

# University of Southampton Auditory Implant Service

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# NICE TA 566: Cochlear Implants for Children and Adults with Severe to Profound Deafness (2019)

- Published 7 March 2019
- Only section 1.5 has changed
- 3 month grace period to give commissioners time to sort out additional funding

*(nb: USAIS commissioners have approved funding so USAIS can now accept referrals/re-referrals under the new criteria)*

## New guidance

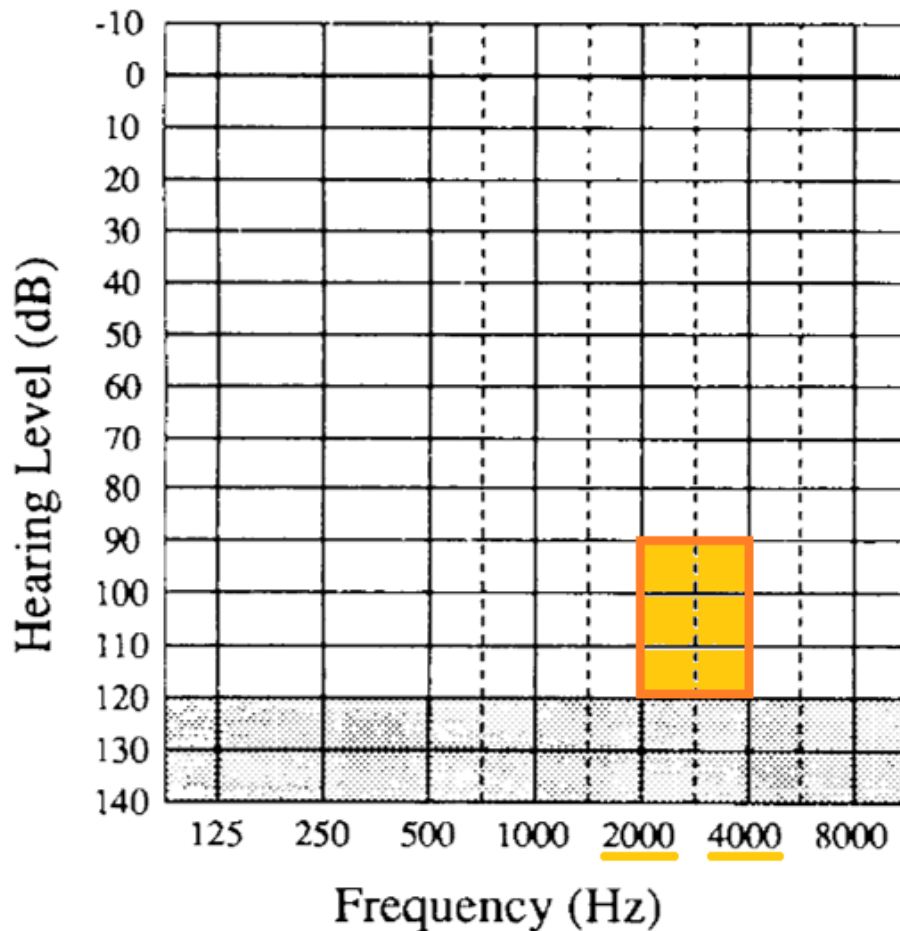
- $\geq 80$  dBHL at two or more frequencies out of 500 Hz, 1 kHz, 2 kHz, 3 kHz and 4 kHz in both ears
- Inadequate benefit from acoustic hearing aids defined as:
  - Children - speech, language and listening skills are not appropriate to age, development stage and cognitive ability
  - Adults - a phoneme score of  $<50\%$  on the AB word test presented at 70 dBA

## ANSD

- No change as normal NICE criteria do not apply. Patients with ANSD regardless of degree of hearing loss can be referred for CI assessment. There is a separate CI assessment pathway for children with ANSD.

