British Cochlear Implant Group
Proposed Position Statement on Guidelines for Paediatric Cochlear Implantation
April 2007

The following guidelines have been developed on the basis of an audit of current clinical practice within the UK. They represent most common practice which has developed within this dynamic field through consideration of published evidence and pro-active sharing of outcomes and clinical experience. It is acknowledged that the guidelines/criteria for implantation is a subject under active research internationally and, as this is a developing field, we expect these guidelines to develop further over time.

Hearing aid trial

Patients should undergo a minimum of 3 months use of optimised acoustic hearing aids, fitted to an appropriate hearing-aid prescription and optimised to the individual patient's needs as required [1,2].

Exceptions: Hearing aid trial would not be appropriate in post-meningitic or other cases of ossifying aetiology which meet the criteria on referral. Such cases will be fast-tracked to cochlear implantation (due to likelihood of cochlear ossification if implantation is delayed) [3]. Cases of sudden profound hearing loss should also be fast-tracked as appropriate.

Level of hearing loss

Candidates will typically present with a profound bilateral sensorineural hearing loss, i.e. hearing thresholds greater than 90 dB HL at 2 and 4kHz, as assessed by an experienced specialist paediatric audiologist/clinical scientist using age-appropriate tests [4-7]. Measuring hearing thresholds in children is subject to a test-retest reliability margin of +/-10dB [8,9].

However, children with lesser degrees of hearing loss who present with poor functional hearing, may also benefit from cochlear implantation. These will include groups such as those with auditory neuropathy, multi-sensory impairment (eg deaf-blind), highly fluctuating and progressive losses[11,12,13].

Speech and language

Candidates will be children who fail to develop, progress or maintain speech, language, communication and listening skills appropriate to age, development and cognitive ability, measured by a multi-disciplinary range of age appropriate assessments and questionnaires, including specialist speech and language therapist and teacher of the deaf assessments, and likely to benefit from access to increased audition [10].

Review of guidelines

These guidelines will be reviewed by BCIG on an annual basis, and may evolve according to developments in experience, technology and peer-reviewed published evidence-based outcomes.

1. McCormick & Archbold (2003) McCormick B, Archbold A Cochlear implants for young children 2nd Ed (2003)
2. Beiter AL, Staller SJ, Dowell RC Evaluation and device programming in children. Ear and Hearing 12 (supp.4): 25s-34s (1991)
3. Aschendorf A, Klenzer T & Laszig R: Deafness after bacterial meningitis: an emergency for early imaging and cochlear implant surgery
4. Fitzpatrick E, McCrea R, Schramm D: A retrospective study of cochlear implant outcomes in children with residual hearing. BMC Ear, Nose and Throat Disorders 2006: 6:7
5. Dettman SJ, D'Costa WA, Dowell RC, Winton SJ, Hill KL Williams SS: Cochlear Implants for Children with Significant Residual Hearing. Archives of Otolaryngology, Head & Neck Surgery 2004. 130, 612-619
6. Dolan-Ash S, Hodges AV, Butts SL, Balkany TJ: Borderline paediatric cochlear implant candidates: pre-operative and post-operative results. Archives of Otolaryngology, Head & Neck Surgery 2000, 109 (suppl 185): 35-38
7. Gantz BJ, Rubenstein JT, Tyler RS, Teagle HF, Cohen NL, Waltzman SB: Long-term results of cochlear implants in children with residual hearing. Annals of Otology, Rhinology and Laryngology, Suppl 2000, 185:33-36
8. Hoverstein G, Lowell EL, Rushford G, Stoner M Evaluation of pure tone audiometry with preschool age children Journal of Speech and Hearing Disorders 21 (3) 292-302 (1956)
9. Benyon GJ & Munro K. Measurement of variability in sound field audiometry due to subject movement. British Journal of Audiology 1995 Oct: 29(5) 285-91
10. Waltzman SB: Cochlear implants: current status. Expert. Rev. Med. Devices 2006 Sep; 3(5) 649-55
11. Wiley S, Jahnke M, Meinzen-Derr J, Choo D Perceived qualitative benefits of cochlear implants in children with multi-handicaps. Int J Pediatr Otorhinolaryngol 69(6):791-8 (2005)
12. Shallop JK, Person MA et al: Cochlear implants in 5 cases of auditory neropathy: post-operative findins and progress
13. Berlin CI, Morlet T et al: Auditory neuropathy/dyssynchrony – it's diagnosis and management: Paediatric Clinics of North America 50 (2003) 311-340

