risk of the baby dying is 6%. However, that risk goes down if the uterine rupture happened at term. The death rate at term is less than 3%. Overall, the risk of the baby dying during the birth is about 20 deaths per 100,000 trial of labors. In one high quality study with 18,000 VBACs, they documented 124 uterine ruptures and two perinatal deaths, meaning the baby died either before it was born or in the month after birth for a death rate of 1.6% with uterine rupture.

Risk of Placenta Accreta and Repeat Cesarean
In contrast to uterine rupture, which is typically associated by most people with VBAC or trial of labor after cesarean, placenta accreta is a life threatening complication that is associated with repeat cesareans. Placenta accreta is defined as a life-threatening obstetric condition when part or all of the placenta invades and becomes inseparable from the uterine wall.
The maternal death rate with placenta accreta is 7%, and that's because life-threatening hemorrhage can occur, which often requires blood transfusion. People who have placenta accreta are more likely to require a hysterectomy, having their uterus completely removed, and they have longer hospital stays.
Researchers have found that the incidents of placenta accreta is increasing and it's paralleling the cesarean rate in the United States, meaning as the cesarean rate goes up or stabilizes, so does the placenta accreta rate. The greatest risks to the mother happen when the placenta is implanted along the uterine scar, and unfortunately, the risk of placenta accreta increases with each subsequent cesarean surgery.
With the second cesarean, the risk is 0.31%. With the third, it's 0.57%. With the fourth cesarean, it's 2.13%. With the fifth, it's 2.33%. And with the sixth cesarean, the risk of having placenta accreta is 6.74%. This is a big reason why physicians often recommend that birthing people limit the size of their families when they start to have cesareans.

So I've talked about the risk of uterine rupture with VBAC versus the risk of placenta accreta with repeat cesareans. Now I want to move on and talk about the overall risks and benefits of choosing to labor after you've had a prior cesarean versus planning a repeat cesarean.

Review of Evidence on VBAC
Here's the deal about the evidence on VBAC. We really only have observational studies at this time. We have two randomized controlled trials, but they're really too small for us to get any meaningful information.
As I said earlier, you really need to have at least 5,000 people in a study to be able to look at rare, bad outcomes. Also, the manner in which uterine rupture is defined in different studies can greatly affect the rates of uterine ruptures that are reported because sometimes researchers include something called uterine dehiscence along with uterine rupture.

As I said earlier, a ***uterine rupture*** *is an anatomic separation of the uterine muscle with or without symptoms. A* ***uterine dehiscence*** *is when the scar does not open up entirely. Instead, there is still a thin layer of tissue that's connecting the uterus to itself. In many cases, you might not even know that you had uterine dehiscence unless they happened to notice it during a surgery.*
Another important thing to know about the research on VBAC is that you cannot compare VBAC alone to elective repeat cesarean surgery. Instead, you have to compare planning a VBAC, in other words, having a TOLAC, to planning an elective repeat cesarean. This is because not everyone who plans a VBAC will have one.

Some people who plan a VBAC will have a CBAC or a cesarean birth after cesarean. In the end, neither option, planning a VBAC versus planning an elective repeat cesarean is risk-free.Parents are essentially choosing between bundles of risks and benefits.

Landon et al. (2004)

One of the most important studies looking at the risks and benefits of planning a VBAC versus planning and elective repeat cesarean was published by Landon et al. in 2004 in the New England Journal of Medicine. This study took place at 19 hospitals from the years 1999 to 2002.

They included all women who'd had a prior cesarean and were now pregnant with a single baby at 20 weeks or greater. They looked at medical records plus they contacted the attending physicians to get answers to questions about certain cases. They compared women who had labor that involved four centimeters dilation or more to those who had elective repeats cesareans.

Overall, about 39% of the sample had a trial of labor after cesarean, and 73% of women who attempted a VBAC did have a VBAC.

Maternal outcomes

The researchers defined uterine rupture as a tear of the uterine muscle. They did not include uterine dehiscence. They measured that separately from uterine rupture. First, they looked at maternal complications between people who had a trial of labor versus those who had an elective repeat cesarean.

