

BCIG 2025 CI Champions

Speech Testing for Adult CI Referrals

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Disclaimer / Disclosures

This is not an accredited clinical training course

This is not an endorsement of any particular speech testing equipment or software

CK is employed by the University of Nottingham working on a clinical trial funded by Cochlear Corp.



Overview



Your experiences and hopes for the session



NICE guidance on speech testing for cochlear implant candidacy



Carrying out Arthur Boothroyd (AB) Word Tests



Interpreting AB test results



Which patients are speech tests useful for?



Speech tests and CI referrals



Resources



Q&A



Small group discussion and feedback

What is your
confidence level
with speech
testing?

Who do you
use speech
tests with and
why?

What is your
experience with
speech testing?



What would you like
to learn from this
session?

NICE guidance on speech testing for cochlear implantation



Speech tests for
CI candidacy are
NOT...

✗ Measured unaided via headphones

✗ Measured at varying intensity levels

✗ Carried out with background noise

✗ Looking for 'roll over'

✗ Presented with live-voice



Speech tests for CI candidacy ARE...

Measured aided in soundfield



Measured at 70 dB A



Carried out in quiet



Looking for a percentage correct
recognition score



Presented using pre-recorded lists





Previous NICE guidance

Technology Appraisal Guidance TA166 (2009)

Bilateral severe to profound deafness:

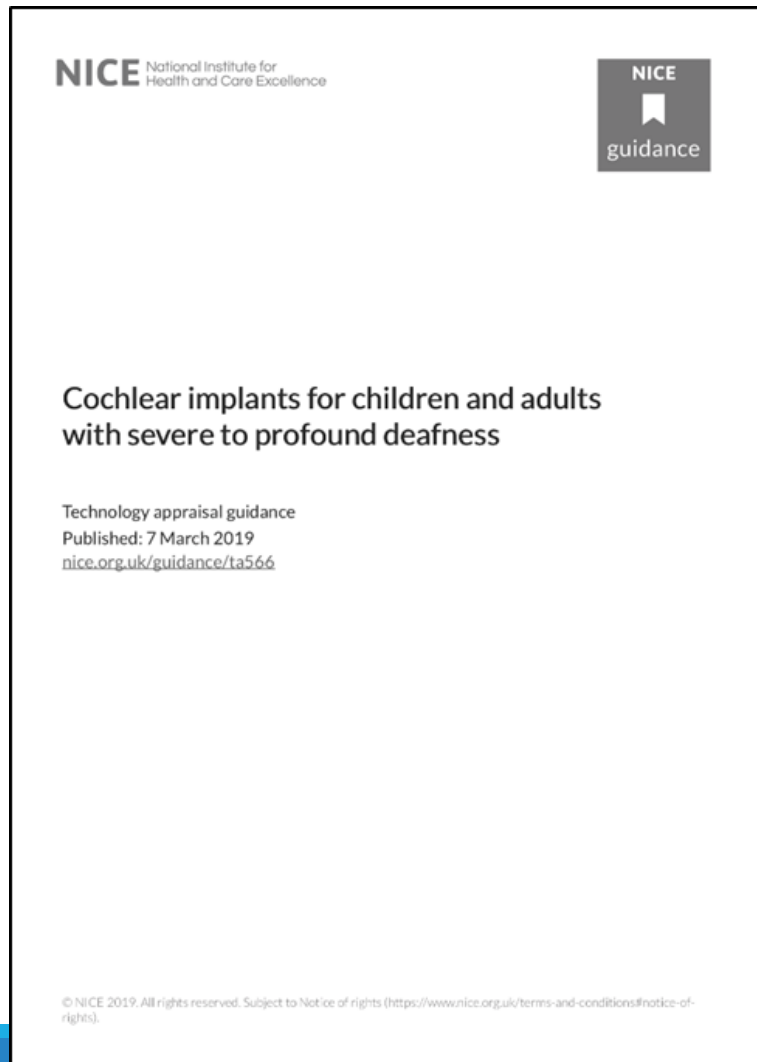
PTA >90 dB HL at 2 and 4 kHz bilaterally

