

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

HealthTech Programme

GID-HTE10079 Hearing aids for adults with hearing loss

Final scope

1. Introduction

The technologies included in this NICE HealthTech evaluation are hearing aids. Guidance on these technologies will be developed using the existing-use approach. Existing-use assessments consider HealthTech products that are already in established use within the NHS, to inform commissioning and procurement decisions.

This scope document describes the context and the scope of the assessment. The methods and process for the assessment follow the [NICE HealthTech programme manual](#).

2. The condition

Hearing loss arises from dysfunction within the auditory system that limits the transmission of sound signals to the brain. It is a health issue affecting over 18 million adults in the UK ([Akeroyd and Munro 2024](#)). The prevalence of hearing loss increases with age, with more than half of adults aged 55 years and over and almost 80% of those aged 70 years and over having measurable hearing loss ([RNID, 2025](#))

2.1 Types of hearing loss

Hearing loss is commonly described according to the part of the auditory system affected and the severity of hearing impairment ([British Society for Audiology, 2018](#)). Hearing loss by type is described as:

- Conductive hearing loss, caused by problems in the outer or middle ear. This type of hearing loss may resolve spontaneously or be managed with medicines or surgery.
- Sensorineural hearing loss, caused by damage to the inner ear or auditory nerve. It is usually permanent and can be bilateral (in both ears) or unilateral (in one ear) and is commonly treated with hearing aids.
- Mixed hearing loss: a combination of conductive and sensorineural hearing loss in the same ear.

Hearing loss severity is assessed using audiometry and is measured in decibels hearing level (dB HL). This reflects the quietest sound a person can hear and is normally a hearing threshold of 20dB HL or less. Hearing loss by severity is grouped as follows ([British Society for Audiology, 2018](#)):

- Mild hearing loss: 21-40 dB HL
- Moderate hearing loss: 41-70 dB HL
- Severe hearing loss: 71-95 dB HL
- Profound deafness: above 95 dB HL

The above categorisations each have different implications for daily life and the potential need for hearing aids, but are not the only factors for assessing disability or the provision for interventions for people with hearing loss.

Hearing loss often co-occurs with tinnitus, and around 1 in 7 adults are affected ([RNID, 2025](#)). Both conditions are linked to balance impairment and an increased risk of falls, which can be especially problematic in frail or older adults.

2.2 Common causes, risk factors and complications

The factors which increase the likelihood of developing hearing difficulties include:

- Presbycusis, or age-related hearing loss, is a natural process that occurs when delicate structures within the inner ear are damaged over

time, affecting high-frequency sounds first, and making speech, particularly women's and children's voices, more difficult to understand.

- Prolonged exposure to loud sounds, which could be occupational or recreational, can damage hearing permanently.
- Medical conditions such as acoustic neuroma, cholesteatoma, otosclerosis, Meniere's disease, diabetes, cardiovascular disease and autoimmune disorders can affect the structures and function of the auditory system, leading to hearing loss.
- Some medications, known as ototoxic drugs, can affect blood flow to the ears or damage hearing structures directly.
- Genetic hearing loss can affect hearing only or can be a part of a broader health condition a person is born with.
- Ear infections, head injuries, and exposure to sudden loud noises can cause temporary or permanent hearing loss.

Hearing loss is estimated to cost the UK economy about £30 billion per year due to lost productivity from high unemployment rates, treatment and other related costs ([The Ear Foundation, 2014](#)). The cost may be higher if rates of underemployment are also considered. These high rates of unemployment and underemployment reflect the communication and participation difficulties experienced by people with hearing loss.

3. Current practice

In the NHS, the referral, diagnosis and treatment of hearing loss follow:

- [Tinnitus: assessment and management](#) (2020) NICE guideline NG155
- [Hearing loss in adults: assessment and management](#) (2018) NICE guideline NG98. Last updated October 2023
- [Hearing loss in adults](#) (2024) NICE clinical knowledge summaries
- British Academy of Audiology, British Cochlear Implant Group (2025) [Guidelines for the definition and management of 'optimally aided' for experienced adult hearing aid users with severe and profound deafness](#)
- British Academy of Audiology (2024) [Quality Standards in Adult Audiology](#)

