Outcomes in Implanted Teenagers Who Do Not Meet the UK Adult Candidacy Criteria

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Current criteria guidelines for cochlear implantation worldwide

- Vickers D et al, 2016, present on their international survey on cochlear implant candidacy and provision from 17 countries
- National funding for CIs is available in 60% of countries
- 20% have guidelines but the decision about whether to offer implantation is down to the clinical team
- 70-80% of countries use audiometric guideline criteria
- Of the countries that use speech based candidacy; 24% use sentence tests, 40% use word tests and 36% used a mixture of both
UK CI candidacy NICE guidelines

- Thresholds at 2kHz and 4kHz ≥ 90 dBHL bilaterally

- Inadequate benefit from hearing aids. Defined as:
  - Children:
    Inadequate benefit from hearing aids for speech, language and listening skills appropriate to age, developmental stage and cognitive ability.

  - Adults (18 yrs and older):
    A score lower than 50% on Bamford–Kowal–Bench (BKB) sentence testing in quiet
Issues with the current adult NICE CI candidacy guidelines

- Greater weight should be given to real world impacts of hearing loss and the use of more relevant QoL measures

- Use of monosyllabic words or testing in noise, or tools less dependent on patient’s linguistic knowledge

- Can we look at outcomes in our older implanted children, who did not meet the BKB criteria pre-implant, to provide evidence to support the adult case?
Study

- 17 subjects, age 7 to 18 years old
- Sudden onset or progressive hearing loss
- All excellent hg aid users pre implantation
- All met NICE audiometric criteria, but scored way over 50% on BKB in quiet testing and therefore would not have met adult guideline criteria
- All subjects received MED-EL or AB implants
- Completed Speech, Spatial and Qualities of Hearing Scale Version C (SSQ-C) between 7 month and 18 months post-implantation
Speech, Spatial and Qualities of Hearing Scale Version C (SSQ-C)

Measure self-reported auditory disability, reflecting the reality of hearing in the everyday world. It covers:

- hearing speech in a variety of competing contexts
- the directional, distance and movement components of spatial hearing
- segregation of sounds and attending to simultaneous speech streams
- ease of listening
- the naturalness, clarity and identifiability of different speakers, different musical pieces and instruments, and different everyday sounds

SSQ-C version 5.6 - This is the "comparative" version of the SSQ.
SSQ-C average rating for cochlear implants versus hearing aids

- **CIs much better than hg aids**
- **Unchanged**
- **CIs much worse than hg aids**

The chart shows the average ratings for speech, spatial, and qualities, comparing cochlear implants and hearing aids. The chart indicates that cochlear implants have a higher average rating than hearing aids across all categories, with cochlear implants rated much better than hearing aids.
1. Talking with one person with TV on
2. Talking with one person in quiet room
3. Having conversation with five people in quiet with vision
4. Having conversation with five people in noise with vision
5. Talking with one person in continuous background noise
6. Having conversation with five people in noise – no vision
7. Having conversation in echoic environment
8. Ignore interfering voice of same pitch
9. Ignore interfering voice of different pitch
10. Talk with one person and follow TV
11. Follow one conversation when many people talking
12. Follow conversation without missing start of new talker
13. Have conversation on telephone
14. Follow one person speaking and telephone at same time

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<th>Much better with previous HAs</th>
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Range: Much better with CIs -5 to 5
1. Locate lawnmower  
2. Locate speaker round a table  
3. Lateralize a talker to left or right  
4. Locate a door slam in unfamiliar house  
5. Locate above or below on stairwell  
6. Locate dog barking  
7. Locate vehicle from footpath  
8. Judge distance from footsteps or voice  
9. Judge distance of vehicle  
10. Identify lateral movement of vehicle  
11. Identify lateral movement from footsteps or voice  
12. Identify approach or recede from footsteps or voice  
13. Identify whether a vehicle is approaching or receding  
14. Internalization of sounds  
15. Sounds closer than expected  
16. Sounds further than expected  
17. Sounds in expected location

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**Spatial**

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1. Separation of two sounds
2. Sounds appearing jumbled
3. Music and voice as separate objects
4. Identify different people by voice
5. Distinguish familiar music
6. Distinguish different sounds
7. Identify instruments in music
8. Naturalness of music
9. Clarity of everyday sounds
10. Naturalness of other voices
11. Naturalness of everyday sounds
12. Naturalness of own voice
13. Judging mood by voice
14. Need to concentrate when listening
15. Effort of conversation
16. Understand when car passenger
17. Ability to ignore competing sounds

Much better with CIs

Unchanged

Much better with previous HAs

Qualities
**Discussion**

- The outcome of this study indicates a greater proportion of adults who are being turned down for CI would benefit.
- Provides evidence the UK candidacy criteria guidelines for adults should be less restrictive.

**Limitations of this study:**
- Patient involved in decision-making could result in patient perceiving greater benefit than can be measured objectively.
- Sometimes patients were asked to recall their pre-CI experience up to 18 months post CI.
- SSQ is long and not ideal for child.
References


