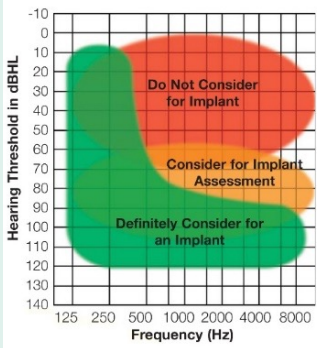


## WHEN TO CONSIDER CI?

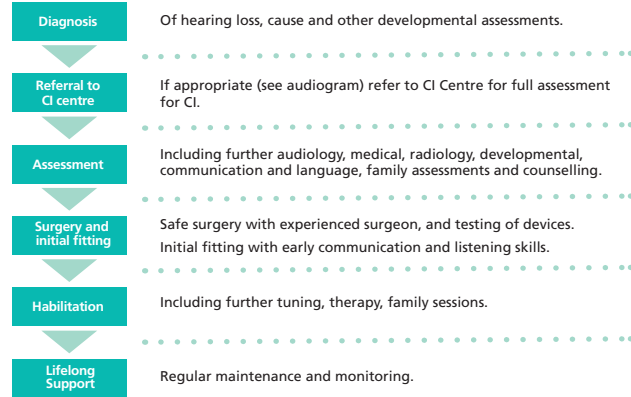
The following audiogram illustrates when a hearing aid may not be enough.



Let's ensure that cochlear implantation is available to all children who could benefit, with the lifelong services needed, wherever they live.

## THE COCHLEAR IMPLANT PATHWAY FOR CHILDREN

The cochlear implantation pathway involves assessments with a range of professionals in the CI team and ongoing care and maintenance. The pathway illustrates the lifelong programme which is needed, and which includes the child, family and their local supporting professionals, and continues into the world of work.



## CHILD CI ADVOCACY: BRIEFING

# COCHLEAR IMPLANTS FOR DEAF CHILDREN

Hearing is fundamental for children to acquire spoken language. Spoken language enables them to communicate, interact with their families and carers, learn and thrive. Addressing hearing loss early is crucial to ensure that children can develop and progress with their peers.

Today's hearing technologies, including cochlear implants, are effective, particularly if hearing loss is identified early and addressed.

- For children with greater degrees of hearing loss, cochlear implants (CI) provide useful hearing not possible with hearing aids.
- Cochlear implantation in children has been shown to be safe, effective and cost-effective.
- Over 300,000 children globally have received cochlear implants (industry estimate).

Cochlear implant is one of the most successful of all neural prostheses developed to date. (WRH, page 100)

Children with cochlear implants have greater likelihood of acquiring oral language, integrating into regular schools and being able to experience sounds along with better speech skills. (WHO, 2021, page 98)

However, not all children who could benefit have the access to CI or the support to fully benefit from their improved hearing.

As with hearing aids, issues such as high costs, and shortage of trained workforce and rehabilitation services, have resulted in their (CI) restricted accessibility to countries other than those in high-income groups – with considerable variation even within these. (WHO, 2021, P179)



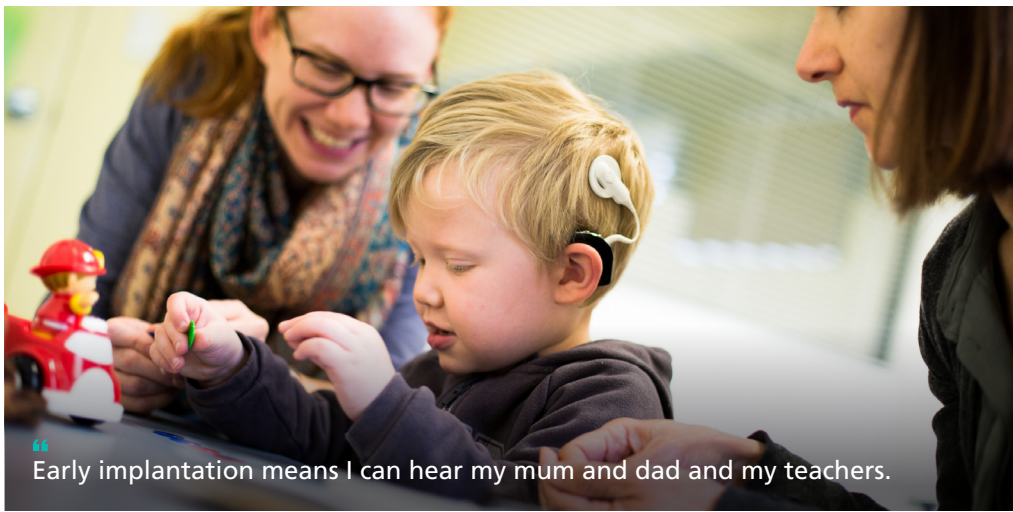
“ I can hear the singing.”