For adults insufficient benefit from hearing aids:

A keyword score <50% on BKB sentence testing
at 70 dB SPL



Current NICE Guidance



Technology Appraisal Guidance TA566 (2019)

Bilateral severe to profound deafness:

PTA ≥ 80 dB HL at 2 or more frequencies
(0.5, 1, 2, 3, and 4 kHz)

For adults insufficient benefit from hearing aids:

A phoneme score $< 50\%$ AB on word testing at 70 dB A

<https://www.nice.org.uk/guidance/ta566>

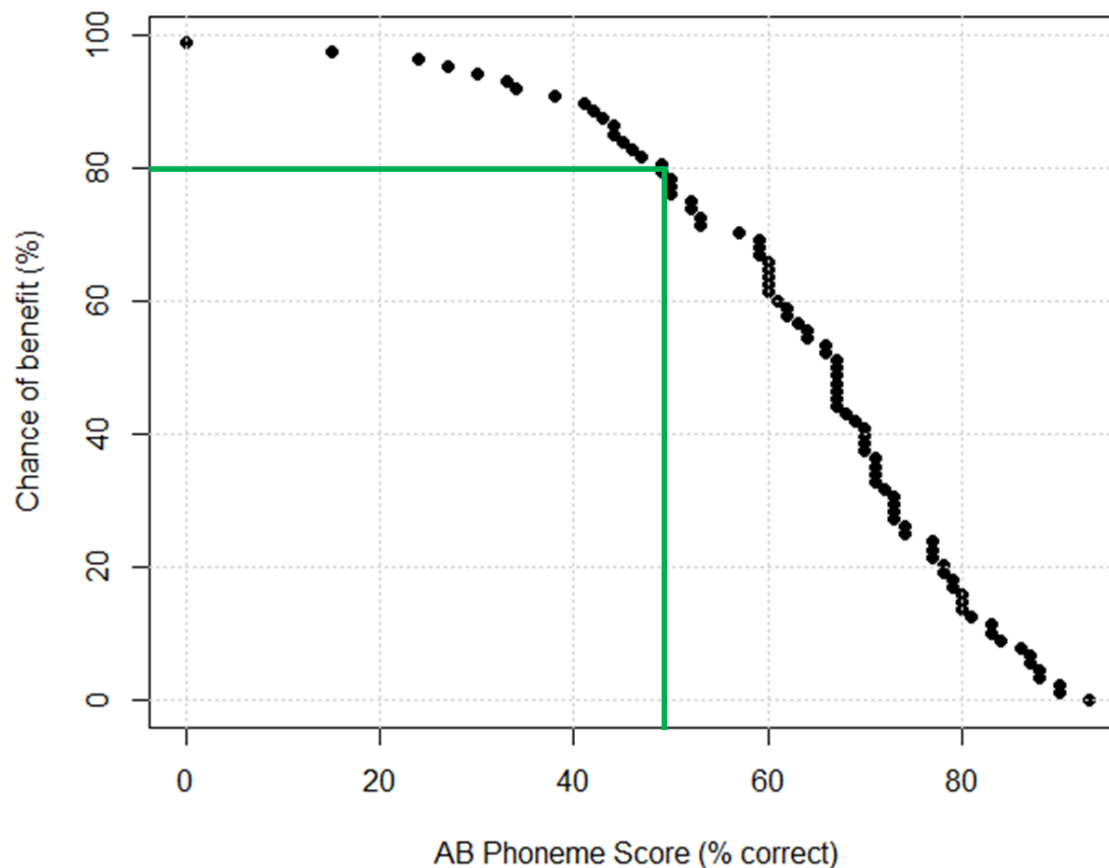


Origin of the AB NICE criterion

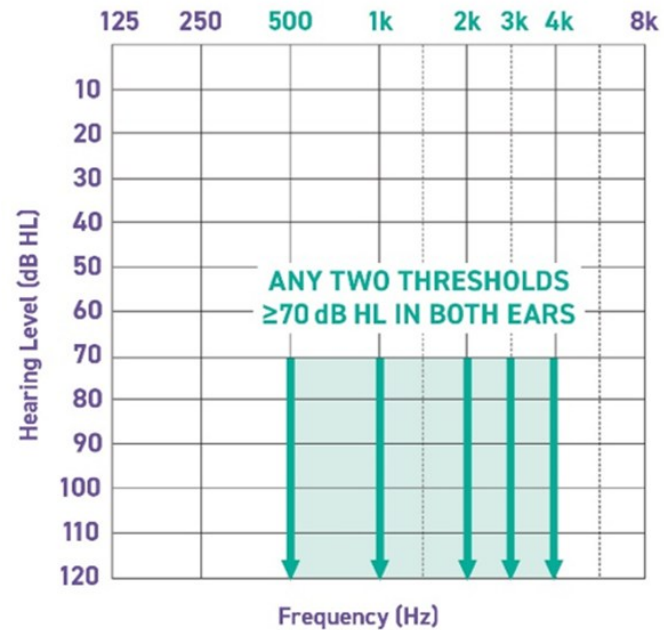
Routine clinical data

Male-talker AB word lists

BCIG Service Evaluation,
led by Dr Debi Vickers,
University of Cambridge
(with permission)



What about people who score just outside?



<60% phonemes on the AB word test at 70 dB A

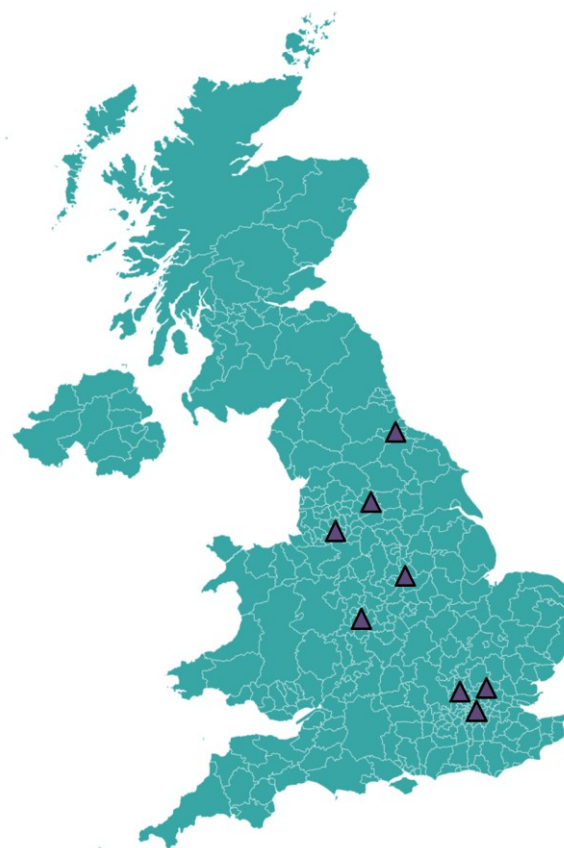
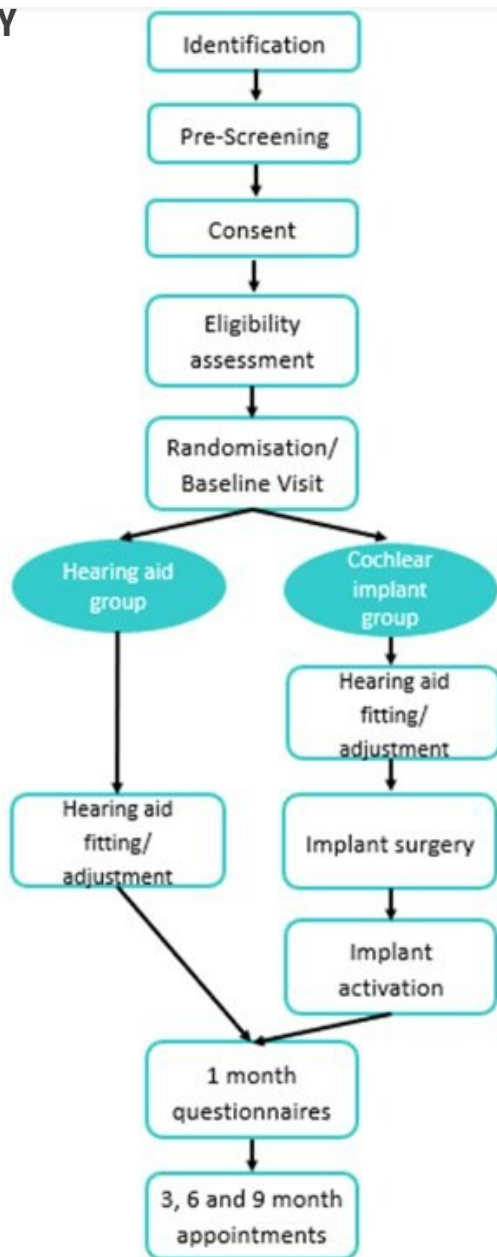