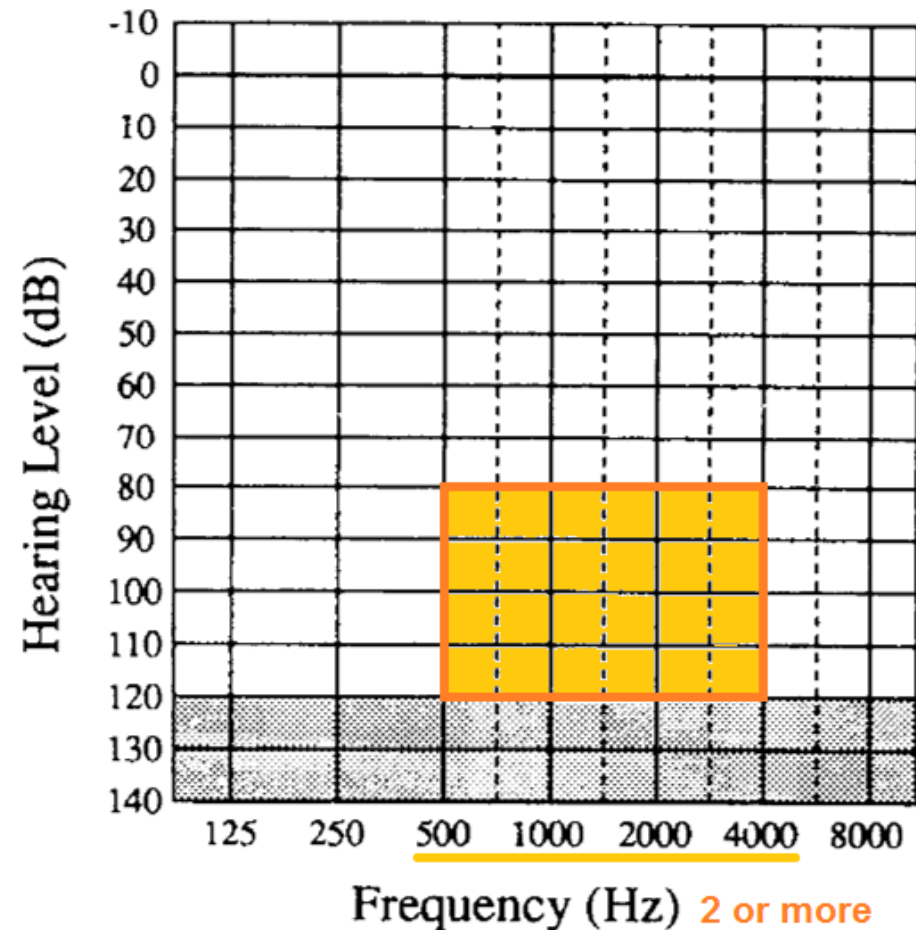
Old criteria:

$\geq 90$  dBHL at 2kHz AND 4kHz in both ears



New criteria:

$\geq 80$  dBHL at two or more frequencies out of 500Hz, 1kHz, 2kHz, 3kHz and 4kHz in both ears



# UNIVERSITY OF SOUTHAMPTON AUDITORY IMPLANT SERVICE

AUDITORY IMPLANT SERVICE



MAKING CONNECTIONS

# University of Southampton Auditory Implant Service (USAIS)

## Four locality teams:

- North – Swindon, Wiltshire, north Hants, Berkshire
- Central – south Hants, Surrey, Channel Islands
- West – Somerset, Dorset, south west Hants
- East – south east Hants, West Sussex, East Sussex

## Multi-disciplinary

Audiologists, Educational Audiologists, Teachers of the Deaf, Speech and Language Therapists, Hearing Therapists, Clinical Psychologists, ENT surgeons, BSL Interpreter/Deaf Services Advisor

Plus admin team, spares & repairs team, reception team

# North team

Team Lead	Sarah Baumann (Clinical Scientist - Audiology)
Clinical Scientist (Audiology)	Rebecca Ricaud
Senior Audiologist	Zoe Bevis
Educational Audiologist	Liz Parker
Teacher of the Deaf	Catherine Sammons
Speech and Language Therapist	Alex Archer
Hearing Therapist	Samantha Johnson
Surgeon (Salisbury Hospital)	Marcel Geyer

Clinical psychologists and the BSL interpreter work across all locality teams

# COCHLEAR IMPLANT ASSESSMENT PROCESS



# Referral process

- Usually referred via local audiology
- Please refer the child for an ECG (if not already done) as need to confirm no Long QT or similar heart condition is present before scans can be done under GA
- Referral acknowledged within 5 working days
- Patient seen for their first appointment within 6 weeks of the referral

# Assessment process

- Child is assigned a key contact when the referral is accepted
- Key contact (KC) is either an Educational Audiologist/Teacher of the Deaf or a Speech and Language Therapist
- Second worker is also assigned from the other specialism – ToD or SALT

# Assessment appointments

Initial audiology assessment – Audiologist & KC

Introduction to assessment – KC (assessment process & CI)

Initial medical assessment – ENT consultant/surgeon

Surgeon does referrals for:

- MRI and CT scans: cochlear anatomy, auditory nerve and brain
- ABR if required (usually combined with MRI and CT scans)
- Grommets (if required)

