

# Adult speech testing in the UK

BY BHAVISHA PARMAR AND SAIMA RAJASINGAM

What do hearing healthcare providers see as the benefits and barriers to delivering speech testing? This article explores the latest research.

## Why speech testing?

Speech tests have been used across ENT and audiology practice to measure an individual's speech recognition thresholds and perception of supra-threshold speech in aided and/or unaided testing conditions, in quiet or in noise. They are commonly used as an outcome measure in auditory research studies, e.g. investigating benefits of hearing devices or effects of auditory training, and prior to hearing aid fitting to capture a listener's functional ability and identify appropriate intervention strategies. It is increasingly argued that speech tests provide more ecologically valid ("real world") information on the impact of hearing loss on an individual's communication and quality of life. A recent systematic review, evaluating behavioural assessment methods used before hearing device fitting, reported that patients who underwent speech-in-noise testing were more likely to have higher measures of hearing aid satisfaction [1].

Despite the existence of British Society of Audiology-recommended procedures for key audiological assessment methods, including for pure tone audiometry and speech-in-noise testing, there is a notable absence of one for speech testing in quiet. Prior to our recent publication, there was no data on the use of speech testing in clinical practice by hearing healthcare professionals (HHPs).

According to a global survey of audiology practice, audiologists in 46% of countries (n = 62 countries, representing 78% of the world's population) carried out speech

Study	Country	HHPs	Use of Speech Tests	Transducer
DeBow & Green, (2000) [3]	Canada	115	Word recognition threshold measures: 85%	Monitored live voice: 89% Supra-aural headphones: 90%
Kirkwood, (2005) [4]	US	674	Speech audiometry: Never: 1.2%, half the time: 1.2%, always: 90.8%	N/A
Easwar et al, (2013) [5]	India	199	SRT only: 24%, SRT & speech identification: 38.7% SRT & SIN: 2.5%, SIN only: 2%. No routine speech tests: 19%	N/A
Nandurkar et al, (2015) [6]	India	59	Speech perception tests: Always: 22%, often: 34%, sometimes: 36%, rarely/never: 8%. SIN: Always: 5%, often: 29%, sometimes: 34%, rarely: 17%	Headphones: 21% Sound-field: 15%
Alanazi, (2017) [7]	Saudi Arabia	23	SRT: 65%, SDT: 48%, SIN: 0%	N/A
Ali et al, (2017) [8]	Malaysia	111	Speech audiometry: Never: 62.24%, half the time: 26.53%, usually/always: 11.22%	N/A
Myles, (2017) [9]	Australia	312	AB word lists: Routine use: 95%; in quiet: 99.6%, in noise: 5%	Live voice: 2% Ear specific transducer: 66%
American Speech-Language-Hearing Association, (2019) [10]	US	751	Implementation of SIN testing to validate treatment outcomes: Daily/weekly: 35%, monthly: 26%, never: 39%	N/A
Anderson et al, (2018) [11]	US	251	Initial HA fitting: SRT & word recognition: 98%, unaided SIN: 80%, aided SIN: 66% (often or sometimes). Fine tuning of HAs: SIN: 67%, Speech-in-quiet: 66% (often or sometimes)	N/A
Thakor, (2020) [12]	South Africa	107	SRT: Never: 13%, rarely: 7%, occasionally: 5%, sometimes: 7%, frequently: 9%, usually: 12%, always: 47%, SIN: 36%	Live voice: 82% Pre-recorded: 8%
Parmar et al, (2022) [13]	UK	306	<b>Speech testing in diagnostics:</b> Never/rarely Public sector: 79.6% Private sector: 26.6% <b>Sometimes/Often/Always</b> Public sector: 20.4% Private sector: 73.4% <b>Speech testing during hearing aid intervention:</b> Never/rarely Public sector: 73.5% Private sector: 43.5% <b>Sometimes/Often/Always</b> Public sector: 26.5% Private sector: 56.5%	Ear specific transducers: 51.7% Live voice: 24.4% 1 loudspeaker: 39.7% 2 loudspeakers: 9.2%

