

Cochlear implant surgery: information for parents and carers

This leaflet aims to answer your questions about having cochlear implant surgery. It explains the benefits, risks and alternatives, as well as what you can expect when you come to hospital.

If you have any further questions, please speak to a doctor or nurse caring for you.

What is a cochlear implant?

A cochlear implant is a surgically implanted hearing device used in the rehabilitation of people with a significant hearing loss. Cochlear implant systems have both internal and external components. The external components include a speech processor, a transmitting coil, and a microphone. The surgically implanted internal components include a receiver and an electrode array.

How does a cochlear implant work?

1. Sounds are picked up by the microphone and sent to the speech processor.
2. The speech processor filters the sound into electrically coded signals.
3. The coded signals are sent to the transmitting coil and through the skin to the implanted receiver.
4. The receiver electrically activates the electrode array which in turn stimulates the fibers within the cochlea.
5. Nerve impulses are sent to the brain where they are interpreted as sound.

*image used with permission from Cochlear Corporation's Literature



What are the benefits of a cochlear implant?

Cochlear implants can provide access to a wide range of environmental sounds and the full spectrum of speech sounds. They do not restore normal hearing.

For deaf children, cochlear implants can provide an opportunity to develop listening and spoken language skills. In the long term, cochlear implants can provide benefits in terms of children's educational achievement, social independence and quality of life.

The outcomes for each child vary and depend on many factors which include: their duration of deafness, their age at implantation, the presence of any anatomical abnormalities or additional difficulties, and the support they get at home/school.

The expected outcomes for your child will have been discussed with you during the course of the assessment.

What are the risks?

Your child will have a general anaesthetic and therefore be asleep for the cochlear implant surgery. Your child's anaesthetist is a very experienced doctor who is trained to deal with any complications. The leaflet, **Your child's anaesthetic**, has more information. Please ask us for a copy if you don't have one.

Every operation carries a small risk of infection and bleeding. Your child will be given an antibiotic injection during their operation to reduce the risk of infection. Immediately after the operation, some children may feel sick and vomit. They may also feel dizzy after the operation because the balance systems of the ear may be disturbed during surgery but this will get better. There is also a small chance that your child could have ringing in the ears (tinnitus) for a while after the operation. This is temporary and will improve in time. These side effects do not usually last long and are not severe.

There is a small risk that the operation may damage the facial nerve, which runs through the ear. This could result in facial palsy, which is a weakness of the muscles down one side of the face. Less than 1 in 100 children may develop this. Facial nerve monitoring is used during the operation to lower the chance of problems happening. The nerve which gives taste sensations from the tongue to the brain is also very occasionally damaged, resulting in taste disturbances to that part of the tongue after the operation. This is usually not severe and will get better with time.

There is a very small risk of cerebrospinal fluid leak (a leak of fluid surrounding the brain). This could lead to meningitis, but the risk is small. The risk is lowered by having a vaccination before the surgery and having antibiotics during and after the operation.

There is a small chance that the surgeon may sometimes not be able to insert all electrodes into the inner ear. The cochlear implant may be used to give the sensation of hearing as long as some electrodes are inserted. There is also a very small risk the device may fail and may need removing or replacing.

Are there other alternatives?

Your child could continue to wear their hearing aids and make the most of their limited access to speech with specialist teaching and support. Sign language could be used to support your child's language development.

Giving my consent (permission)

The staff caring for you may need to ask your permission to perform a particular treatment or investigation. You will be asked to sign a consent form that says you have agreed to the treatment and that you understand the benefits, risks and alternatives. If there is anything you don't understand or you need more time to think about it, please tell the staff caring for you.

Remember, it is your decision. You can change your mind at any time, even if you have signed the consent form. Let staff know immediately if you change your mind. Your wishes will be respected at all times. If you would like to read our consent policy, please tell a member of staff.

How can I prepare for cochlear implant surgery?

Play doctors and nurses at home. You can practise putting bandages on each other. Do not allow children do to this unsupervised.

Bring pyjamas for your child with buttons down the front. This will make it easier to put them on over the head bandage after surgery. Bring along some things to entertain yourself during surgery.

You may want to bring some food with you. There are shops in and near to the hospital, but if there's something you or your child particularly like, bring it with you. There is a refrigerator on the ward to store small amounts of food.

Decide which parent will stay on the ward overnight. The surgery will involve staying at the hospital for at least one night but possibly two. Make arrangements for other children who will still be at home.

The Ear, Nose and Throat (ENT) admissions team will contact you about your child's surgery date. If you live a long way from the hospital, please ask the ENT admissions team to arrange accommodation the night before the operation. One adult can stay with the child in the accommodation.

The pre-admissions check

The admissions team will ask you to bring your child to hospital either a few weeks before his/her operation date or the day before. This is to make sure your child is medically fit for surgery. The pre-admissions check will be done by a doctor on the Arctic Day Unit, in the Evelina London Children's Hospital (based at St Thomas' Hospital).