- *There were 0.7% cases of uterine rupture in the trial of labor group compared to 0% in the elective repeat cesarean group. There was also a higher rate of blood transfusion in the trial of labor group, 1.7% versus 1% in the elective repeat cesarean group, and a higher rate of endometritis, a type of maternal infection in the trial of labor group, 2.9% versus 1.8%.*
- *There were three maternal deaths in the trial of labor group and seven maternal deaths in the elective repeat cesarean group, but these numbers were not statistically different. This study was not large enough to really look at differences in the rate of maternal deaths.*

Now, those numbers I just read to you were comparing everyone who had a trial of labor to everyone who had a planned repeat cesarean, but a common theme in the research is that if you look at people who are trying labor, those who are attempting a VBAC, the outcomes differed depending on whether or not they actually had a VBAC.

Maternal adverse events or bad outcomes were more frequent among women who had a cesarean birth after cesarean, meaning they attempted a VBAC but they had a cesarean compared to those who did have a VBAC.

- *The uterine rupture rate was 2.3% among people who had a CBAC versus 0.1% in those who did have a VBAC*
- *The hysterectomy or uterine removal rate was higher in the CBAC group, 0.5% versus 0.1% in the VBAC group.*
- *There was a higher rate of blood transfusions among people who had CBACs, 3.2% versus 1.2% among people who had achieved a VBAC.*
- *And there was a much higher rate of infection in the CBAC group, 7.7% had endometritis versus 1.2% in the VBAC group.*

So like I said, the adverse events or bad outcomes were more frequent among people who had the unsuccessful trial of labor compared to those who did have or did achieve a VBAC.

Newborn Outcomes

When they looked at complications for the baby, after they excluded congenital anomalies, the perinatal death rate, which includes stillbirths and newborn deaths, was 1.4 per 10,000 in the elective repeat cesarean group and four per 10,000 in the trial of labor after cesarean group.

They also found that the stillbirth rate at 39 weeks or greater was higher in the trial of labor after cesarean group. There were 16 stillbirths out of about 15,340 trial of labors versus five stillbirths out of about 15,014 elective repeat cesareans. This increased risk of stillbirth at 39 weeks or later makes sense for the trial of labor group because many of these women were waiting for labor to begin while most people who choose an elective repeat cesarean would have already given birth by that time point.

Another potential reason for the higher rate of stillbirths in the trial of labor group is that women who experienced a stillbirth might've been more likely to be encouraged by their provider to have a trial of labor and to not undergo surgery.

There were 12 cases of brain damage in babies related to low oxygen during the birth among women who had a trial of labor. Seven of those 12 cases happened with the uterine rupture. In four of the other cases, a cesarean was done because of non-reassuring patterns in the fetal heart rate. There were zero cases of low oxygen brain damage in the elective repeat cesarean group.

Guise et al.

In 2010, Guise et al. published a meta-analysis all about the outcomes with VBAC and they evaluated 203 fair or better quality studies on VBAC. They found 41 studies that provided data on maternal outcomes and 11 studies that provided data on infant outcomes.

Some of the studies sorted the participants and people who are induced versus those who are not induced and some studies did not separate out inductions from spontaneous labors.

They looked at immediate maternal outcomes or outcomes that may occur directly after the birth or during the birth. They had maternal mortality rates from one prospective study in three retrospective or medical records studies.

They found that the maternal death rate did increase with elective repeat cesarean. They found that the chances of someone dying with a term pregnancy with an elective repeat cesarean were 9.6 per 100,000 full-term pregnancy versus 1.9 deaths per 100,000 full-term pregnancies with those who attempted a trial of labor.

They had uterine rupture rates from four prospective studies and four retrospective studies, and they found that the rate of uterine rupture increased with a trial of labor. The percentage of uterine rupture with the trial of labor was 0.47% versus 0.03% with elective repeat cesareans.

The rates of hysterectomy or uterus removal did not differ between groups. However, there were higher rates of blood transfusion with trial of labor and higher rates of infection with trial of labor. They found that people who had elective repeat cesareans had longer hospital stays on average compared to those who had a trial of labor.

Next they summarized the results of immediate health outcomes for the infant. Four out of four studies that they examined found no difference in Apgar scores between people who had a trial of labor and those who had an elective repeat cesarean.

There were eight studies that looked at NICU admissions or admissions to the intensive care unit for newborns, and six of the eight studies found no difference in the rate of NICU admissions between elective repeat cesarean and trial of labor.

They did find evidence that the perinatal death rate may be increased by trial of labor. They had perinatal mortality rates from four retrospective studies and one prospective study. The risk of the baby dying either by

stillbirth or in the first month of life was 1.3 deaths per 1000 term pregnancies in the trial of labor group versus 0.5 deaths per 1000 term pregnancies in the elective repeat cesarean group.
The authors state that the degree of increased risk of perinatal death with trial of labor is uncertain and the retrospective nature of many of the studies makes it impossible to determine whether the trial of labor was responsible for the increased risk.

