CESAREAN CHILDBIRTH
HARTFORD HOSPITAL
HARTFORD, CONNECTICUT
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NARRATOR: Over the next hour, surgeons at Hartford Hospital in Hartford, CT, will deliver a baby by Cesarean section. About 1.2 million C-sections are performed each year, making it the most common procedure in the United States. We will show you not only the live childbirth, but also highlight Hartford Hospitalís birthing suites and baby-friendly status. Itís a recognition bestowed upon the hospital by the World Health Organization. You may email questions to the physicians in the OR by clicking the MDirectAccess button at any time. This program represents Hartford Hospitalís ongoing efforts to bring the latest developments in healthcare to the community.
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JOHN GREENE JR, MD: Hi. Welcome to Hartford Hospital. We are pleased today to present a live birth by Cesarean section, one of the most common procedures performed in the United States and certainly one of the most rewarding for an obstetrician to perform as we help bring new life into the world. Iím Dr. Jack Greene, Assistant Director of Womenís Health here at Hartford Hospital. During the broadcast, I urge you to ask questions by clicking the MDirectAccess button at the bottom of your screen. Performing todayís procedure is Dr. Odin Kuiper, Attending Physician at Hartford Hospital, and his assistant is Dr. Jolene Werdon. Hello, Odie. How are you doing?
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ODIN KUIPER, MD: Hello, Jack. Iím doing very well, excited to be here today. I just wanted to extend a welcome to everyone whoís tuning in today. Before we begin the procedure, I want to offer a very special thank you to our patient, Tracy, and her husband for allowing us to do this video today.
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JOHN GREENE JR, MD: Odie, can you tell us why youíre performing a Cesarean section today?
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ODIN KUIPER, MD: Sure, Jack. Tracyís baby is in the breech presentation, which means the babyís bottom is down, overlying the cervix, and we know that babies in the breech presentation are born more safely, with less risk of injury or complication, by Cesarean versus vaginal delivery.
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JOHN GREENE JR, MD: I noticed the way youíve prepped the abdomen. You chose to make an incision in the lower part of the abdomen.
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ODIN KUIPER, MD: When performing a C-section, we have basically two choices, either a vertical incision from the belly button down to the pubic bone, or a small bikini incision side to side. The advantage of a low transverse incision is that itís actually a little less painful, it heals more quickly, and offers the patient a nice cosmetic closure.
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JOHN GREENE JR, MD: Thatís certainly the most common incision we make these days for Cesarean sections.
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ODIN KUIPER, MD: Correct. So with that, we can go ahead and begin. Iíll just take a marking pen. Just to show you, the pubic bone lies approximately here. We make our incision approximately two finger breadths above and the incision itself is probably 5-6 inches in length. The incision is made with a scalpel. So now weíre going to go

through the layers of the incision, down to the level of the fascia. Weíre using an electrocautery device now to extend the incision deep through the subcutaneous adipose tissue.
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JOHN GREENE JR, MD: The reason we use cautery is to stop any of the little bleeders that you see as we go through the different layers. It really helps us cut down on the blood loss that we see with Cesareans. The tissue that you see here is just subcutaneous tissue, the fat tissue, and theyíre going to continue to go through that down until they see the fascial layer.
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ODIN KUIPER, MD: By applying traction and counter-traction against the tissue, it does separate very nicely. There may be some small veins that weíre going to be encountering as we go through and the electrocautery allows us to coagulate and control any bleeding at this stage.
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JOHN GREENE JR, MD: As Odie said, the indication today is breech presentation. About 3% of patients will end up at term having the baby in a breech presentation. As he said also, the literature shows these days that Cesarean section, especially for a primary breech, as in this case, is the safest way to deliver the baby. You can see there are two surgeons working. As Odie said, traction and counter-traction are really key to this procedure. Now you can see there the little flick of white there and thatís the fascial layer, so theyíve identified that. This is the same type of incision we can use for other entries into the abdomen, when weíre doing an abdominal hysterectomy or other procedures as well, and again, itís certainly the most common way these days we perform Cesareans.
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ODIN KUIPER, MD: As you can see here, we have the adipose tissue and now we see a nice shiny, smooth, white surface. Thatís the abdominal wall fascia. Weíll just excise that gently with the scalpel again. Below the fascia, we see the abdominis rectus muscles. Weíre now going to be extending our fascial incision laterally in either direction again, in a transverse orientation.
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JOHN GREENE JR, MD: As theyíre incising the fascia, a question that did come in is how will I know if I am a Cesarean? There are a variety of indications for a Cesarean section, some of which are known ahead of time, such as breech presentation, placenta previa, other types of problems with the placenta. Sometimes Cesareans you donít know until labor. If labor does not progress or the babyís large and wonít fit in terms of a vaginal delivery. So on occasion you know ahead of times. Other times you really donít know until a trial of labor is encountered.
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ODIN KUIPER, MD: My assistant, Dr. Werdon, will be performing the same procedure on the opposite side. It really does take two surgeons to perform this procedure safely, working together.