The day of surgery

If your child has a morning surgery slot, you will need to be at the Evelina London Children's Hospital by **7.30am**.

If your child has an afternoon surgery slot, you will need to be at the Evelina London Children's Hospital by **11.00am**.

Remember, your child should **not eat food for at least six hours before surgery**, and should **not drink anything, including water, for at least two hours before surgery** as it would interfere with the general anaesthetic.

Go to **Mountain Floor** when you arrive at the Evelina London Children's Hospital.

What happens during the surgery?

The nurses will take your child down to the operating room. You can stay with your child until he/she has been given the general anaesthetic and is asleep.

The surgery takes about four hours for one cochlear implant and seven hours for bilateral (two sided) cochlear implants.

When your child is asleep under anaesthetic, a small area of the hair behind the ear will be shaved. This will allow the area to stay clean during the operation. A cut will be made in the crease behind the ear and a bony tunnel will be drilled to the middle ear where the entrance to the cochlea is found.

A 'bed' for the implant is made by drilling away some bone on the surface of your child's head. This is so that the implant lies flat on the head and does not leave a bump.

The natural opening to the cochlea is opened and the implant electrode is very carefully threaded into the cochlea. Whilst your child is still asleep, the cochlear implant is tested by the audiologist to make sure that it is working well. Once this is done, the wound is closed with dissolvable stitches which do not need to be removed.

A large bandage is put on the head which can come off the next day.

During surgery you can wait on the ward or go for a walk. If you leave the hospital, please leave your mobile phone number with the nursing staff. They will call you when the surgery is finished and your child is being moved to the recovery room. You can be with your child when he/she wakes up from the general anaesthetic.

Will my child feel any pain?

Cochlear implant surgery causes little pain. If necessary, children can be given paracetamol as pain relief.

What happens after the surgery?

Your child will go back to the ward once he/she has recovered from the anaesthetic. A pressure bandage will be around his/her head to help with healing.

Your child may feel sleepy for the rest of the day. He/she might also feel sick in the tummy or vomit as a result of the general anaesthetic.



The day after surgery

Your child will be feeling better and more active. Most children are back to their normal self after 24 to 36 hours. They may be hungry as they were not able to eat much the day before. The doctor will come to see your child and will remove the pressure bandage.



Your child can go home when he/she is feeling well, eating and drinking normally and has no raised temperature. This is usually after one or two nights in hospital.

What do I need to do at home?

You will get an information sheet about what your child can and can't do over the next few weeks. These things are very important.

- **Do not** wash your child's hair or get the implant site wet before you attend the follow-up appointment.
- **Do not** try to clean the wound.
- **Do not** send your child to school/nursery until they have attended the follow-up appointment.
- Try to keep your child from bumping their head and rough play.

What should I do if I have a problem?

If you experience any of the following, please see your GP or contact your local Accident and Emergency (A&E) Department immediately:

- severe pain
- persistent swelling or oozing around the wound
- high fever (temperature higher than 37.5)
- headache
- discomfort looking into bright lights
- stiff neck
- confusion
- vomiting
- facial weakness.

Will there be a follow-up appointment?

Your child will have a follow-up appointment approximately 10 days after surgery in the ENT Department of St Thomas' Hospital. The doctors will tell you about further management and care at this appointment. The external (outer) parts of the cochlear implant device will not be fitted for three to five weeks after surgery to allow for healing.

Contact us

If you have any questions or concerns about cochlear implant surgery, please contact the cochlear implant team in the Audiology Department on 020 7188 6245 (Monday to Friday, 9am to 5pm).

If there is an emergency out of hours, please contact your local Accident & Emergency (A&E) Department.

Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

t: 020 7188 8748 9am to 5pm, Monday to Friday

Patient Advice and Liaison Service (PALS)

To make comments or raise concerns about the Trust's services, please contact PALS. Ask a member of staff to direct you to the PALS office or:

e: 020 7188 8801 at St Thomas' **t:** 020 7188 8803 at Guy's **e:** pals@gstt.nhs.uk

Knowledge & Information Centre (KIC)

For more information about health conditions, support groups and local services, or to search the internet and send emails, please visit the KIC on the Ground Floor, North Wing, St Thomas' Hospital. **t:** 020 7188 3416

Language support services

If you need an interpreter or information about your care in a different language or format, please get in touch using the following contact details.

t: 020 7188 8815 **fax:** 020 7188 5953

NHS Direct

Offers health information and advice from specially trained nurses over the phone 24 hours a day. **t:** 0845 4647 **w:** www.nhsdirect.nhs.uk

NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health. **w:** www.nhs.uk

Become a member of your local hospitals, and help shape our future

Membership is free and it is completely up to you how much you get involved. To become a member of our Foundation Trust, you need to be 18 years of age or over, live in Lambeth, Southwark, Lewisham, Wandsworth or Westminster or have been a patient at either hospital in the last five years. To join:

t: 0848 143 4017 **e:** members@gstt.nhs.uk **w:** www.guysandstthomas.nhs.uk

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