Smith et al.
There's a couple other interesting studies I want to mention. There was one published by Smith in 2002. This was a large population based study in Scotland that looked at outcomes between the years 1992 and '97. They compared a trial of labor after cesarean with about 15,500 women to planned elective repeat cesarean with about 9,000 women, and they compared both of those groups to first-time mothers who went into labor, about 137,000 first-time mothers.
They found that the risk of perinatal death, which is a combined measure of stillbirth or newborn death, that the risk of perinatal death with trial of labor was 12.9 per 10,000. This was higher than repeat cesareans. That risk of death was 1.1 per 10,000. But the risk of perinatal death with trial of labor after cesarean was similar to the rate of first-time mothers. Their risk of perinatal death was 9.8 per 10,000.
So in other words, the risk of perinatal death with trial of labor after cesarean, based on this study, is thought to be similar to the rate of perinatal death with a first-time mother who's giving birth for the first time.

Association of Ontario Midwives Evidence Review
The Association of Ontario Midwives in Canada has really thorough guidelines and an evidence review on VBAC. We've mainly been talking about the risks or the complications associated with VBAC, CBAC and elective repeat cesarean, but the Association of Ontario Midwives guidelines has some interesting information about the evidence on the additional benefits of VBAC.
They explain that VBAC promotes normal labor and birth and minimizes unnecessary interventions. It helps avoid the complications of a cesarean such as incision pain or wound infection, and that short-term benefits of VBAC include earlier skin-to-skin contact, earlier breastfeeding initiation and an increase in exclusive breastfeeding, and shorter hospital stays and an easier recovery.
In future pregnancies, having a prior cesarean is associated with an increased risk of uterine rupture, abnormal placental implantation, ectopic pregnancy, stillbirth and preterm birth, and these risks can increase in a dose response manner, meaning the higher the number of cesareans, the more likely you are to have these types of complications in future pregnancies. So planning a VBAC may help you avoid these risks if you plan on having more children.
There is also emerging evidence that babies that are born by cesarean have different hormonal, physical, bacterial and medical exposures at birth, and these exposures can subtly alter the neonatal physiology. In infancy and childhood, there's been research looking at the risks of cesarean including an altered immune development, an increased likelihood of having allergies or asthma, and reduced intestinal gut microbiome diversity. The persistence of these risks into later life is less well-investigated, although an association between cesarean birth and a greater incidence of asthma has been frequently reported.

Silver et al.
Another factor that's sometimes discussed in the research is the issue of multiple repeat cesareans, and that is, if you follow that old traditional rule, once a cesarean always a cesarean, if you have multiple children, you may end up with multiple repeat cesareans.
One of the best and most high quality studies on this topic was published by Silver et al. in 2006. This was a large observational study that took place at 19 medical centers, and they studied 30,132 cesareans that

occurred without labor, including 6,201 first-time cesareans, 15,808 second-time cesareans, and they also looked at third, fourth, fifth and sixth cesareans. Now, as they got down into fifth and sixth cesareans, the numbers really dropped off. So for example, they only looked at 89 women who had six or more cesareans. The researchers found increasing risks of maternal complications with an increased number of cesareans. Sometimes the risks such as ICU admission or blood transfusion were higher with the first planned cesarean, deep down it got a little better with the second, and then began rising with subsequent cesareans, and I already talked earlier though about the placenta accreta risk that rises gradually with each repeat cesarean. In the end, when you take a step back and look at all the research evidence on VBAC, you have to keep in mind that this is a preference sensitive decision. Some risks are higher with trial of labor after cesarean, whilst other risks are higher with multiple repeat cesareans.

Overall, the absolute or overall risks of both trial of labor after cesarean and elective repeat cesarean are low. But given the fact that complications can increase the more times you have surgery, looking at intended family size is important.

It's also important to remember that half of all pregnancies in the U.S. are typically unplanned, so even if you're intending to stop with two children, you may go on to have more.

VBAC Prediction Models and VBAC Calculators

Recently, I've seen a lot of buzz about VBAC prediction models. Many researchers have tried to create calculators. They developed these calculators in the hopes of individualizing the discussion between pregnant people and their care providers about whether to plan a VBAC or an elective repeat cesarean.

