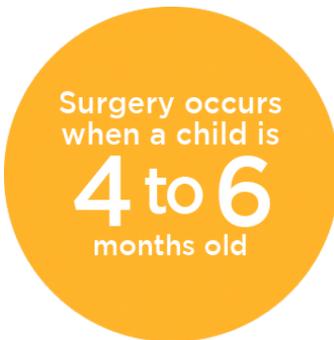


Craniosynostosis Surgery (Cranial Vault Remodeling)

What Is Craniosynostosis Surgery?

Some babies are born with craniosynostosis a condition which causes the bones in the skull to fuse prematurely. Craniosynostosis surgery—called cranial vault remodeling or frontal bone advancement cranial vault remodeling—corrects abnormal head shape and gives the brain enough room in the skull to grow.



Who Benefits from Craniosynostosis Surgery?

Craniosynostosis affects one in 2,000 infants. With the exception of very mild cases, babies who have craniosynostosis require cranial vault remodeling. Usually, only one surgery is required, when a child is about 4 to 6 months old. About 10 percent of children need a second surgery to correct minor skull deformities or a relapse of craniosynostosis.

Babies who have craniosynostosis surgery at Gillette Children's Specialty Healthcare typically:

- Face few or no complications.
- Experience normal head growth.
- Achieve a satisfactory head shape.
- Remain neurologically on track for development.
- Don't require a blood transfusion.

Preparing for Craniosynostosis Surgery

Before your child has craniosynostosis treatment at Gillette, you'll get an information packet for your family to start preparing for surgery and the related needs that will arise afterward.

Because your baby will need an empty stomach before going to surgery, you'll get specific instructions on when to stop feeding your child. You're encouraged to have your baby drink a lot the day before surgery and to wake them

up early in the morning to have something to drink until oral feeding should stop. If your baby gets sick before surgery, let us know so that we can decide whether to proceed with the scheduled procedure.

Appointments Before Craniostomy Surgery

To help you feel as prepared and supported as possible, we'll call you to schedule several appointments that are usually needed before surgery, including:

- **Preoperative lab work:** Three weeks before surgery, your child will have a complete blood count to establish a baseline hemoglobin reading. Hemoglobin is a protein in red blood cells that carries oxygen to the body's tissues.
- **Erythropoietin injections:** For three weeks before surgery, your baby will receive erythropoietin weekly to increase hemoglobin. We'll also ask you to give your child liquid oral iron twice a day. These treatments help reduce the need for a blood transfusion during surgery.
- **Anesthesiologist:** One to three days before the preoperative appointment, you'll meet with an anesthesiologist.
- **Blood draw/type/screening:** During this appointment we'll review your baby's medical history and lab work results. It's also a time for you to ask the craniofacial surgeon and neurosurgeon any questions you might have about the surgery. You'll get detailed instructions for care before and after the surgery, including how to care for wounds and recognize problems.

Tell Us About Latex Allergies

Gillette is a latex-free facility, but it's still important to tell us if your child has a latex allergy or has ever had a severe reaction to latex.

Manage Stress

Sometimes fears, behavior or expectations related to the upcoming surgery cause stress for families. Contact your child's primary health care provider or Child and Family Services for support.

Gillette can help with resources that might help reduce anxiety for all of your family members. Our child life specialists can provide emotional support and distractions (such as toys and movies we can bring to the preoperative waiting area before surgery begins). Child life specialists also can meet with your child's siblings to address their feelings and concerns.

Knowing what to expect can help everyone feel more prepared. We'll be sure to help clarify short- and long-term expectations for outcomes following repair surgery.

During Your Hospital Stay

The Day of Surgery

Arrival

The Perianesthesia staff greets you upon arrival. Your child is weighed and asked to change into a hospital gown. We also check temperature, pulse and blood pressure. A child life specialist helps your child feel more at ease with

toys, crafts or movies.

Surgery Preparation

Next, you and your child meet with the craniosynostosis surgery team: the operating room nurses, the craniofacial surgeon, the neurosurgeon, the nurse anesthetist and the anesthesiologist. This is time for you to raise any questions or concerns—the anesthesiologist discusses how anesthesia and pain medication are used during surgery.

Surgery

First, the anesthesiologist puts your baby under anesthesia using a mask. Once your child is asleep, we start an IV, insert a breathing tube and start an arterial line in the wrist to monitor blood pressure during and after surgery. Your child might also receive a catheter in the bladder while under anesthesia.

Immediately before surgery, the surgical team gives your baby tranexamic acid, which minimizes blood loss during operations. We also give a saline solution to dilute the blood so that when bleeding occurs, your child loses a smaller percentage of their actual blood.