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JOHN GREENE JR, MD: Another question we got in from the audience is I had my first Cesarean in 1999. Now that Iím pregnant again, will I need to have a Cesarean? There is a procedure called a VBAC, vaginal birth after Cesarean section. That is the ability to have a vaginal birth after youíve had one C-section. That procedure peaked about 10 years ago and is starting to decline. Many obstetricians are shying away from performing vaginal births after Cesarean section because of the small but significant risk of uterine rupture from the previous scar.
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ODIN KUIPER, MD: Now what weíre doing with the procedure is weíre separating the fascia from the underlying rectus muscle. This will essentially allow us to separate the muscles to the sides to deliver the baby. We donít actually have to cut through the muscles; weíre just going to be separating them laterally.
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JOHN GREENE JR, MD: So this is a Pfannenstiel incision. The nice thing, as Odie said, not having to cut the muscles makes recovery for the patient certainly much easier than if you have to cut through the muscles, so we can just spread the muscles and then be able to deliver the baby through the incision. Again, as they go, you can see that muscle layer there is the reddish layer and they encounter little bleeders and thatís what they use the cautery to stop.
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ODIN KUIPER, MD: What weíre going to do next is just actually separate the muscles. They usually just will stretch apart under a little gentle traction.
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JOHN GREENE JR, MD: So the muscles are split a little in the middle and what you do is just pull them apart the way Odie is doing. Now theyíve identified the peritoneum, the shiny layer under the muscle, and that will now enable them to enter the abdominal cavity, so theyíre going to carefully pick up the peritoneum with those hemostats or snaps and make a small incision to enter the peritoneal cavity. What theyíll do next is make sure theyíre in the peritoneal cavity, thereís no adhesions underneath. You can see the fingers checking for any adhesions. Theyíre going to extend the peritoneal incision to give them better access to the uterus. The scrub nurse here helps tremendously as well by helping us with traction in the lower part of the incision, pulling things away to give the surgeons access, again, to the surgical field. Are you in the peritoneal cavity, Odie?
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ODIN KUIPER, MD: Weíve entered the peritoneum. What you can see inside the peritoneal cavity here is actually the uterus. This is the lower portion of the uterus. What weíre going to be doing is extending the peritoneum to either side of the midline, being careful not to cause any injury to Tracyís bladder, and Iíd just like to point out where that is for you. Just above the pubic bone, above the uterus, you can see right here is the patientís bladder with the large veins coursing over it. Weíre going to be extending our peritoneal incision superior to the bladder.
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JOHN GREENE JR, MD: This is a key part of the operation. The bladder is somewhat adherent, usually, to the lower part of the uterus, so after they extend this incision, when they see the bladder, theyíre going to make whatís called a bladder flap and incise the peritoneum and dissect the bladder down away from where theyíre going to cut into the uterus.
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ODIN KUIPER, MD: This device is called a bladder blade. This retracts the bladder down and out of the way. Now what weíre going to be doing is incisingÖ
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JOHN GREENE JR, MD: This is the bladder flap we were discussing here. This is the peritoneum now, right on top of the uterus. Again, theyíre going to make this incision and dissect the bladder down out of the way so they can make a uterine incision to deliver the baby. A question that came in as theyíre doing that is how is recovery different in a C-section compared with a vaginal delivery? Generally the recovery time for a C-section is a 3-4 day stay in the hospital, as opposed to a 2-day stay with a vaginal delivery. With a Cesarean section, you do have to recover from an abdominal incision, so itís generally a 4-6 week recovery time before normal activities are resumed.
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ODIN KUIPER, MD: The bladder has now been completely separated down off the lower portion of the uterus. Now weíre going to take a minute to just orient ourselves.
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JOHN GREENE JR, MD: This again is a key to the incision. You can really see the way the baby lies now.
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ODIN KUIPER, MD: This is the space we have now to deliver the baby. The next step, when weíre ready, will be to make a uterine incision. Weíll be assessing the midline here and checking the vasculature. It looks like the uterus is fairly symmetric.
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JOHN GREENE JR, MD: So theyíre going to make the uterine incision now to deliver the baby. Odie, I see youíre making your incision in the lower uterine segment.
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ODIN KUIPER, MD: Yeah. Weíre going to be making a transverse incision on the uterus. This is through the thinnest wall of the uterus, so it actually is the safest place to make the incision. It allows the patient the potential option to have a vaginal delivery in the future if, with her next pregnancy, she has a baby in the vertex position or head down.
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JOHN GREENE JR, MD: This, again, is the most common incision we make during Cesareans these days. We can make vertical incisions in certain situations. What youíll see next is, as they enter the cavity, youíre going to see

the amniotic fluid after they rupture the membranes. Thatís a suction device that will help them continue to be able to see.
This part of the incision takes time because, again, right underneath the amniotic cavity lies the baby, so you need to be extremely cautious in this part of it. What theyíre doing here now is extending the uterine incision and theyíll do that bilaterally, or to both directions, again to give them room to deliver the baby. Again, this delivery, the baby is in a breech position, so this will be a little bit different than when the baby is head-down, so what you most likely will see is the babyís butt delivered first and then specific maneuvers the surgeons will do to deliver the rest of the baby. Thatís amniotic fluid. Now what theyíre doing is assessing what part of the baby is delivering. Since it was breech, we know itís not head-first, so this can be a little trickier when the babyís head is coming first.