COmpAring Cochlear implants with Hearing aids in adults with severe hearing loss





Any audiologist can sign- post to the COACH trial



Visit our exhibition stand!

Information for
professionals on our
website:

www.coachtrial.ac.uk

Contact us for recruitment
resources:

Coach@nottingham.ac.uk

How to carry out the Arthur Boothroyd word test

What does NICE guidance not stipulate?

How many words to play

Talker gender

Scoring unclear responses

Age to be an 'adult'

Defining sufficient fluency in English

Which list recordings to use

Practice trials

Allowing word repetition

Definition of best aided condition



Recommended protocol

Calibrate the test to 70 dB(A)

Ensure hearing aids are well-fitted, working, and have been acclimatised to

Brief the patient on what will happen and what they need to do:

- Face the loudspeaker
- They will hear short words one at a time
- They should repeat out loud what they hear, even if they only hear part of the word and even if it doesn't make sense
- You might ask them to explain or spell the word
- Reassure them that this is difficult, and is a test of the hearing aids not the person

Explain the voice is a posh southern English accent, if this is different to their own

Play one word at a time and allow time for them to respond. Do not repeat.

Use 3 different lists of 10 words (90 phonemes) and convert to % correct



Scoring phonemes

Word presented: DEN

Response:	DEN	Scoring: D-E-N	1 correct word, 3 correct phonemes
Response:	DIN	Scoring: D-I-N	0 correct words, 2 correct phonemes
Response:	TIN	Scoring: T-I-N	0 correct words, 1 correct phoneme
Response:	NET	Scoring: N-E-T	0 correct words, 0 correct phonemes

AB speech testing demo

2025-03-28 16:08 UTC

Recorded by

Catherine Killan (staff)

Organized by

Catherine Killan (staff)

Channel

Microsoft Teams
meeting



**BRITISH ACADEMY
OF AUDIOLOGY**



**British
Cochlear
Implant
Group**

Hands-on demonstration and Q&A

Important considerations when interpreting AB test results



What affects speech scores?

Tester instructions

Test administration e.g. speed, word repetitions, familiarisation trials

Patient confidence

Familiarity with words, voice, vocabulary

Language proficiency

Fatigue

Time given to think

Talker voice characteristics e.g. pitch

Hearing aid settings

Clarity of patient's voice

Tester's scoring method

Presentation level



Test score variability

Speech Audiometry 2nd Ed. 1997, Whurr Publishers Ltd, London, Ed.
Michael Martin OBE

Critical Differences for % phonemes correct on AB Words

Score	1 List Lower	1 List Upper	2 Lists Lower	2 Lists Upper
0	0	7	0	5
30	10	53	17	47
50	27	73	33	67
70	47	90	53	83
100	93	100	95	100

How do CI teams use speech tests for adult candidacy?