- British Academy of Audiology (2021) [Practice Guidance: Access to Audiology Services for Adults with Intellectual Disabilities](#)
- Royal National Institute for Deaf People (2020) [Guidance for supporting older people with hearing loss in care settings](#)
- British Association of Audiovestibular Physicians (2015) [ASNHL Guidelines: Aetiological investigations into sensorineural hearing loss in adults](#).
- Royal College of General Practitioners (2026) [Deafness and hearing loss toolkit](#)
- Getting It Right First Time (2025) [Ear, Nose and Throat: referral guidelines \(adult\)](#)
- British Society for Audiology (2016) [Adult Rehabilitation - Common Principles in Audiology Services](#)
- British Society for Audiology (2018) [Pure tone air and bone conduction threshold audiometry with and without masking](#)
- British Society for Audiology (2024) [Otoscopy and impression taking – Minimum training standards](#)
- British Society for Audiology (2018) [Verification of hearing devices using probe microphone measurements](#)
- British Society for Audiology (2019) [Assessment of speech understanding in noise in adults with hearing difficulties](#)
- British Academy of Audiology and British Society for Audiology Joint Guidance (2021) [Remote Fitting Guidance](#)
- British Society for Audiology (2020) [Fitting of combination hearing aids for subjects with tinnitus](#)
- NHS England (2016) [Commissioning Services for People with Hearing Loss: A framework for clinical commissioning groups](#)

3.1 Referral

Access to audiology services varies depending on local commissioning arrangements. In many areas, routine audiological assessment is accessed

following referral from primary care. In some localities, direct access routes to audiology services are available without referral from primary care, including self-referral by adults. Where self-referral or other direct access routes are available eligibility criteria, such as age thresholds, are locally defined.

For adults who present for the first time with hearing difficulties or suspected hearing difficulties, [NICE's guideline on hearing loss in adults](#) recommends excluding impacted wax and acute infection, then arranging an audiological assessment with further diagnostic referral if needed.

[NICE's guideline on hearing loss in adults](#) specifies that people with sudden onset, rapidly progressive, or fluctuating hearing loss, or hearing loss associated with additional symptoms (such as persistent unilateral tinnitus causing distress, unresolved or recurrent vertigo, neurological signs, ear pain, discharge, unilateral or asymmetric hearing loss as a primary concern) should be referred urgently for specialist assessment, typically to ear, nose and throat (ENT) or Audiovestibular medicine. In addition to these urgent referral pathways, audiology services may refer adults on to specialist medical care when assessment findings suggest complex or atypical presentations.

3.2 Assessment

[NICE's guideline on hearing loss in adults](#) states that audiological assessment should include a clinical history, otoscopy (examination of the ear canal and ear drum) and audiological testing. Audiological testing includes pure tone audiometry to measure hearing sensitivity and may include tympanometry to assess middle ear function, where clinically indicated. Assessment may also include speech perception testing (understanding speech in noisy environments) and the use of self-reported outcome measures to assess the impact of hearing loss on communication, participation and daily activities.

Following the audiological assessment, options for managing hearing needs should be discussed and a personalised care plan should be agreed, taking into account the person's preferences.

There are 2 approaches available to address the assessment of hearing loss and fitting requirements:

- A single 'assess and fit' pathway, in which people with hearing loss who are suitable for hearing aids may receive these devices at the initial assessment appointment. This typically applies to hearing aids that do not require custom ear moulds (for example, standard behind the ear (BTE) devices). Suitability depends on factors such as the nature of hearing loss, dexterity, cognitive ability, emotional readiness and individual preference.
- Two-stage assessment and fitting pathway, in which impressions of the ear are taken at the first appointment for a custom-fitted earpiece (if needed), followed by a subsequent appointment for hearing aid fitting.

3.3 Treatment

Management pathways vary locally once hearing loss is identified. The [NICE guideline on hearing in adults: assessment and management](#) recommends offering hearing aids to adults whose hearing loss affects their ability to communicate or hear. In general, adults with hearing loss should be offered 1 for each ear unless there are reasons that this is inappropriate. Adults with hearing aids should be provided appropriate hearing rehabilitation, such as education, information on and signposting to any relevant communication and social support services. The person with hearing aids should be offered a follow-up appointment after the hearing aids are fitted and may also contact the provider for aftercare services, for example, to have their hearing aids maintained, adjusted, cleaned, or for replacement of batteries. Providers also invite the person with hearing aids for an appointment after a certain period, usually 3 years, to assess whether changes are needed. The provider can continue to see the person with hearing aids on an aftercare only arrangement until the hearing aids can no longer be serviced or need to be changed.