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ODIN KUIPER, MD: The babyís coming out feet first.
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JOHN GREENE JR, MD: So itís a footling delivery. Again, normally, if itís the head coming first, the delivery is pretty quick, but this is going to be delivered as a footling breech, so you can see the babyís legs delivered. As I said earlier, now there are specific maneuvers to deliver the rest of the baby. You can see the babyís bottom. Almost birthday time. They maneuver the baby until they get to the part where the head is going to deliver and then usually weíll place a finger in the babyís mouth to help the head flex, to affect easier delivery. They twist now to deliver the other arm. Odie, are you doing the Marceau maneuver?
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ODIN KUIPER, MD: Yeah. We have to stretch the incision slightly more.
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JOHN GREENE JR, MD: Again, the head is generally the largest part of the baby to deliver. Thereís the baby. Happy birthday.
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ODIN KUIPER, MD: Weíre going to do a little suctioning of the nose and the mouth.
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JOHN GREENE JR, MD: Since the baby didnít go through the vaginal canal, thereís not a chance for momís vaginal canal to remove fluid from the babyís lungs, so babies born by Cesarean often will have more fluid in their mouths, so they do some suctioning to remove from the babyís mouth. Itís a baby girl.
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ODIN KUIPER, MD: Weíre just getting her face cleaned off a little bit.
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JOHN GREENE JR, MD: Smile for the camera.
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ODIN KUIPER, MD: Go say hi to mom and dad. Weíre going to get her cleaned up a little bit. Here she is.
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JOHN GREENE JR, MD: Again, we do try to have mom and dad see the baby after the babyís born by Cesarean.
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ODIN KUIPER, MD: It will take a minute for the baby to start to cry. Itís a little bit of a transition going from inside the uterus to the world of breathing air.
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JOHN GREENE JR, MD: What we have now, the pediatricians are here, which we always have for any unscheduled Cesarean or breach presentation, so pediatricians from the neonatal intensive care unit are here to help assess the baby and make sure the baby does well.
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ODIN KUIPER, MD: Right now Iím actually just delivering the placenta.
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JOHN GREENE JR, MD: The placenta is whatís often called the afterbirth and thatís what has fed the baby throughout the nine months, so after the babyís out, the cord is clamped and cut and now theyíre going to deliver the placenta from the uterus. At the same time, our anesthesia colleagues will administer a medication called Pitocin and what that does is help the uterus contract down and stop any heavy bleeding. Odie, are you having the patient with any prophylactic antibiotics?

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ODIN KUIPER, MD: At this point, we do give patients intravenous antibiotics and those have been shown to reduce the incidence of post-C-section uterine and wound infections. Jack mentioned that we deliver the uterus out of the incision. We also have the option of closing the uterine incision, leaving the uterus right inside the pelvis. Thatís actually my personal preference because women have a lot less nausea and vomiting if we leave the uterus in situ.
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JOHN GREENE JR, MD: So youíve seen the incision of the uterus and now theyíre going to use running sutures to put the uterus back together. After you see the closure, itís pretty amazing that the uterus will look pretty much like when we started. Tracy, I have to tell you that an email came in saying tell my friend Tracy this is awesome and we love her.
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So while theyíre sewing the uterus, one question came in. How do you feel about having support, such as doulas, in the OR? Do you believe moms need that kind of support during the operation as well as in the delivery room? We really support having doulas or other support people to help patients in labor. In the operating room, we allow one support person present with the patient. If the patient did choose it to be a doula, that would be appropriate with us. So the baby has perked up and looks pretty happy to have had her birthday.
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Again, while theyíre closing the uterus, another question we received: Are there any things during the pregnancy that may make me high risk for a C-section? There are certain things that may make you high risk for a C-section. Certainly abnormalities of the placenta can cause increased risk for Cesarean section. Diabetics are at increased risk for Cesarean section. Again, if the baby grows large, something we call macrosomia, you have a higher chance for a Cesarean section.
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I think what we can do now, while theyíre sewing the uterus, and weíll get back to that, is go through the PowerPoint presentation that we put together about Cesarean section. First of all, again, as we discussed earlier, Cesarean section is now the most commonly performed major surgery in the United States. Rates are increasing for a variety of reasons, malpractice concerns in terms of safety of delivering the baby. It is a safer option than it was years ago. Certainly with the advent of anesthesia, good antibiotics, itís a safer operation for patients than many years ago. In answer to the question, weíve already talked about the decline in VBAC rates, or vaginal birth after Cesarean sections because of the very small but significant risk of uterine rupture after a scar from a previous Cesarean. There has also been a tendency away from forceps deliveries, again for the same reason of wanting to deliver a baby in the safest way possible. The latest is patient preference. Some patients are choosing to have Cesarean sections. There has been some indication in some of the literature that the risk for urogenital prolapse or things falling down later in life after having vaginal deliveries is higher. ACOG has now said that patient preference for an elective C-section is certainly a viable alternative.