NHS services' requirements for adults to access CI	N (%) services
Meet criterion for male-talker AB, no other test used	8 (50%)
Meet criterion for female-talker AB, no other test used	1 (6%)
The mean of the male-talker AB and female-talker AB scores meets criterion	1 (6%)
Meet criterion for male-talker AB OR female-talker AB	2 (13%)
Meet criteria for either male-talker AB OR the mean of the scores from male-talker BKB and female-talker BKB	1 (6%)
Meet criteria for either male-talker AB OR male-talker BKB OR female-talker BKB	1 (6%)
Meet criteria for male-talker AB OR female-talker AB OR the mean of scores from male-talker BKB and female-talker BKB	1 (6%)
Meet criteria for male-talker AB OR female-talker AB OR male-talker BKB OR female-talker BKB	1 (6%)

Which patients are speech tests useful for?



Who should have speech tests

- Inclusion criteria:
 - Adults with speech test scores $\leq 50\%$ in quiet settings, as per NICE guidelines
 - Individuals with difficulty understanding speech in noise, even with high-powered hearing aids
 - Individuals with optimally aided hearing aids and struggling with clarity of speech
- Common Referral Triggers:
 - Progressive hearing loss with limited hearing aid benefit
 - Poor word recognition affecting workplace or social communication
- Exclusion Considerations:
 - Ensure patients have been adequately trialed with amplification (e.g. verified with REMs/questionnaires)
- Red Flags for Urgent Testing:
 - Rapidly progressive hearing loss

Speech tests and CI referrals



How to include speech tests in CI referrals

Testing Environment:

Conduct in *quiet, sound-treated rooms* with calibrated equipment

Ensure proper hearing aid settings are optimized before testing

Test Material Guidelines:

Use standardised materials like the AB word list for consistency across clinics

Pair speech tests with unaided and aided audiograms to provide a complete picture

Reporting Format:

Include *speech scores* (e.g., percent correct) and the hearing aid gain used during testing

Offer qualitative observations: e.g., “Patient reports significant difficulty understanding complex sentences.”

Timing and Frequency:

Conduct speech testing at initial hearing aid assessment and during monitoring visits to track decline



How to get advice on speech tests

Local Resources:

- Reach out to *regional cochlear implant centres* for tailored advice
- Collaborate with colleagues experienced in speech testing or CI pathways

Educational Materials:

- Access BCIG's *Speech Testing in Adults Guidelines* and NICE recommendations

Online Support:

- Join forums or audiology-specific discussion boards to share experiences

Mentorship Opportunities:

- Engage with senior audiologists or trainers who have expertise in CI referrals

Recent resources and developments



**CI Champions
Resources**



**Updated NICE
Guidelines**



**Service Quality
Committee Insights**



Useful resources

Key Publications:

- BCIG clinical guidelines and reports on CI candidacy criteria
- NICE guidance on *Cochlear Implants for Children and Adults (TA166)*

Professional Organizations:

- **BCIG (British Cochlear Implant Group)**: Training, workshops, and professional connections
- **BAA (British Academy of Audiology)**: CPD opportunities and guidance on adult rehabilitation

Technological Updates:

- Manufacturer resources like Med-El, Cochlear, or Advanced Bionics for device-specific updates

Training and Conferences:

- BCIG and BAA Annual Conference and local NHS audiology seminars on CI practices

Who can I ask for referral advice?



All CI centres with contact details are listed on the BCIG website

Contact your local CI centre and ask to be put in touch with their CI Mentor

The CI Mentor is available to answer questions about individual cases and local referral practice

www.bcig.org.uk/groups/implant_centre/

Take home messages

You do not have to do speech tests before making CI referral, but they can be helpful

Your speech test score will not determine someone's candidacy

Be generous – you can refer patients who score above 50% phonemes correct

If someone scores < or > 50% one day, it doesn't mean they would score the same next time

Use 30 words per aided condition

Clearer referral guidance will be developed

Thank You



Q&A

What if I can't
answer their
questions?

Are they
suitable? What if
I mention it but
I'm wrong

Do I have time
for this
conversation
today?

Should I try new
hearing aid settings
first?