4. The technologies

This section describes the properties of the technologies based on information provided to NICE by manufacturers and experts, and publicly available information. NICE has not carried out an independent evaluation of these descriptions.

4.1 Purpose of the technologies

Hearing aids are small battery powered devices that fit in or behind the ear and help a person with hearing loss to hear sounds more loudly and clearly. The aim of these technologies is to improve participation in daily life by making speech easier to hear and understand across different listening environments. Devices differ in size, placement, and degree of amplification. Selection of devices depends on the degree of hearing loss, ear anatomy and needs of the person with hearing loss. Hearing aids are broadly classified into:

Air-conduction hearing aids

Air-conduction hearing aids transmit amplified sound signals to the eardrum through air. These devices typically consist of a microphone, a battery-powered amplifier and a receiver. They work by capturing sound through the microphone, converting it into electrical signals, amplifying these signals and then delivering the sound to the ear through the receiver. These types of hearing aids are primarily used for people with sensorineural hearing loss and broadly classified into:

- Behind-the-ear (BTE): These devices consist of a small plastic component worn behind the ear and connected via tubing to an ear mould or dome placed in the ear canal. They are suitable for people with mild to profound hearing loss. There are 2 types available:
 - BTE with ear moulds, which route sound through flexible tubing to a custom ear mould placed inside the ear.

- Thin-tube BTE, which route sound through flexible tubing that connects to a small, soft tip, known as a dome, that is placed inside the ear.
- Receiver-in-the-ear (RITE) or receiver-in-the-canal (RIC): These devices have a smaller behind-the-ear component than BTE devices, which is connected via a thin wire to a receiver planted at or within the ear canal. These devices are of different sizes but are all visible from the side. They are suitable for people with mild to profound hearing loss.
- Custom in-the canal (ITC) or completely-in-the-canal (CIC): These devices are custom-moulded devices which contain all hearing aid components and are fitted deep within the ear canal. They are less visible but typically have fewer features due to their small size and are suitable for people with mild to moderate hearing loss.
- Invisible-in-the-canal: These devices are fitted very deeply within the ear canal and are designed to be minimally visible. They can remain in place for months at a time, but often require audiologist fitting and removal and have limited features due to their small size.
- Contralateral routing of sound (CROS) and Bi-contralateral routing of sound (BiCROS): These devices are designed for people with little or no hearing in one ear. Sound is detected by a microphone on the non-hearing ear and transmitted to the better-hearing ear.

Bone-conduction hearing aids, non-surgical

Bone-conduction hearing aids transmit amplified sound signals as vibrations through the skull (usually the mastoid bone) directly to the inner ear (cochlea), bypassing the outer and middle ear. Non-surgical versions of these devices do not require an implant and are worn externally. They typically consist of a microphone, a battery-powered amplifier and a non-surgical attachment like a headband to transmit vibrations to the skull. These types of hearing aids are used in people with conductive or mixed hearing loss or single-sided deafness when air-conducting aids cannot be used due to ear canal issues.

For this assessment, NICE will not consider hearing implants such as bone conducting hearing implants, middle ear implants, cochlear implants and auditory brainstem implants, as these devices are listed under a separate framework on NHS Supply Chain. Hearing aid accessories or a comparison between air conduction hearing aids and bone conduction hearing aids will also not be considered for this assessment.

4.2 Current NHS market for the technologies

Access to devices varies between localities and depends on local commissioning arrangements, service specifications and procurement decisions. In some areas, different procurement models exist which enable provision from a range of providers such as NHS hospital-based audiology services and community providers, including high-street audiology services operating under NHS contracts.

Hearing aids supplied through the NHS can be procured through NHS Supply Chain or direct manufacturer supply outside NHS Supply Chain. Hearing aids are listed as Lot 1 within the Hearing Aids, Hearing Aid Batteries, Custom Ear Moulds and Hearing Aid Accessories NHS Supply Chain framework. This framework includes over 1000 devices from multiple manufacturers, covering a range of sizes, styles, power levels and technical specifications. The NHS Supply Chain framework includes hearing aid devices with a wide range of features, including devices with advanced digital processing capabilities. Clinical experts have also stated that hearing aids are purchased directly from manufacturers by NHS trusts and AQPs.