With these calculators, you enter your personal data and it kind of spits out the percentage chance that you would have VBAC instead of a CBAC. The thought process behind this is that it would be important to know your chances of success because the best outcomes occur with a VBAC, the next best outcomes are with an elective repeat cesarean, and the most complications occur when you have a trial of labor after cesarean that turns into a cesarean birth after cesarean or CBAC.

Although researchers seem to enjoy looking at research on how we can predict the success of someone having a VBAC, there are several limitations to these calculators. First, they do not consider the birthing person's values, preferences or goals or the practice setting. In some locations, the VBAC success rate may be low not necessarily because the women can't VBAC or the people can't VBAC, but because perhaps the hospital staff are not as supportive of VBAC.

Also, VBAC prediction calculators have not yet been shown to reduce complications. In other words, they've not been prospectively validated in clinical trials. Some birthing people might consider these calculators a valuable tool for informed decision making. Other birthing parents may find these calculators irrelevant at best or discouraging at worst.

VBAC calculators should be offered but not required or forced on someone. For example, if you are a birthing person and you're highly motivated to have a VBAC and you're giving birth in a very VBAC supportive practice setting, a calculator's prediction of a low chance of "success" might not apply to your situation and it might even cause harm by discouraging you from VBACing.

Effects of Prejudice and Institutional Racism on VBAC

One interesting side note is that racism, including the effects of prejudice and institutional racism, also appears to influence rates of VBAC. There is a significantly higher likelihood of VBAC among white mothers compared to black, Asian, and Latina mothers. This is not because black, Asian and Latina mothers are physically incapable of having a VBAC. It's because the system is set up to discriminate against them.

VBAC probability calculators take this into account and may discourage black or Asian or Latina mothers from having a VBAC by showing that they have a lower chance of success. This to me seems unethical and places blame on the mother or the birthing person rather than the system that's not providing them with the best care.

You have to remember that any factors that have been shown to increase or decrease your chance of VBAC are from observational studies, not randomized trials. So it's possible and important to consider that care providers may manage labors differently based on their suspicion of a higher or lower chance of VBAC. In other words, your chances of success for having a VBAC may be affected by clinician bias.

For example, studies show that mothers age 35 years and older have a higher rate of trial of labor that ends in a CBAC or a "failed VBAC" as it might be called. It's possible that advanced maternal age might make a VBAC less likely, or it could be that care providers are quicker to recommend surgery when someone who's 35 or older is having a trial of labor after a cesarean.

If you're labeled with a high or low probability of VBAC, this can be a self-fulfilling prophecy if it leads to changes in how the care provider takes care of you during labor to either be more or less supportive of you attempting a VBAC.

Recommended Resources

So I hope this information was helpful for you. I feel like I've just barely scratched the surface even though we've spent so much time in this podcast going over the statistics and the evidence on VBAC. I do want to recommend a couple of places where you can further your education.

- *VBAC Facts is a great resource for people looking for information about pros and cons of VBAC versus choosing a repeat cesarean*
- *VBACLink.com is also an educational website and they also have a podcast all about VBAC.*
- *You can also do like I do if you're really interested in VBAC and set up Google alerts or PubMed alerts for when research comes out with titles using the word VBAC.*

The Association of Ontario Midwives has their clinical guidelines statement on VBAC freely available on their website as well as a really great document that's called, for clients, Thinking about VBAC: Deciding what's right for me. It's a decision-making tool for people considering VBAC, and this resource is available for free in English, French, Spanish, Farsi, Arabic and simplified Chinese.

Powertopush.ca, a website based in British Columbia, Canada, also has a freely available patient information booklet about the options of VBAC and repeat cesarean, and that booklet is available in English, traditional Chinese and Spanish.

Finally, at the Evidence Based Birth® website, we have a signature article all about the evidence on skin-to-skin care in the operating room for people who have a cesarean. This is really important information for anybody planning a repeat cesarean or anyone attempting a trial of labor after cesarean in the event that the trial of labor might be followed by a CBAC. There are a lot of ways that you can make a cesarean a healing family-centered experience and we talk more about that in-depth at ebbirth.com/cesareancare, that's all one word, /cesareancare.

So that's the end of our Evidence Based Birth® podcast episode all about the research evidence on VBAC. I hope you found this information helpful. I know it was fun to be able to put it together. We plan on doing another research-focused episode next month, and that topic will be all about inducing labor for going past your due date.