## RECOMMENDATIONS:

- Newborn hearing screening should be in place to allow early fitting of hearing aids and cochlear implants to take place, together with early intervention.
- Cochlear implantation should be considered for all those children with greater levels of hearing loss (see the audiogram guide).
- Children's implantation requires access to multi-professional skills including ear surgeons, audiologists, speech and language therapists, teachers of the deaf, psychologists.
- Children with CI require follow-up services, including regular programming of the system and regular habilitation, including communication and spoken language skills.
- Families and local professionals, including teachers and therapists should be involved in the ongoing care of children with CI.
- Following cochlear implantation, children need the opportunity to hear rich spoken language.
- Lifelong services are required, including managing the technology and the transitions to school, higher education and the world of work.
- Access to accessories to support the use of the CI system in education, work and home should be given.
- Family services, including peer to peer support and groups, facilitate the effective use of the CI system in communication.

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“Early implantation means I can hear my mum and dad and my teachers.”

### COCHLEAR IMPLANTATION IN CHILDREN, THE EVIDENCE TELLS US:

- Cochlear implantation in children has been shown to be safe, effective and reliable. (Sharma et al, 2020)
- Cochlear implantation enables children to acquire the spoken language of the home and to communicate with families and friends. (Sarant et al, 2015; Ching et al, 2018)
- The earlier implantation takes place the more effective it is and the more easily the brain makes sense of the new signal; implantation is safe in the first year of life. (Dettman et al., 2016)
- Newborn hearing screening enables hearing aids to be fitted in the first months of life, and cochlear implants in the first year of life and family support and intervention to begin. (Yoshinaga-Itano et al, 2021)
- By providing access to spoken language, cochlear implantation has resulted in improved literacy levels and educational attainments and greater participation in mainstream education. (Archbold & Mayer, 2012; Mayer et al., 2021; Wang et al., 2021)
- In children, timely intervention with hearing aids and implants leads to better hearing, spoken communication and quality of life, which further translates into better educational outcomes. (WHO, 2021, page 103)
- Teenagers who have made use of hearing aids, and whose hearing is deteriorating may choose to have a cochlear implant and benefit.
- Children with complex needs can also benefit from cochlear implantation. (Hoff et al, 2019; Nasralla et al., 2018)
- Two implants are more effective than one, when provided simultaneously or with a short time gap. (Sharma et al., 2020)
- Children with CI require lifelong CI services, including family, educational support and management of their technology. (Archbold & O’Donoghue 2007; Davenport et al 2016)
- Cochlear implantation in children has also been proven to be cost-effective for society, reducing educational and other costs. A cost-effectiveness study for CI which included pre-lingually deaf children with bilateral CI concluded that this group had a lifetime positive outcome net benefit of 433,000 Euros. (Neve et al., 2021)

The WHO Report makes clear that cochlear implantation must only take place “where the supportive infrastructure for rehabilitation therapy exists.” and also points out the limited number of therapists or teachers of the deaf available to provide this, particularly in low and middle-income countries. (WHO, 2021, page 100)

### CHILDHOOD DEAFNESS: DID YOU KNOW?

- 34 million children have hearing loss. (WHO, 2021)
- Hearing begins in the womb: infants born deaf have already missed a period of auditory stimulation, the foundation of communication. (Kral & O’Donoghue, 2010)
- “The development of spoken language in children is directly related to their hearing ability. Most studies conducted on children with hearing loss show that they experience delayed speech and language development which are likely to continue into adulthood.” (WHO, 2021, page 45)
- “When deaf infants are unable to access language stimulation early in life, it poses a challenge for their overall development.” (WHO, 2021, page 45)
- The development of early communication skills and spoken language takes place through hearing the language of the home. (Moeller et al., 2013; Sarant et al., 2015)
- 95% of deaf children are born into hearing families where the language of the home is a spoken one. (Mitchell & Karchmer, 2004)
- It is estimated that between 30 and 40% of deaf children have another difficulty such as a language learning difficulty. (Fortnum et al, 2002)
- Early intervention is key to addressing childhood deafness and hearing loss. (Joint Committee on Infant Hearing, 2013)
- “Unless addressed in a timely manner, those with hearing loss have reduced school performance, slower progression through the academic system, a greater risk of dropping out of school, and lower likelihood of applying for higher education, compared with their hearing peers.” (WHO, 2021, page 46)



“Joining in with my friends.”

### WHAT IS A COCHLEAR IMPLANT?

A cochlear implant consists of two parts; the internal receiver which is surgically implanted into the cochlea, or inner ear, and the external part, with microphone, and processor.

The processor converts the sounds from the microphone into electrical signals which are then transmitted through the skin to the internal receiver, and from there up the auditory nerve to the brain.