Craniosynostosis surgery usually lasts one to two hours and can include these steps:

- The surgical team injects your baby's scalp with an anesthetic and a hormone commonly called adrenaline to constrict the blood vessels in the scalp and minimize blood loss.
- The craniofacial surgeon makes a wavy "stealth" incision using a special disposable blade, which uses radio frequencies to cauterize the blood as it cuts. This type of incision makes sure the hair won't part along a straight line scar in the future.
- In cases of sagittal craniosynostosis, the surgeon performs a strip craniectomy and the bone is reshaped within the skull.
- In other forms of synostosis, the surgeon removes a section of fused skull, reshapes it and replaces it in your baby's skull.
- The surgeon positions the reshaped bones using resorbable materials, which dissolve over the next nine to 14 months.

Resorbable materials benefit your child during surgery, because their use increases the surgical team's speed and efficiency. The less time it takes for the surgery, the greater the likelihood your child won't need a transfusion.

Typically 90 percent of babies having craniosynostosis surgery need a transfusion. But because of a groundbreaking technique developed by craniofacial specialists at Gillette, babies having craniosynostosis surgery at Gillette rarely requires a blood transfusion. Without a blood transfusion, your child avoids the risk of bloodborne pathogens, transfusion reactions and fevers that extend hospitalization.

After Surgery

Immediately After Craniosynostosis Surgery

After the craniostygnosis surgery is complete, you meet with the surgeon to discuss the procedure. Soon after that, you join your baby in the [Pediatric Intensive Care Unit \(PICU\)](#). Usually, babies are sleepy and their eyes are swollen shut.

Your child might be wearing some items to help protect them from bothering the surgical sites, including arm restraints, which will come off once your child is awake and alert and/or a turban dressing on their head. Your child might have multiple IVs, or in rare cases, a drain in their scalp to remove excess fluid that isn't initially absorbed after surgery.

Your baby will likely return to regular feeding habits quickly, either by the time they leave the hospital or as soon as they are able.

During the Remainder of the Hospital Stay

Your child will remain in the PICU overnight until stable enough to go to a general care unit—usually the day after surgery.

Care team members visit your child each day during the hospital stay and you'll get daily updates about your baby's condition.

Most children are released from the hospital three to four days after surgery. Before you go home, we'll answer your questions and give you detailed instructions to care for your baby once you get home.

Going Home

As swelling eases during the first few weeks after surgery, it's normal for your baby to have disturbed sleep schedules. Your child might be given acetaminophen and pain medication to increase comfort. You'll likely need to supervise your baby closely while they recover at home.

Return Appointments

About three weeks after surgery, you'll return for the first postoperative visit. During this appointment, the craniofacial surgeons and neurosurgeons examine the incisions and address any concerns you might have.

The next postoperative visit usually occurs at six to nine months after surgery. In most cases, we'll schedule evaluations once a year thereafter, until a surgeon determines care is no longer needed.

Nine to 14 months after surgery, the resorbable materials used in surgery are replaced by your child's own cranial bone. Although lumps sometimes are visible under the skin near the surgical sites, they should gradually disappear.

Integrated Care

Craniosynostosis surgery requires care from an interdisciplinary team of experts. At Gillette, you'll be working with the region's top pediatric specialists in craniofacial and plastic surgery and neurosurgery. Our innovative team is pioneering craniostygnosis surgery, from offering transfusion-less methods of surgery to using resorbable fixation technology.

As one of the region's leading facilities for correcting craniostygnosis with this surgery, your family will benefit from

comprehensive services throughout the diagnosis and treatment process. You might work with specialists in:

- [Craniofacial and plastic surgery.](#)
- [Dentistry and orthodontics.](#)
- [Medical genetics and genetic counseling.](#)
- [Neurosurgery.](#)
- Ophthalmology.
- [Pediatrics and general medicine.](#)
- [Pediatric intensive care.](#)
- [Physical therapy.](#)
- [Radiology and imaging.](#)
- [Audiology.](#)
- [Chaplaincy.](#)
- [Child life.](#)
- [Social work.](#)

Explore Craniosynostosis Surgery Resources

- Learn about craniofacial conditions at [FACES: The National Craniofacial Association.](#)

[Make An Appointment](#) [651-290-8707](#)

This information is for educational purposes only. It is not intended to replace the advice of your health care providers. If you have any questions, talk with your doctor or others on your health care team.

If you are a Gillette patient with urgent questions or concerns, please contact Telehealth Nursing at [651-229-3890](#).