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Anesthesia. The anesthesia Odie talked about that we used today was a spinal anesthetic. The most common type of anesthesia used these days for Cesarean sections is regional anesthesia, either a spinal or epidural. This enables mom to stay awake through the procedure. We have dad in the room up there, right next to mom. They can converse during the entire procedure. It also allows us to start the bonding process with the baby immediately after the Cesarean. Typical hospital stay after a Cesarean is about a 4-day stay and generally is a 6-8 week recovery time. Thereís gradually increased activity over that 6-8 week recovery time and that really refers then back to complete normal activity. The incisions we talked about a little bit before. The type of incision that Odie used today is commonly called a bikini incision. Itís a transverse incision made in the lower part of the abdomen. Again, it allows easier recovery for mom and itís a very nice cosmetic healing. Weíll get back to showing you the healing and how they put a suture in to try to reduce any scarring. The other type of incision is a vertical incision, which is made in the midline between the belly button down to the pubic symphysis. This incision we use if we have to get a baby out very, very quickly, in times of fetal distress, or we expect significant complications during the surgery.
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Youíve seen it live. This is just some schematics on the slide, showing you again what we just went through. This is the part where theyíre opening the peritoneum thatís covering the uterus and this allows them then to be able

to dissect the bladder down off the lower part of the uterus. That gives the surgeons access to the lower uterine segment, where they can make their incision. Uterine incision in this case, again, was made transversely, as Odie said, in the lower uterine segment. Thatís the thinnest part of the uterus. The incision is made with a scalpel and then the excision is extended either bluntly, using fingers to spread the incision, or sharply, using a bandage scissors. Again, the surgeon decides how big to make the incision in order to allow easy delivery of the baby.
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ODIN KUIPER, MD: Because Tracy never went through labor, her uterine wall was not really stretched out by the laboring uterus, so as weíre making our uterine incision, we are going through a thicker wall. There is a bit more bleeding with a scheduled Cesarean like this, versus a patient who had to have a Cesarean after a trial of labor.
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JOHN GREENE JR, MD: Thatís a good point. With the trial of labor, the lower uterine segment, where this incision is made, gets thinner and thinner as the uterus contracts. Again, in this case, Tracy didnít undergo labor, so the uterus did not thin out at all, so the incision was made through a thicker muscle layer of the uterus, so it will take a little bit longer to repair and is a little bit increased in terms of blood loss, as Odie said. As opposed to the breech today, where we saw the babyís feet delivered first, and legs, this picture shows more commonly, when we have a vertex presentation or the babyís head coming first, delivery of the babyís head. So again, what you see here is the uterine incision has been made and extended and now the surgeons are going to be delivering the babyís head. This is currently where theyíre at in this procedure. The lower uterine segment is repaired. We always use absorbable sutures, so the sutures will dissolve over a period of time. What suture did you choose to use, Odie?
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ODIN KUIPER, MD: We used a 0 Vicryl suture, which is a dissolvable suture. It takes approximately six weeks for this to reabsorb by the body. We close the uterus in two separate layers, an initial layer just to control bleeding, and a second layer sort of tucks in the first layer. Itís called an embrocating layer. That just allows the uterus to heal better, to tolerate subsequent pregnancies without a risk of rupturing.
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JOHN GREENE JR, MD: Odie, there was a time when people were pushing to do one-layer closures of the uterus. Did you ever try that? I know weíre back now, most people, to using 2-layer closures.
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ODIN KUIPER, MD: Yeah, in the past. Certainly if you have 1-layer closure thatís not bleeding, that used to be a general trend a few years back, but as you know, in medicine trends do change and a study did show that there was less of a risk of uterine dehiscence, which is sort of a thinning or separation or actually of uterine rupture.
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JOHN GREENE JR, MD: I agree with you. I think there was a time when we were doing one-layer closures, thinking it would be safe, but again when studies showed there was an increased risk of the uterine scar coming apart, people have gone back to 2-layer closure.
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ODIN KUIPER, MD: As you can see now, with our incision, weíve pretty much finished suturing it together. At this point we check for hemostasis, or to make sure that thereís no additional oozing or bleeding. Thereís one little spot of bleeding here, so Iím going to put a separate stitch, just an interrupted stitch over that spot.
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JOHN GREENE JR, MD: Again, I think as you look, itís pretty amazing when you repair the uterus. At the end, it really looks very similar to when we first went in there.
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ODIN KUIPER, MD: Itís usually a little faster getting to the baby and doing the delivery, only usually takes about 15 minutes from start of the procedure to delivery and then probably about another 30-40 minutes to repair all the layers.
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JOHN GREENE JR, MD: I see a happy mom. Everythingís going great down here. While the surgeons are repairing the uterus, the scrub nurse is helping by keeping the bladder out of the way and blotting in between sutures to try and remove any of the blood out of the surgical field.
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ODIN KUIPER, MD: Our scrub nurse today is Ruthie Newell. Sheís been tremendously helpful over the years. Ruthie, how many years have you been doing this now? A long time. Sheís one of our most experienced and best liked nurses. So this portion of the incision actually looks completely hemostatic. Thereís no bleeding at all. So we can go ahead and cut these sutures.