(If need a GA for scans, can't do them until the ECG is done)

Clinical psychology session – Clinical Psychologist

Communication assessment – EA/ToD & SALT

Additional audiology assessment if required – Audiologist & KC

Expectations session – pulling all the information together and discussing likely outcomes from a CI based on that info – KC

Device choice (if the family already know they wish to proceed and the team has no concerns about suitability for CI) - KC

Multi-disciplinary team decision to offer CI or not - Locality team

Patient/family accept or reject offer

(Device choice if not already done – KC)

Hospital planning (what to expect on op day) – KC

# Surgery

Pre-op medical at USAIS (a few days before the op) – Surgeon

Operation at Southampton General Hospital, or Queen Alexandra Hospital, Portsmouth. KC usually attends first thing in the morning to support the family/child

Post-op medical (10-14 days later) - Surgeon

# Main causes of delays on the road to implantation

- Waiting for the ECG to be done so we can do scans
- MRI and CT scans – hospital waiting lists
- Referral to paediatric radiology, paediatrician or neurology for an opinion if anything brain-related comes up on the MRI scan
- Ear infections and glue ear – may require grommet surgery. Cannot have CI surgery if have active ear infection or glue ear
- Child illness causing scans or surgery to be postponed
- Staff or bed shortages in hospitals leading to cancellations
- Availability of operating slots in the hospitals. Bilateral implantation takes 6-8 hours

# (RE)HABILITATION



## Two phases

- ‘Acute support phase’  
Implant activation to end of third year post-implant  
Main focus of rehab support
- ‘Long term/maintenance support phase’  
Year 4 onwards

# Audiology: Initial tuning – year 1

- IT1 audiology
- IT2 audiology (few days later)
- 1 week audiology
- 2 week audiology (bilateral)
- 1 month audiology
- 3 month audiology
- 6 month audiology
- 9 month audiology (optional)
- 12 month audiology, along with communication re-assessment and medical review

# Post-year 1 audiology

- 18 months (optional)
- 2 years
- Then annually until turn 19
- Additional appointments if/when needed
- Transfer to adult programme at 19

# Communication support

- Year 1 – intensive support and monitoring
  - Home support
  - School support
  - In clinic
- Years 2 & 3 – support frequency decreases
- From end of year 3 onwards – normally only seen for communication support (including EHCP review attendance) if having hearing/listening-related problems or going through a key educational transition point

## Medical reviews

- 12 months
  - 2 years
  - 3 years
- On request after that if a surgeon or team lead recommends or a patient/family requests

## Clinical Psychology support

- Post-implant if required
- Can be referred on to Deaf CAMHS if appropriate

# COCHLEAR IMPLANT OUTCOMES

# What do good outcomes with a CI look like?

- Speech develops well and the child becomes intelligible to all listeners
- Listening develops well and the child becomes able to understand speech in quiet without lip-reading
- Child is able to use the telephone
- Will usually need to lip read in noise
- If no/poor hearing prior to CI, takes months to learn to listen before speech can start to develop
- No quick outcomes! Think hearing age not chronological age

# What do more limited outcomes look like?

- Hears and identifies some environmental sounds
- May be aware of speech but requires lip-reading to support understanding of speech
- Unable to use the telephone
- Speech may not improve post-implantation
- May use some form of signing to communicate (BSL, SSE, Makaton, etc.)
- Rarely - limited or no awareness of sound



# What can affect outcomes?

Factor	
Age became deaf	Congenital / acquired / pre- or post-lingual
Age diagnosed/first aided	→ Auditory nerve stimulation
Age implanted	<12 months, <3 years, 3-6 years, 7+ years
Duration of deafness	Shorter is better
Cause of deafness	Genetic, infection e.g. CMV, meningitis, ANSD, CND, Mondini ...
Processor wearing	All day / limited / rarely. No sound = no auditory development
Other SEND	Learning difficulties, SLD, ASD, motor, sensory integration – may not be identified at time of implantation

- We hear with our brains not our ears
- CIs can bypass problems in the cochleae but not the brain

# Communication

- Takes months to years to learn to hear with a CI – not a quick fix
  - Optimal tuning takes time
  - Brain has to learn how to make sense of the new stimulus
  - Child needs to communicate in the meantime
- Signing supports language learning and communication before and after implantation. Some children may require signing long-term. Most will use it as a bridge to spoken language
- Signing will remain important for social interactions with other d/Deaf people and choice of d/Deaf identity
- Cued speech, Makaton, Sign-along, etc. can also support language learning and communication

# YOUR QUESTIONS