

The Vanderbilt Cleft and Craniofacial Team

Craniosynostosis means that the bones in a baby's skull grow together too early.

In normal development, a baby's skull has spaces between sections of bone. The spaces, called sutures, contain material that's softer than bone. They let the baby's skull expand as the brain grows. When a child is about 2 years old, the bony sections of skull start to fuse together and the sutures harden into bone; the sutures "close." In craniosynostosis, one or more of the sutures close too soon. It happens in about 1 in every 2,000 live births. There are many types of craniosynostosis. The types are named by which suture or sutures are involved, and by how the shape of the skull is changed. Craniosynostosis can cause:

- Problems with normal brain and skull growth
- More pressure than normal inside the head
- Skull or facial bones to become irregular in shape

Craniosynostosis

Vanderbilt Children's Cleft and Craniofacial Program

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What causes craniosynostosis?

Usually, craniosynostosis happens by chance. But it may also be inherited. Some babies we treat have a craniosynostosis syndrome, such as Apert's, Crouzon's, Pfeiffer's or Muenke's.

How do we treat craniosynostosis?

The main treatment for craniosynostosis is surgery. The goal is to fix the deformities of the face and skull bones, and ease pressure in the skull. It's usually best for your baby to have surgery before age 1, because the bones are still soft and the deformities are easier to repair than they would be later. Most surgeries are done between 3 and 8 months of age.

There are different surgeries for craniosynostosis. Our surgeons will help you decide the best option for your child. The baby's age is the most important factor when deciding which type of surgery is best:

• Endoscopic-assisted craniosynostosis repair: This is for babies 2 to 5 months of age. Typically, the surgeons operate through one or two small incisions (cuts) in the skull to remove the fused suture. This surgery typically lasts one to two hours, and it rarely requires a blood transfusion.

Your baby will stay one night in the Intensive Care Unit (ICU). These babies often go home the day after surgery. Parents or caregivers can stay in the same hospital room while the baby is with us. After surgery, your baby will need to wear a custom-made helmet for six to nine months. The helmet helps give your baby a more normal head shape.

• Open cranial vault remodeling: This surgery involves a hidden incision in the hairline across the scalp. Surgeons reshape bones to give the skull a more normal appearance. Open CVR takes four to five hours and sometimes requires a blood transfusion. Afterward, your baby will probably spend three to five days in the hospital. A molding helmet is not usually needed after this procedure.

• Cranial vault distraction: For more complex cases, this surgery places a device in the baby's skull that allows the brain to expand and new skull bone to form.

At Vanderbilt, we work as a team and customize care for each baby. Our specialists will meet with you to discuss which surgery is best for your child. Treatment depends on your baby's age, symptoms, general health and the severity of the craniosynostosis.

Why choose Vanderbilt Children's Hospital for craniosynostosis surgery

Experience: The Vanderbilt Cleft and Craniofacial Program has a 30-year history of patient care, outstanding results and continued improvement. We perform nearly 100 craniosynostosis and related skull surgeries every year. Because we do so many, our team has a great deal of experience, which means your baby gets the best possible care. Fewer than half of children undergoing open cranial vault remodeling at Vanderbilt require a blood transfusion. Fewer than 1 percent undergo endoscopic repair.

Teamwork: Our Craniofacial Surgery Program, which includes board-certified specialists from plastic craniofacial surgery, neurosurgery and a dedicated pediatric anesthesia team, ensures the highest level of safety and efficiency in and out of the operating room. Our peri-operative nurses and child life specialists are with patients every step of the way to ensure an anxiety-free experience.

Should a child have medically complex or syndromic craniosynostosis, additional team members are able to assist. Together, we champion each child receiving the medical care they need. Team members offer an extraordinary level of expertise and have trained at some of the most renowned fellowships in the country, including Emory, Johns Hopkins, New York University and the University of Pittsburgh. With a full-time research coordinator and a dedicated surgical outcomes group (SOCKS), we have published more than 30 articles about craniosynostosis and craniofacial disorders.

The team: Our pediatric neurosurgeon and plastic craniofacial surgeon perform surgery together. Our physician assistant, Clare Gargaro, and nurse practitioner, Hayley Vance, see patients while they are in the hospital and coordinates their medical care with the team of providers. Dr. Kevin Kelly and Dr. Michael Golinko are the plastic craniofacial surgeons. Dr. Chris Bonfield is the team neurosurgeon and Dr. Srijaya Reddy is our lead craniofacial anesthesiologist.

Together, our team members provide a compassionate, patient-based approach and offer multiple treatments for craniosynostosis and associated syndromes. Not only do they excel in caring for each patient, but they are passionate about improving care for all children with craniofacial differences.



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