Re: Review Consultation: TA166; Hearing Impairment – cochlear implants

The British Cochlear Implant Group (BCIG) welcomes the review of TA166 and our feedback into this process in also endorsed by the British Society of Audiology.

BCIG represents professionals working in the field of cochlear implantation; our membership includes clinicians and researchers who are highly experienced in both applying and exploring the effectiveness and suitability of the guidance in TA166. Cochlear implantation is a multidisciplinary field and BCIG’s position on this matter is informed by the collaborative activities over many years of our membership, which comprises a range of professional groups including audiologists, clinical scientists, doctors and surgeons, speech and language therapists, teachers of the deaf, clinical psychologists and associated third sector organisations.

The British Society of Audiology is the learned society in audiology in the UK, its membership is similarly multidisciplinary and promotes excellence in clinical practice and is active in informing national public sector policy.

Specifically, NICE has recommended that the review pertains to part of section 1.5 of the original guidance (TA166), as it acknowledges that evidence which has become available since publication of that guidance suggests that criteria stated in 1.5 no longer reflects clinical practice and should be updated.

BCIG advocates consideration of cochlear implantation for children and adults with deafness in the severe to profound range, with hearing function that is severely impaired, and for whom optimally fitted conventional acoustic hearing aids do not provide adequate benefit. For adults, we consider adequate benefit from hearing aids to be sufficient access to meet an individual’s communication, social, education and employment needs. For children, speech, language and listening skills appropriate to age, developmental stage and cognitive ability.

In summary, BCIG’s review of recommendation 1.5 is to propose the following new draft wording of this section:

For the purposes of this guidance, severe to profound deafness is defined as hearing sounds that are greater than or equal to 80dBHL (≥80dBHL) at two or more frequencies (at 500Hz, 1000Hz, 2000Hz, 3000Hz and 4000Hz) bilaterally without acoustic hearing aids.

Adequate benefit from acoustic hearing aids is defined for this guidance as:

- For adults, a phoneme score of 50% or greater on the AB word test
- For children, speech, language and listening skills appropriate to age, developmental stage and cognitive ability
For all candidates, the multidisciplinary clinical team should consider that cochlear implantation is likely to provide additional benefit beyond that which can be provided through conventional hearing aids.

Background to BCIG’s recommendations:
BCIG undertook a membership survey in 2015, the results of which indicated that, by a very wide margin, our members’ primary concern was that the organisation should move to facilitate a review cochlear implant candidacy in the UK. Our members gave this 5 times greater importance than the next highest ranked area, which reflects the enormous concern in the field that severe and profoundly deaf people, who we know could benefit from cochlear implantation, are being denied access to this intervention.

BCIG has a Candidacy Working Group in place to focus on this important issue. It has undertaken a Service Evaluation study to inform the question around cochlear implant candidacy. This study is currently under preparation for publication and BCIG Council has received an early report which has informed our recommendation (Kitterick & Vickers 2017b). This report will be made available to NICE on request.

The Candidacy Working Group also developed a consensus statement on candidacy for cochlear implantation in 2017, the results of which are published online (BCIG Candidacy Working Group 2017). This consensus was reached amongst 160 representatives from over 30 stakeholder organisations through consideration of 600 patient scenarios. These reflected potential cochlear implant candidacy situations, for which the respondents rated the benefits of the intervention to outweigh the risks.

Recommendation to lower hearing thresholds
BCIG proposes a lowering of hearing threshold to greater than or equal to 80dBHL (≥80dBHL) at two or more frequencies (from 500Hz, 1000Hz, 2000Hz, and 4000Hz) bilaterally.

This proposal is based on studies which indicate that those with lower hearing thresholds benefit from cochlear implantation (Lovett 2015, Lamb 2016, Leal 2016, Vickers 2016b, Kitterick & Vickers 2017a. There is also strong evidence that we need to test at a wider range of frequencies reflecting the evidence that audibility of speech across the speech spectrum as a whole is a predictor of clinical outcomes and speech perception abilities (Govaerts 2006, Kates 2013, Vickers 2016b, Hanvey 2016).