Over the last 25 years there have been substantial developments in hearing aid technology including the introduction of RIC or RITE devices. These types of devices are available through NHS Supply Chain, but BTE devices remain the most commonly issued hearing aids in NHS services. Clinical experts have stated that these RIC or RITE devices are available through NHS and are being prescribed more often due to recognition of benefits in the care pathway.

There is price variation between hearing aid devices available to the NHS, both between and within device types. Procurement data indicate that a higher proportion of NHS purchases are of devices at the lower end of the price range within each category (often older technology). Clinical experts have mentioned that the devices at the higher end of the price range may be provided on the NHS in specific clinical or anatomical circumstances. However, Private provision represents a substantial part of the overall hearing aid market, mostly offering RITE or RIC devices and hearing aids with advanced features.

4.3 Core technology requirements

Hearing aids provided through NHS adult hearing services typically include a set of core features that enable amplification, user control and signal processing. The NHS Supply Chain hearing aids framework lists minimum requirements and product specific requirements that manufacturers must meet for devices to be included on the framework. These features support everyday hearing needs and form the baseline against which additional or innovative features are assessed.

Features usually included as standard in NHS hearing aids include:

- Multichannel wide dynamic range compression (WDRC), which adjusts amplification across different frequency channels to support audibility while maintaining listening comfort
- Directional microphone systems, which prioritise sounds coming from in front of the user and help reduce some background noise
- Adaptive noise reduction, which uses machine learning to identify sound environment, adjusts processing and reduces its background noise amplification where possible
- Feedback management, which reduces whistling or squealing caused by sound leakage.

- Telecoil functionality, enabling access to hearing loops and compatible telephones to improve signal-to-noise ratio, without causing a feedback loop in the hearing aids.
- Wireless ear-to-ear communication, allowing 2 hearing aids to exchange information and operate as a coordinated system.
- Data logging, which records information on usage patterns (such as preferences and volume levels) and listening environments to support follow-up and adjustment.
- Wireless connectivity such as Bluetooth-enabled connectivity, for connecting to peripheral devices such as phones, TV and streamers enabling enhanced listening in challenging environments, phone call streaming or simple app-based control.
- Improved speech-in-noise processing, including advanced beamforming or binaural processing strategies beyond standard directionality
- Total harmonic distortion, a performance parameter of hearing aids which reflects sound quality and device accuracy
- Frequency shaping using channels or bands to process and adjust amplification for different sound ranges
- Programmed alerts designed to communicate device status or a required action to the user through an audible indicator or user alerting system.
- Battery features which may include battery drawer, battery insertion direction.

Devices may not have all the features listed and availability varies by manufacturer, device type and NHS procurement arrangements.

4.4 Innovative aspects

In addition to core technology requirements, hearing aids may incorporate [incremental or advanced features that build on standard functionality](#). These features may influence hearing outcomes, user experience, service delivery or resource use, but are not consistently available across all NHS-provided devices. Examples of additional or innovative features include:

- Advanced noise management, using deep neural networks to directly process the audio signal (DNN-based noise reduction).
- Broadcast audio including Bluetooth Low Energy Audio and Aura cast streaming, enabling improved audio streaming efficiency and access to public broadcast audio where compatible infrastructure exists
- App-based connectivity, allowing users to adjust settings, monitor usage and access additional functionality through smartphones or tablets.
- Remote hearing aid management and tele-audiology, enabling remote adjustment, troubleshooting and follow-up without in-person appointments
- Rechargeable power options, including advanced battery technologies that may reduce the need for disposable batteries.
- Frequency lowering technologies, designed to improve audibility of high-frequency sounds for some users.
- Two-way audio streaming, supporting hands-free communication and interaction with connected devices.
- Tinnitus management features, such as sound generators or masking options.
- Water-resistant or waterproof device designs, which may support durability and use in a wider range of environments.
- Dedicated processing for music
- Emerging features, such as biometric monitoring (audiometry, falls detection), or AI-supported learning systems (direct language translation).