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JOHN GREENE JR, MD: I also think you can see, as mom is enjoying interacting with baby, that the anesthesia was excellent. Weíre operating and in the meantime, while weíre continuing to operate, she is bonding with her baby, so thatís great.
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ODIN KUIPER, MD: Weíll take one more look around. Again, at this point there is some blood that sort of spills over the uterine incision, into the pelvis, so we just go back and kind of mop that up now.
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JOHN GREENE JR, MD: A question that came in in the meantime, what is the hospital stay after a Cesarean section? Itís generally, again, 3-4 days in the hospital, as opposed to a vaginal delivery is generally a 2-day stay. The other question is can I breastfeed my baby after a Cesarean section? Absolutely and we certainly encourage that and support it. Baby will be with mom in the recovery room, will have skin to skin contact, and the bonding process, again, as you see, has already started.
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The last slide I was going to put up, again, a question that always comes up is what about potential complications. Possible complications from a Cesarean, as with any surgery where we make an incision, are the possibility of bleeding or excessive bleeding, as well as infection, and thereís always a risk of injury to adjacent organs. As you saw live, the bladder is sometimes adherent to the lower part of the uterus, so thereís always a risk of damage to the bladder. It doesnít happen very commonly, but it certainly is a risk of the procedure.
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ODIN KUIPER, MD: Weíre just using a little sponge stick here now to blot this corner. There appears to be a little bit of bleeding from the edge. I think we can just touch that with the electrocautery again.
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JOHN GREENE JR, MD: A question that came in, while theyíre doing that, what type of suturing is being done on the uterus? Again, weíve talked about two layers of an absorbable suture, so the sutures will dissolve over about a 6-week time frame.
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ODIN KUIPER, MD: On the initial layer of closing the uterus, we use whatís called a running lock layer. The running lock layer is a hemostatic layer. It constricts and basically is preventing bleeding from all those venous sinuses, which are what brings blood supply, oxygen, and nutrients to the placenta. The second layer is just a simple running layer. So now, again, weíre just looking for any additional places that may be oozing and so far it looks very good.
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JOHN GREENE JR, MD: Odie, a question while youíre getting to that portion of the procedure. Some surgeons close the bladder flap and some do not. What are the advantages and disadvantages of each?
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ODIN KUIPER, MD: The bladder flap, which I can try to point out to you againÖ
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JOHN GREENE JR, MD: The bladder flap was created after we incised the peritoneum on the uterus and pushed the bladder down away, so youíll be able to see that.
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ODIN KUIPER, MD: This is the peritoneum here, that Iím elevating, which was adherent to the lower portion of the uterus. You basically have the choice of suturing this back up, covering over the incision, or just letting it heal on its own. It actually heals very quickly. I think thereís no strong data to support always closing it. I guess in theory you may have a little bit less likelihood of scar tissue to that area, but I think the standard of care is just to let it heal spontaneously and just to leave it there. Itís just one extra step that really doesnít make a big difference.
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JOHN GREENE JR, MD: I agree. The peritoneum tends to reperitonealize rapidly.

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ODIN KUIPER, MD: So at this point of the procedure, we can actually start closing. The rectus muscles, as you can see here, will actually come back on their own to meet up in the midline.
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JOHN GREENE JR, MD: Remember, we just spread those. We didnít have to cut them.
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ODIN KUIPER, MD: Thereís no cutting of these. Now what weíre just going to be doing is closing this fibrous fascial layer to the midline. Following that, itís just a closure of the abdominal wall skin and weíre done.
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JOHN GREENE JR, MD: The fascial layer is probably the mostÖobviously the uterus is important to close, but the fascial layer really helps hold everything in. If that wasnít closed appropriately, you could develop an incisional hernia, so again, care is taken in repairing that fascial layer. What type suture are you using, Odie?
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ODIN KUIPER, MD: Again, weíre using a braided absorbable Vicryl suture on the fascia. With this one, as opposed to doing a running lock stitch, which we did on the uterus, we do not want to lock this. The fascia is relatively avascular tissue type and if you actually strangulate it or pinch it too tightly, it may impair wound healing.
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JOHN GREENE JR, MD: So what theyíre going to do is run it and just approximate the two edges of the fascia together and that will promote good healing. Now, if you had made a vertical incision, would you be using a different suture in the fascia?
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ODIN KUIPER, MD: Yeah. A vertical incision definitely takes a little bit more attention and itís a little bit of a weaker type incision when youíre cutting fascia due to the orientation of the fibers. So with a vertical incision we use whatís called a delayed absorbable suture. An example of that would be PDS and thatís just to ensure good wound healing for a longer period of time, approximately 3-4 months.