We are also aware that NICE guidance threshold criteria are currently the highest in the developed world (Vickers 2016a), which (where audimetric criteria are in place) can be as low as 70dBHL. This is further supported by the following BCIG consensus statements:

- Expanding candidacy to include some groups of adults and children with less profound forms of hearing loss would be appropriate because the benefits would outweigh the risks
- Cochlear implantation is appropriate for less profound degrees of hearing loss than currently permitted according to NICE guidance
• The audiometric frequencies used to determine candidacy should vary depending on the nature of the patient’s audiogram (e.g. different frequencies for rising/reverse slope, flat, and downward-sloping losses)
• Other frequencies should be considered apart from 2 & 4 kHz
• Candidacy criteria in the UK should better align with changes in candidacy that are taking place in other countries

Recommendation for a revised assessment for adequacy of hearing aid benefit for adults
The BCIG Candidacy Working Group Service Evaluation included the objective of identifying the most appropriate threshold score for unilateral cochlear implantation in adults. The results of the study indicate that patient outcomes have significantly improved since the evidence for TA66 was originally collated and this supports the requirement for re-evaluation of an appropriate criterion for performance.

Further, the study indicated that in order to achieve an 80% or better chance of achieving a higher score following implantation, that the most accurate parameter amongst those considered is phoneme score of <50% using the Arthur Boothroyd (AB) Word test. The BKB test has well recognised limitations including impact of native language, language level and cognitive level on the score, as those with higher English language skills are better able to guess correctly, whereas and those with lower (or no) understanding of spoken English cannot and often cannot be assessed using this test (Vickers 2016b, Craddock 2016)

A word-based test scored by phonemes will expand the number of candidates who can be assessed by this method as a standard approach. As a result, we advocate changing from BKB sentence testing to AB phoneme recognition as a measure of adequacy of hearing aid benefit (Lamb 2016, Vickers 2016c, Sladen 2017, Kitterick & Vickers 2017b). The protocol for undertaking this assessment will be in line with the service evaluation protocol and will be detailed in the forthcoming revision of the BCIG Quality Standards document, due April 2018 and the current version of which is available online. This recommendation is also supported by the following consensus statements:

• The current assessment used to determine whether someone receives sufficient benefit from their hearing aids (the BKB sentence test) does not adequately assess the difficulties with listening that adults and children experience in everyday life.
• The Bamford-Kowal-Bench (BKB) sentence test administered in quiet when the patient is in their best-aided condition is not an accurate way of assessing whether a patient is receiving sufficient benefit from hearing aids.
• Word-based listening tests are more appropriate than sentence-based listening tests for assessing sufficient benefit from hearing aids in some patients.

Additional issues
Whilst we appreciate that the current review is focussing on section 1.5 of the current guidance, additional issues for consideration include the following:
Asymmetric losses
Unilateral implantation for children with asymmetric losses (with the better hearing ear <80 dB HL) as long as the ear to be implanted is >80 dB HL (Sadadcharam 2015, Franco-Tobin 2015, Greaver 2017, Vickers & Kitterick 2017). This is supported by the consensus statement:

- Cochlear implantation can be appropriate where the degree of hearing loss is different in the two ears, and in patient groups where only one ear would be considered appropriate for implantation.

Bilateral implantation in adults
In our view bilateral cochlear implantation should be clinically considered in adult patients at risk of cochlear ossification (Caye-Thomasen 2012, Vickers & Kitterick 2017). This is supported by the consensus statement:

- Adult patients at risk of ossification (bone growth within the cochlea that could prevent insertion of the implant electrode) should be considered for bilateral implantation.

New unilateral deafness indication
Unilateral implantation in unilateral deafness for children with intrusive tinnitus in the deaf ear or progression in their good ear, and for adults who have both intrusive tinnitus in the deaf ear and progression in good ear (Vickers & Kitterick 2017). This is supported by the consensus statement:

- Cochlear implantation is not only appropriate where the primary motivation for treatment is the restoration of speech understanding but can also be appropriate where it is for the alleviation of tinnitus.

BCIG and BSA look forward to working with NICE further as this review is progressed.
References


