Evidence tells us...

That cochlear implantation enables most deaf children to:
- acquire and understand spoken language, speak intelligibly and use the telephone.
- have improved literacy and educational attainments.
- attend mainstream schools.

That deafened adults can:
- gain confidence in communication
- regain independence in everyday life.
- improve speech intelligibility
- use the telephone.

That born deaf adults:
- can benefit and change their communication choices.

When hearing aids are not enough?

When hearing aids are not providing enough – there are a number of options, including cochlear implants and electro-acoustic hearing aids.

The starting point is careful and expert audiological testing and it is essential to explore what benefit the child or adult is receiving through their hearing aids. Tests of speech understanding are important to include when assessing older children and adults.

Some children have unusual or complex audiograms and they respond to speech with their aids but nevertheless they should be considered; the diagram shows the trend in audiological terms.

Did you know?

- There are about 13,000 implant users in the UK and about 650 adults and 650 children are implanted each year (www.bcig.org.uk)
- The majority of profoundly deaf children in the UK have an implant
- Only about 5% of those adults who might be able to benefit from an implant are currently getting one
- Cochlear implantation is safe, and reliable with low levels of complications, including in infants
- Cochlear implantation is cost effective, both for adults, including those over 70, and for children
- The earlier children are implanted, the better the outcomes
- Implantation soon after onset of deafness is more effective in older children and adults
- Young people continue to wear their implants, to value them and choose re-implantation should the device break down
- There is evidence of benefit in those with severe hearing losses, not only profound losses
- Children with complex needs can benefit from implantation
- Those who are born deaf or have been deafened early in life and implanted as adults can also benefit
- Electroacoustic aids now provide combined benefits of implants and aid for those with low frequency hearing
- MRI scans are compatible with some cochlear implants
What is a Cochlear Implant?

Cochlear implants provide useful hearing to adults and children who get little or no benefit from a hearing aid. They consist of:

- **The internal part:** the receiver, surgically implanted in the mastoid bone behind the ear, with electrodes inserted into the inner ear, (cochlea).

- **The external part:** the microphone and speech processor convert sound into an electrical signal which is sent to the electrodes in the inner ear. These then send the signal through the auditory nerve to the brain, where it is perceived as sound.

Two ears: better than one?

Two ears enable us to listen more effectively in noise and to localise where sounds are coming from. This is important for understanding conversation in everyday life. We can provide two hearing aids, hearing aid plus implant, or two implants. We know that:

- increasing evidence shows improved listening in noise after bilateral implantation
- children with unilateral hearing have difficulty in listening in class, with implications for educational attainments and for behaviour
- those with some residual hearing benefit from wearing a hearing aid and an implant
- bilateral implantation is routine from an early age in many European countries and in the USA
- increasing evidence shows improved localisation abilities after bilateral implantation
- simultaneous bilateral implantation is most effective, early in life, or soon following hearing loss
- sequential implantation has been shown it can be effective, particularly when there is a short time between the two surgeries and when the first implant was early in life
- early bilateral implantation significantly improves communication and skill development compared with unilateral.

What about those with single-sided deafness?

We know that deafness in one ear can cause difficulties, particularly in listening in noisy situations, such as the classroom, a busy office or shop. There is increasing interest in thinking about cochlear implantation for those with single-sided deafness in order to provide benefit.
What about those with useful low frequency hearing?

In the past those with low frequency hearing were often not considered for implantation as the risk of losing this hearing was too great.

Now, more and more are considering devices with use both electrical and acoustic stimulation thus providing high frequency information and preserving the low frequency hearing through a combination of hearing aid and cochlear implant technologies.
What if you already have an implant?

Technology is being updated regularly – processors, and more and more accessories are available to help you in noisy situations, listen to music or swim for example.

You may wish to think about aggravating devices such as an FM system which can help in groups and in noise.

See the Sound Advice service at The Ear Foundation.

Avoiding and dealing with problems

Avoiding and dealing with problems or difficulties is a key part of cochlear implantation.

You should ensure you have a clear idea of what to expect before you have a cochlear implant.

There are many different types of cochlear implant, but the main types are:

• Primary
• Secondary

Each centre will have its own specialist team and information about its services.

Benchmarking practice and outcomes – how and when?

Cochlear Implant centres should provide a minimum data set in order that practice is monitored and progress is benchmarked.

Some implant centres provide progress reports, showing for example:

• Numbers implanted, by age, complexity and devices used
• Explants and reasons: re-implantations and reasons
• Surgical complications, infection and failure rates
• Numbers wearing implant systems, by year after implantation
• Indications of progress over time – measures of speech perception and production.

Who is already helped by cochlear implants?

We need to be kept up to date with what is available.

Technical advice and support

Technical advice and support is available from cochlear implant manufacturers.

The names and contact details of cochlear implant centres in the UK can be found at

www.bcig.org.uk

Each centre has its own specialist team and information about its services.

Useful Guidelines and Quality Standards

Useful information about cochlear implants available from:

Action on Hearing Loss

www.actiononhearingloss.org.uk

British Association of Teachers of the Deaf

www.batod.org

The British Cochlear Implant Group

www.bcig.org.uk

Cochlear Implant Children’s Support Group

www.cicsgroup.org.uk

Hearing Link

www.hearinglink.org

National Cochlear Implant Users Association

www.ncuia.org.uk

National Deaf Children’s Society

www.ndcs.org.uk

www.earfoundation.org.uk

www.cochlear.com

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