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JOHN GREENE JR, MD: So the PDS suture in the vertical incision will last 3-4 months, as opposed to this suture in the transverse incision will be basically gone in a 6-8 week time frame. So while theyíre finishing this layer, we would also like to show you the labor and delivery suites that we have here at Hartford Hospital. Again, most patients are still able to deliver vaginally. The majority do. We really have some nice labor suites for the patients. Hereís our labor suite. Weíve really designed them to try to feel as homey an atmosphere as possible and make them certainly inviting to mom and dad as theyíre in labor. An interesting feature, you can see we have artwork that actually covers up the suction and the oxygen, so again, unless we need them, those are hidden behind some nice pieces of artwork. The cabinets, again, all close. The nice thing about that is, once you open them up, we have any of the tools that we need for delivery. You can see the television there. We can also have patients watch videos there, for education. Again, most patients will have a vaginal delivery, so we really try to make the rooms as comfortable as possible.
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ODIN KUIPER, MD: Tracy, how are you feeling? Good. Congratulations to both of you.
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JOHN GREENE JR, MD: So heís continuing to repair the fascial incision. After that, what weíll do is generally irrigate out the incision and remove any blood or any debris thatís there in order to promote healing, and then put a layer in the skin that will approximate the skin, again with an absorbable suture.
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ODIN KUIPER, MD: Jack, Iím actually going to use one additional suture today, which is to reapproximate the adipose tissue or a layer called Scarpaís fascia. Thatís to help prevent any risk of fluid accumulating in the wound or a hematoma and to reduce wound infection risk. It actually, I think, improves cosmetic closure as well.
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JOHN GREENE JR, MD: Some questions have come in. Are there different ways now of closing the skin or other layers that people are utilizing? Odie, I donít know if you have any experience with some of the newer techniques.
00:36:08.000

ODIN KUIPER, MD: Yeah, I can comment on that, Jack. I think what weíve been doing so far is fairly standard, but I think the one layer that has some variation from physician to physician or patient request is actually how do we close the very surface skin layer? Today Iím planning to suture that with whatís called an intracuticular or a buried suture that again is dissolvable. Some surgeons use a staple device to actually staple the skin incision closed. They usually take those staples out anywhere from 4 to 7 days after the completion of the procedure. Thereís a super glue type material that we can actually glue incisions shut, which is becoming somewhat more popular. People are developing adhesive tapes as well.
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JOHN GREENE JR, MD: So thereís a variety of things weíre looking at in terms of innovations for closure, but I think the suture that the surgeons here are going to use is a very good choice. You donít see it. As Odie said, itís buried. No sutures need to come out and it heals very beautifully, so I think at the end youíll be impressed by what the incision looks like.
00:37:18.000
ODIN KUIPER, MD: Now weíre just going to be irrigating. This is some warm saline. Irrigation helps us to identify if thereís any bleeding and it helps to keep the incision nice and clean. Again, to reduce any risk of infection.
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JOHN GREENE JR, MD: While youíre doing that, I have to read some of these emails because this is quite an interesting thing to see the birth of a baby. One says that was just awesome, Odie. Weíre watching you at Mary Cheney Library in Manchester. Grandma has a stronger stomach than Amy. We hope you get to relax for the rest of the day.
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Congratulations from everyone at work. Sheís beautiful.
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Jolene Worden, weíre so proud and impressed. Your family in Washington.
00:38:05.000
ODIN KUIPER, MD: Okay. So again, things look nice and clean here, so weíre going to doing our next to last suture next. This is 3-0 Monocryl suture and this is to close the Scarpaís fascia layer.
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JOHN GREENE JR, MD: Why do you close this layer, Odie?
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ODIN KUIPER, MD: This is somewhat of an optional layer to close, but I think studies show that with a depth of more than 2 cm of adipose tissue, thereís higher risk of wound hematoma and seroma, which is like a lymphatic fluid, if we donít close this layer, so potentially thereís this dead space. If fluid collects in there, it can cause wound separation and poor healing.
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JOHN GREENE JR, MD: A question that came in: How long does the procedure take? It seemed pretty quick. Again, one of the advantages here today is this was a primary Cesarean section or the first Cesarean section. When a patient has had a Cesarean section previously, it can take a little bit longer if scar tissue has formed. Certainly the greater number of previous Cesareans, the increased likelihood of scar tissue, so indeed, those procedures may take us a little bit longer. This went along very well, obviously.
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If I need a C-section for future pregnancies, are there any risks from the scar tissue formation? Again, the risk on the uterus is that if you went into labor, the uterine scar could separate and that could be catastrophic, so what we encourage patients who have had previous Cesareans to do if theyíre going to go into labor is obviously call us at the first sign of labor, or even if theyíre scheduled for a C-section, whenever they start to contract regularly, we have the patient call us so that we can monitor them and make sure that that does not happen.
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ODIN KUIPER, MD: The other comment with potential for scar tissue is with each subsequent pregnancy with the scar tissue, there may be slightly more pulling, discomfort, pelvic pain for those women during the pregnancy as things are being stretched.
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JOHN GREENE JR, MD: Another that came in is does having a scar from a previous Cesarean make it harder for a growing belly during a second pregnancy? The answer to that is not at all.

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ODIN KUIPER, MD: Before we actually close our last layer, what weíre going to do is separate our adhesive drape. This allows us just to see the skin edges very carefully.
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JOHN GREENE JR, MD: These drapes have been a nice advantage for us. They really protect the wound. What theyíre doing now is again separating it so they can see the edges well as they repair the incision. What suture are you going to use here, Odie?