Resources

- *American College of Obstetricians and Gynecologists/ Society for Maternal-Fetal Medicine (2018). Placenta accreta spectrum. Obstetric Care Consensus No. 7. Obstet Gynecol, 132, e259-275. Click here.* ***Free full text!***

- *Bujold, E., Goyet, M., Marcoux, S., et al. (2010). The role of uterine closure in the risk of uterine rupture. Obstet Gynecol, 116(1), 43-50.*
- *Carlton Fagerberg, M. and Källén, K. (2019). Third trimester prediction of successful vaginal birth after one cesarean delivery – a Swedish model. Acts Obstet Gynecol Scand. (Epub ahead of print.] Click here.*
- *Grobman, W. A., Lai, Y., Landon, M. B., et al. (2007). Development of a nomogram for prediction of vaginal birth after cesarean delivery. Obstet Gynecol, 109, 806. Click here.*
    - ***VBAC calculator for use at first prenatal visit:** https://mfmunetwork.bsc.gwu.edu/PublicBSC/MFMU/VGBirthCalc/vagbirth.html*
- *Guise, J.-M., Eden, K., Emeis, C., et al. (2010). Vaginal Birth After Cesarean: New Insights. Evidence Report/Technology Assessment No.191. (Prepared by the Oregon Health & Science University Evidence-based Practice Center under Contract No. 290-2007-10057-I). AHRQ Publication No. 10-E003. Rockville, MD: Agency for Healthcare Research and Quality. Click here. **Free full text!***
- *Landon, M. B., Hauth, J. C., Leveno, K. J. et al. (2004). Maternal and Perinatal Outcomes Associated with a Trial of Labor after Prior Cesarean Delivery. N Engl J Med, 351, 258-2589. Click here. **Free full text!***
- *Landon, M. B., Grobman, W. A. and Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal–Fetal Medicine Units Network (2016). What We Have Learned About Trial of Labor After Cesarean Delivery from the Maternal-Fetal Medicine Units Cesarean Registry. Seminars in perinatology, 40(5), 281–286. Click here. **Free full text!***
- *Metz, T. D., Stoddard, G. J., Henry, E., et al. (2013). Simple, validated vaginal birth after cesarean delivery prediction model for use at the time of admission. Obstet Gynecol, 122, 571. Click here. **Free full text!***
    - ***VBAC calculator for use at time of admission for birth:** https://mfmunetwork.bsc.gwu.edu/PublicBSC/MFMU/VGBirthCalc/vagbrth2.html*
- *Sandall, J., Tribe, R. M., Avery, L., et al. (2018). Short-term and long-term effects of caesarean section on the health of women and children. Lancet, 392(10155), 1349-1357. Click here.*
- *Silver, R. M., Landon, M. B., Rouse, D. J., et al. (2006). Maternal morbidity associated with multiple repeat cesarean deliveries. Obstet Gynecol, 107(6), 1226-1232. Click here.*
- *Smith, G. C. S., Pell, J. P., Cameron, A. D., et al. (2002). Risk of Perinatal Death Associated With Labor After Previous Cesarean Delivery in Uncomplicated Term Pregnancies. JAMA, 287(20), 2684–2690. Click here. **Free full text!***
- *Vlemminx, M. W., de Lau, H. and Oei, S. G. (2017). Tocogram characteristics of uterine rupture: a systematic review. Archives of gynecology and obstetrics, 295(1), 17–26. Click here. **Free full text!***
- *Access the International Cesarean Awareness Network's "Terminology: What is a CBAC?" here.*
- *Visit VBAC Facts here.*
- *Visit ICAN here.*
- *See the Association of Ontario Midwives Clinical Guidelines Statement on Vaginal Birth After Previous Low-Segment Cesarean Section here.*
- *Get the Association of Ontario Midwives handout, Thinking About VBAC: What's Right for Me, here.*
- *Get information on VBAC from Power to Push here (http://www.powertopush.ca/birth-options/types-of-birth/vaginal-birth-after-cesarean/).*
- *Click here (https://evidencebasedbirth.com/the-evidence-for-skin-to-skin-care-after-a-cesarean/) for the Evidence Based Birth® Signature Article, The Evidence on: Skin to Skin Care After Cesarean.*

I have received and reviewed the preceding information about VBACS in addition to doing my own research on the topic and feel that I am well informed. I understand the benefits and risks and feel that I am making the right choice for me and my family. My signature in my chart proves both my understanding of the topic and my acceptance of my decision.