Table 1

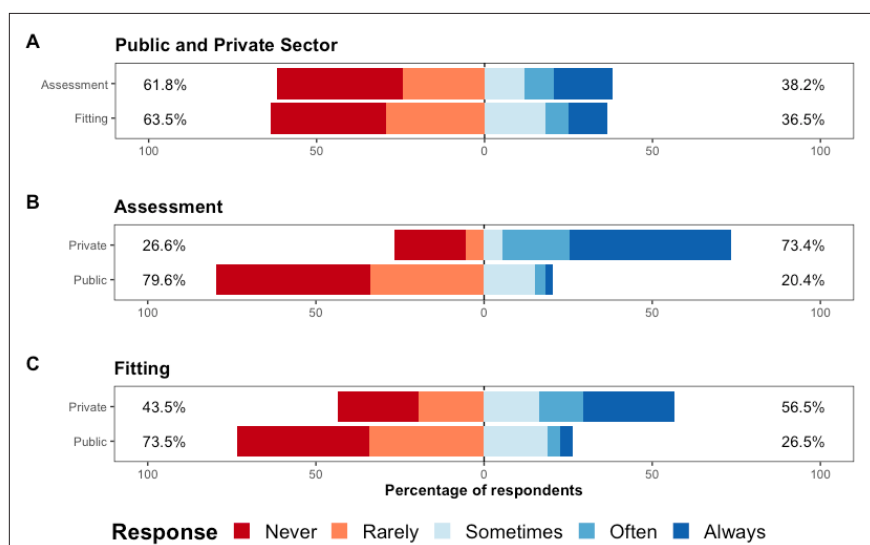


Figure 1. Use of speech testing in the UK (adapted from Parmar et al [13]). The use of speech testing during hearing aid fittings by UK private and public sector HHPs.

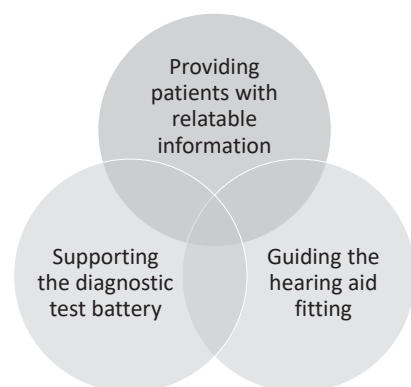


Figure 2. Benefits of speech testing as identified by UK HHPs [13].

tests (respondents were not asked to report the types of speech tests used) [2]. Inconsistency of speech testing practices between HHPs, audiology centres and countries may impact the interpretability of test results, how trends in patient populations are monitored, and how outcomes are compared between sites, depending on the level of disparity.

## Patterns of speech testing in audiological clinical practice

In our recent publication, we (a) collated global speech testing practice patterns from the literature and (b) collected data from UK HHPs through an online survey. A summary of this data is presented in Table 1.

## Speech testing: barriers and benefits

Studies summarised in Table 1 identified the following barriers to using speech testing:

- Insufficient clinical time.
- A lack of appropriate speech test materials (e.g. language/accent specific stimuli).
- An absence of normative data.
- No local/national clinical guidance.

Although speech testing is recognised as a functional hearing assessment, the lack of standardisation represents a barrier to its clinical use [14], affecting the consistency of speech testing usage between clinicians and services across the world.

UK HHPs reported a range of benefits of speech testing, summarised in Figure 2 [13]. When providing patients with information about their hearing loss, HHPs reported that using speech testing helped convey the message in a more reliable way, compared to explaining the audiogram alone. Speech testing was also reported as being beneficial pre and post hearing aid fitting, and to assist hearing aid fine tuning. Finally, HHPs reported speech testing to be an important part of specific diagnostic test batteries (e.g. auditory processing disorder, non-organic hearing loss, and cochlear implant candidacy).

## Conclusion

Use of speech testing by HHPs in the UK reflects the global pattern of variable use. In the UK in particular, public-sector HHPs reported relatively infrequent use of speech testing during the clinical assessment and HA fittings of adult patients (Figure 1). Private sector audiology practices in the UK demonstrated a pattern of uptake more closely resembling the US and Canada.

It is clear that UK HHPs recognise the value of speech testing in audiological assessment and rehabilitation. To address this, there is a need for:

1. Time-efficient speech tests.
2. Speech stimuli in regional accents/dialects.
3. Normative data to support interpretation of results.
4. National guidance on the use of speech tests.

Additionally, an international survey to monitor and evaluate use of audiological assessment practices could support the development of standardised approaches.

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## AUTHORS



**Bhavisha Parmar, MSc, PhD,**

Postdoctoral Research Audiologist, University of Cambridge; Audiology Lecturer, UCL Ear Institute; Research Fellow, UCLH BRC, UK.



**Saima Rajasingam, PhD,**

Senior Lecturer in Audiology, Vision and Hearing Sciences, School of Psychology & Sports Science, Faculty of Science and Engineering, Cambridge, UK.

<https://aru.ac.uk/people/saima-rajasingam>