00:41:20.000
ODIN KUIPER, MD: This is a Monocryl suture. This is going to be using a 4-0. Iím going to use a couple of different types of stitches here. The first one is called a deep dermal stitch, which is to bring this nice, white, fibrous layer together below the skin, top to bottom. Thatís going to basically take any tension off the actual wound itself. We can do a series of interrupted deep dermals. I think, again, this is not an absolutely necessary stitch, but I think it does help with cosmetic healing. The first thing I like to do is just find where is midline so weíll get everything to line up nice and evenly.
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JOHN GREENE JR, MD: I think itís important to remember at this part of the incision repair that this is the only part of the scar the patient will see going forward, so no matter what type surgery we do and whatever the procedure is inside, itís very important to try to create as nice a cosmetic scar as possible. So again, what this is doing is bringing together the layer underneath the skin and that will allow the skin suture to create a nice scar at the end.
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ODIN KUIPER, MD: Weíll do another one on this side.
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JOHN GREENE JR, MD: So weíll just put a few. What these are called are interrupted sutures, where you place one at a time, rather than running the suture. Itís commonly done in a case like this, where what youíre trying to do is just bring the tissue together somewhat. Thereís really no danger here of hitting blood vessels, so they can pretty much freely place the needle and tie the suture down.
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ODIN KUIPER, MD: Any other questions from the emails, Jack?
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JOHN GREENE JR, MD: We have one. You mentioned that one person is allowed in the OR at a time. Now that baby and dad are gone to the nursery (which theyíre not. Mom, baby, and dad are still with us.), whoís focusing on mom? Mom will go to recovery room along with dad, which is right down the hall here and the baby will be happy to join them in there. Again, we will allow mom to breastfeed at any point in there.
00:43:59.000 One of the questions is what are the true risks for VBAC versus an unscarred uterus? Again, VBAC is the mnemonic for a vaginal birth after Cesarean section, so that means youíve had one or more Cesarean sections. Certainly with more than one, you should have a repeat if youíve had two or more Cesarean sections. That is the standard by the American College of Obstetricians and Gynecologists. If youíve had one Cesarean section previously, if the incision on the uterus is a low transverse incision, like the one that was made here today, you might be a candidate for VBAC or have a vaginal birth the next time. Thatís something you would need to discuss with your physician. Odie, are you still allowing patients to VBAC after one Cesarean section?
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ODIN KUIPER, MD: We do in our practice if they are what we would probably consider a good VBAC candidate. I can elaborate on that a little bit.
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JOHN GREENE JR, MD: Sure. Letís talk about good VBAC candidates. There are several questions, I think.
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ODIN KUIPER, MD: A good VBAC candidate, I would say, is somebody who has already proven that theyíve been able to have a vaginal delivery. As an example, if a woman had a vaginal delivery with her first child and the second baby was breech and had a C-section subsequently, sheís had what we call a proven pelvis, meaning the baby can certainly fit through. She would be a good candidate for a VBAC.
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JOHN GREENE JR, MD: Those are certainly the most successful patients and probably have a 70-80% success rate, if not higher.
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ODIN KUIPER, MD: I think our patient here today would certainly be a reasonable candidate. Because of the reason for the first C-section being breech, we know that she doesnít have a very narrow or obstructed pelvis. I think patients who we counsel against VBAC are women who have average to large babies and who have a very narrow or small pelvis on examination or who have had a previous C-section for whatís called cephalopelvic disproportion or essentially the babyís head being too large to fit through the pelvis.
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JOHN GREENE JR, MD: Cephalo means head and pelvic means pelvic, so the had doesnít fit through the pelvis, or cephalopelvic disproportion or CPD.
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ODIN KUIPER, MD: Now Iím taking my time, closing the last layer, which is the actual skin layer. This is, as Jack mentioned earlier, the only layer that patients actually get to look at, so I think itís better to be meticulous and careful at this stage to get everything to line up perfectly.
00:46:38.000
JOHN GREENE JR, MD: We always emphasize that, as weíre teaching residents, that we may be in an operation that took you 5 hours to do and the only thing the patientís going to see at the end of it is the scar, so itís really important, I think, at this point in the procedure, to take your time and carefully repair the incision.
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ODIN KUIPER, MD: Just getting back to the VBAC question, the success rates in VBACs do vary slightly, depending on what the incision was for the previous Cesarean delivery. I think in general we can give patients quotes that there may be as high as a 70-75% success rate, in general. That, again, would be a little bit lower for women who had C-sections for cephalopelvic disproportion.
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JOHN GREENE JR, MD: A question that came in is someone who joined us late. Can you repeat the reason for the C-section? I missed the beginning. The reason is that Tracy had the baby in a breech presentation and the baby was actually delivered as a footling breech, so the first part of the delivery was actually the babyís feet. The baby was delivered, then, as a breech.
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One question is how many Cesarean sections can a patient have?
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ODIN KUIPER, MD: I have done an 8th repeat C-section on a patient. In general, we find that thereís slightly higher risk of complications, the more C-sections women have, but I think itís reasonable, you know, 3-4. Beyond 4, we start to counsel them that it becomes a little bit riskier.
