

CARDIFF PAEDIATRIC COCHLEAR IMPLANT PROGRAMME

INFORMATION ON GETTING A COCHEAR IMPLANT



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This leaflet will give information about what happens when someone comes into the hospital to talk about cochlear implants. Cochlear implants are offered to people when hearing aids do not help them to hear sounds as well as they would like to.

What is a cochlear implant?



A cochlear implant system works by changing sound into electrical signals and has two parts. The two parts are called the processor and the implant. The processor is worn on the ear like a hearing aid and has a plastic coil that can stay on the head. The implant also has a coil and is placed under the skin along with a flexible cable that goes inside the cochlear. The two coils stay on the head using magnets.

How does a cochlear implant work?

1. Sounds are picked up by a microphone on the processor which changes the sound into electrical signals.
2. The signals are sent to the coil on the head which travels across the skin by radio waves.
3. The signal then arrives to the coil under the skin and sent to the implant.
4. These electrical signals are delivered to different points of the implant called electrodes.
5. The electrodes excite the nerve fibres in the cochlear which then send the information to the brain to understand sound.

A cochlear implant only helps a child to hear sounds when it is worn. It does not give normal hearing. When the processor is not worn, the child will not be able to hear anything.

Who can have a cochlear implant?

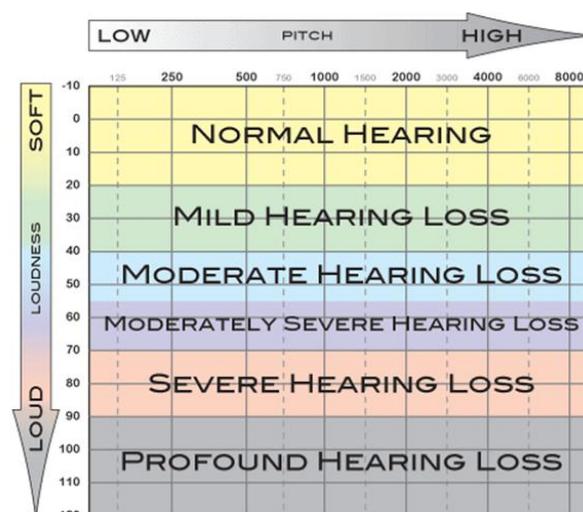
- Babies who are as young as 1 year old can come to the hospital and see if they can have a cochlear implant.
- Children who are losing their hearing or have lost a lot of their hearing can come and talk about cochlear implants.
- Children who have difficulty understanding because of their health and other needs can also come and talk about cochlear implants.

Who do I come and talk to?

There is a team of people that work in the cochlear implant department and do different jobs to decide if a child can have a cochlear implant. In the team, there are doctors, audiologists, a speech and language therapist and a teacher of the deaf. A child can have an appointment to come and talk to the team and ask any questions about cochlear implants.

How does the cochlear implant team decide if I can have a cochlear implant?

- An audiologist will do a hearing test and look to see how much hearing has been lost and measured in decibels. They may decide that a hearing aid can help a child to hear sounds and so a cochlear implant will not be needed. However, if a child has lost too much hearing then the audiologist might suggest a cochlear implant. The amount of hearing that has been lost will be shown on a graph like the one below.



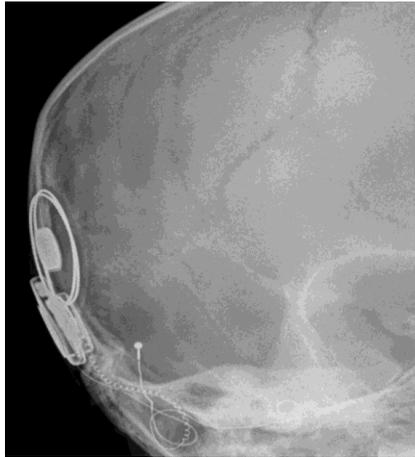
- A doctor will try to find out why a child has lost their hearing by doing different medical checks. They will look at an X-ray and make sure there are no problems with the nerves and bones inside the ear. If a child can have a cochlear implant then the doctor will do the operation.
- A teacher of the deaf and a speech and language therapist can do different tests to see how well a child can hear at home and in school and how well a child communicates with people. They can also decide if a cochlear implant would help a child communicate and explain how to learn to listen with the system.
- The cochlear implant team will explain to a child's family about coming to the hospital regularly to meet different people for different tests. The cochlear implant team will show how to use the cochlear implant system and how important it is to look after it. They will also make sure the family understand that they have to make the time to work with the cochlear implant team.
- The cochlear implant team can arrange for a child to meet another child that has already had a cochlear implant so the families can talk about what happens and what to imagine when they get a cochlear implant.

If the team decide that a cochlear implant is not suitable for a child then they will be advised to continue using hearing aids. If the team decide that a child is suitable for a cochlear implant then the family will be offered this when they come back to clinic. The family will be told when they may have a date for the operation.

What happens during the operation?

On the day of the operation, the doctor will come to the ward and talk to the family to explain what will happen. The child will be taken to theatre to be put to sleep for the operation. The operation lasts between 2 -3 hours (sometimes longer when a child has two implants) so a child will need to stay in hospital for one night.

During the operation, the implant is placed under the skin and the electrodes are inserted into the cochlear. The skin is closed with stitches that automatically fall out and a bandage is wrapped around the head to cover the ears for safety reasons. After the operation, the child is taken back to the ward. The day after the operation, the doctor will come and check the ear and arrange for an x-ray to be done to check where the implant is inside the ear.



When the x-ray has been done and the child is feeling well they can go home. An appointment will be given for the child to come to hospital 1 week after the operation to check the ear again. It is normal for the cut to look a little red but this will settle in time.



What happens after the operation?

Three weeks after the operation, the child will have the chance to come to clinic and talk about what happens when the cochlear implant is switched on. They can take the processors home and practice using them. The processors are switched on four weeks after the operation.

On the day of 'switch on', the processor will be turned on for the child to start to hear with it. An audiologist will connect the processor to the computer using a lead and play different sounds to check what the child can hear. When all the checks are finished, the processor will be switched on quietly. If the child is comfortable with the sound then the volume will be turned up.

The child will have weekly appointments in the first month to come to hospital and check everything is working well with the cochlear implant. The processor setting may be adjusted regularly to make sure sounds are comfortable and the child is hearing well.

Rehabilitation

Rehabilitation is a way of practicing to learn to listen. It is done by the teacher of the deaf and speech and language therapist. A child will have rehabilitation lessons in school or at home every 2-4 weeks over a few months.

Rehabilitation will help a child learn how to hear with the cochlear implant and recognise different sounds. A child will practice listening to everyday sounds, words and phrases. Some children will learn how to listen quicker than other children but the rehabilitation team will prepare listening programmes for each child separately.

Rehabilitation will continue for five years but will be less often as the child gets older.