British Cochlear Implant Group
Proposed Position Statement on Guidelines for Adult Cochlear Implantation
April 2007

The following guidelines have been developed on the basis of an audit of current clinical practice within the UK. They represent most common practice which has developed within this dynamic field through consideration of published evidence and pro-active sharing of outcomes and clinical experience. It is acknowledged that guidelines/criteria for implantation is a subject under active research international and, as a developing field, we expect these guidelines to develop further over time.

Hearing aid trial
Patients should undergo a minimum of 3 months use of optimised acoustic hearing aids, fitted to an appropriate hearing-aid prescription and optimised to the individual patient's needs as required [1].

Exceptions: Hearing aid trial would not be appropriate in post-meningitic or other cases of ossifying aetiology which meet the criteria on referral. Such cases will be fast-tracked to cochlear implantation (due to likelihood of cochlear ossification if implantation is delayed) [3]. Cases of sudden profound hearing loss should also be fast-tracked as appropriate.

Level of hearing loss
Candidates will present with severe to profound bilateral sensorineural hearing loss, typically >90dBHL, at 2 and 4kHz, as measured by an experienced specialist audiologist/clinical scientist. Measuring hearing thresholds in adults is subject to a test-retest reliability margin of +/-5dBHL. Therefore, adults may display hearing thresholds within a 10dB range when assessed over a number of test occasions.

However, adults with lower degrees of hearing loss who present with poor functional hearing, may also benefit from cochlear implantation. These will include groups such as those with auditory neuropathy, multi-sensory impairment (eg deaf-blind), highly fluctuating and progressive losses.

Age and duration of deafness
There is no upper age limit for candidature for cochlear implantation; patients need to be medically fit for surgery. Duration of profound deafness should be considered on an individual basis.

Speech and language
Candidates will fail to maintain adequate speech, language, communication and listening skills, measured by a multi-disciplinary range of assessments and questionnaires, including specialist speech and language therapist and hearing therapy, and likely to benefit from access to increased audition.

Typically, candidates will identify fewer than 50% (+/- 15% test-retest reliability) of key words correctly when the IHR/UCL recording of the BKB Sentence Test is presented at a level of 70dB(A), without lip reading. Patients with better scores, however, should be considered if other measures of their functional hearing demonstrate significant difficulty which is likely to benefit from access to increased audition, in the opinion of the specialist professional team. This will include groups such as those with auditory neuropathy, multi-sensory impairment (eg deaf-blind), highly fluctuating and progressive losses (eg Meniere's disease).

Review of guidelines
These guidelines will be reviewed by BCIG on an annual basis, and may evolve according to developments in experience, technology and peer-reviewed published evidence-based outcomes.

1. UKCISG United Kingdom Cochlear Implant Study Group) (2004a) Theories and Measures of effectiveness: Ear and Hearing 25 310 – 335
2. Aschendorf A, Klenzer T & Laszig R: Deafness after bacterial meningitis: an emergency for early imaging and cochlear implant surgery
3. Criteria of Candidacy for Unilateral Cochlear Implantation in Postlingually Deafened Adults III: Prospective Evaluation of an Actuarial Approach to Defining a Criterion: Ear and Hearing: 25(4):361-374 August 2004 UK Cochlear Implant Study Group.
4. Schmuziger N, Probst R, Smurzynski J. Test-retest reliability of pure-tone thresholds from 0.5 to 16 kHz using Sennheiser HDA 200 and Etymotic Research ER-2 earphones. Ear Hear. 2004 Apr;25(2):127-32.
5. Waltzman SB: Cochlear implants: current status. Expert. Rev. Med. Devices 2006 Sep; 3(5) 649-55