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JOHN GREENE JR, MD: I agree. I donít know of any specific number that anybody quotes that you shouldnít have any more than a certain number, but I think the greater number that you have, the more concern that we have that the scar may be weaker and more likely to dehisce or separate.
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Another question that came in is if the patient would need a repeat Cesarean section, would you go through the same scar in the uterus or would you choose a different place because of weakness or scarring?
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ODIN KUIPER, MD: No, itís actually easier and recommended to just keep going through the same location each time.
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JOHN GREENE JR, MD: Again, being quite meticulous here and I think Tracyís going to be very pleased with the repair of the incision. When theyíre done with that, what weíll do is just place a bandage on the patient, remove the drapes, and everybody will go down to the recovery room. Howís the baby doing? Good? Do we know the babyís name?
00:50:02.000
ODIN KUIPER, MD: Reese Allison Knight. Happy birthday.
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JOHN GREENE JR, MD: Some more questions came in. I just had a myomectomy and have been told that I will have to deliver by Cesarean. Will this cause extra complications? Possibly there will be some increased scar tissue because myomectomy, which is a procedure where we open the uterus, remove the fibroid or myoma, and then repair the uterus. It sounds like the uterine cavity was entered, if you were told that you need to have a Cesarean section. Myomectomy is also often a cause of scar tissue inside, so again, as opposed to todayís procedure, where everything was pristine and there was no scarring from previous surgery, you might run into some scar tissue from the previous myomectomy.
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ODIN KUIPER, MD: So weíve finished now with the procedure. The last thing Iím going to do is just wash the incision. You can see itís a nice thin line. That should heal and scar very nicely. Weíll put some little adhesive what are called steri strips on, just to again reinforce it, and that will be the end.
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JOHN GREENE JR, MD: So a question along those lines: are there advantages to sutures over staples for closing the incision? I think Odie talked about this before, but certainly one of the advantages is we donít have to remove anything here, so this suture is underneath the layer of the skin, the surface layer of the skin, and the suture will be absorbed by the body and those sutures will have to be removed. If staples were used, those staples would have to be removed prior to the patient going home.
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Another question is whatís your C-section rate? It certainly has increased. Our C-section rate in 2000 here at the hospital, total, is 20%. In the last six months, itís about 35%. Again, the reason for that is the variety of indications that we discussed previously in the PowerPoint presentation. What theyíre putting on now are something called steri strips, again just to reinforce the skin edges coming close together. I think if you have a view of that incision, itís pretty impressive how this is going to heal.
00:52:21.000
Another question: I am 5í5î. My children were all between 9.5 and 10.5 pounds and I had no complications with a vaginal birth. That was 10 years ago or more. In todayís terms, would I automatically be scheduled for a C-section? I would say the answer to that is no. Really the key, and weíve talked about it before, is the proportion of the pelvis and the size of the pelvis in relation to the fetal head, so if the pelvic proportions were normal, we would not necessarily, despite being 5í5î, schedule the patient for a Cesarean section.
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ODIN KUIPER, MD: I can just also comment. I have had a 4í11î woman deliver a 10.5-pound vaginally with no complications, so again, itís not necessarily the height or the babyís size. It really has to do with the relationship of the babyís head size with the pelvic bony structures. That completes our procedure here. Iím going to give it back to Jack now.
00:53:23.000
JOHN GREENE JR, MD: Odie, let me ask you one thing. The reason was for breech. One of the questions that came in was was there an attempt at external cephalic version or other techniques prior to deciding on a Cesarean section?
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ODIN KUIPER, MD: Iíll comment about that. An external cephalic version is a manipulation of the baby by pushing, basically tugging and pulling, through the abdominal wall to try to get a baby to flip from head up here, which is breech, down to a vertex or head-down orientation. Some women are good candidates. Some are not. Itís a procedure that does potentially carry some risk of complications. In Tracyís situation, she opted not to pursue that, not wanting to take any risk of injury or complication with the procedure.
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JOHN GREENE JR, MD: I think itís certainly an option for patients with a breech and itís something that the physicians will generally discuss, and we really do think itís important to have patient choice and informed consent for whatever procedure they undergo.
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ODIN KUIPER, MD: Absolutely. Any other questions?
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JOHN GREENE JR, MD: Just some more thank yous. Thanks for the webcast. My mom had 9 C-sections, wow, with no complications and twins at 44, and I had never seen one before today. You guys are great.

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ODIN KUIPER, MD: Dad, if you would mind standing up, if we could just get one more picture of the baby for everybody at home.
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JOHN GREENE JR, MD: Everybody can say happy birthday. Again, I want to thank Tracy and dad for allowing us to do this. I think itís been very informative and I thank everybody for joining us in this very exciting day for Tracy and family at the birth of her baby.
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ODIN KUIPER, MD: Congratulations.
00:55:29.000
NARRATOR: This has been a Cesarean section performed at Hartford Hospital in Hartford, CT. To obtain more information or to make an appointment or make a referral, please click on the buttons at the bottom of your screen.