The availability, implementation and clinical relevance of these features vary across devices and manufacturers, and not all features are suitable or desirable for all users. The list of features suggested for inclusion in this evaluation is not exhaustive. Stakeholders stated that certain innovative features may already be available within current NHS provision. Some features currently classified as innovative are likely to become core features of hearing aids within the next few years.

5. Comparator

The comparator for this assessment is hearing aids that meet core technology requirements as defined in section 4.3 and lack most or all of the additional features being evaluated.

6. Patient and healthcare professional issues and preferences

People with hearing loss may experience embarrassment, stigma, low perceived benefit from hearing aid use, or a belief that little can be done to improve their hearing ([RNID, 2024](#)). Observational evidence suggests that hearing loss is associated with higher rates of depression, anxiety and other mental health difficulties, as well as social isolation and reduced quality of life ([Tan et al., 2024](#)). There is also evidence of an association between hearing loss and increased risk of dementia ([Lin et al., 2011](#)). Qualitative evidence reported by RNID indicates that people with hearing loss value timely access to assessment and support, and that difficulties navigating referral pathways may influence engagement with hearing technologies ([RNID, 2024](#)). Previous research cited by UK patient organisations suggests that prolonged delays of several years between the onset of hearing difficulties and help-seeking are common in older adults.

There is evidence to suggest that hearing aid use can improve quality of life by reducing the psychological, social and emotional effects of hearing loss ([Ferguson et al., 2017](#)). However, uptake and sustained use of hearing aids in the UK remains variable. One report estimates that although around 10 million people in the UK could benefit from hearing aids, only around 3 million use them, and a substantial proportion do not use their hearing aids consistently ([RNID, 2025](#)). Non-adherence is likely to adversely affect hearing outcomes.

Common reasons for non-use include perceived stigma, discomfort, limited perceived benefit, difficulties recognising the severity of hearing loss, and lack of ongoing support. Some people report that hearing aids were not

recommended by healthcare professionals, or that the type or number of hearing aids provided did not align with their needs or ability to use them. Variation in the assessment and management of approaches may contribute to differences in outcomes experience, and costs associated with hearing loss.

The severity of hearing loss and individual circumstances may influence preferences for hearing aids and their features, highlighting the importance of individualised assessment. Preferences may be influenced by lifestyle, communication needs and ability to maintain devices, which may affect adherence. Shared decision making and appropriate education and support from healthcare professionals may help people make informed choices about hearing aid use and management (see the [NICE guideline for shared decision making](#)).

Hearing aid user and clinical preferences may also be shaped by factors affecting access to hearing aid services and hearing aid options. Clinical experts report variation in access to hearing services across England. Such variation reflects differences in local service models and commissioning arrangements and may influence how and when people engage with hearing assessment and support, their expectations and perceived choice. Clinical experts also note that the range of hearing aid options available within NHS-commissioned services may differ from those offered through private provision, which may influence the hearing aids user preferences, expectations and decisions about hearing aid use.

Some people may face barriers to attending in-person appointments due to time constraints, mobility issues or geographic location. Features such as remote hearing aid programming, tele-audiology, and app-based connectivity may be valued by people who prefer or need to access hearing services remotely. However, preferences for these features may vary, and some people may have concerns about their use. Reported concerns include:

- inability to use digital technology

- access to compatible devices
- confidence in technology-supported decision making
- data security and quality control
- issues related to connectivity (including access to reliable internet or mobile data, particularly in rural or digitally excluded populations).

7. Potential equality issues

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with protected characteristics (Equality Act 2010) and others. Hearing loss may have a substantial and long-term adverse effect on a person's ability to carry out normal day-to-day activities. People with these conditions may be classified as having a disability and therefore protected under the Equality Act 2010.

Hearing loss affects some groups disproportionately. The occurrence of hearing loss increases sharply with age with more than 50% of adults aged 55 years and over experiencing some degree of hearing loss. Adults with hearing loss demonstrate poorer overall health outcomes (for example, physical health, cognitive functioning and wellbeing) and lower levels of physical activity and function compared with people without hearing loss. Hearing aids have the potential to improve cognitive and wellbeing factors for this group ([Goodwin et al, 2025](#)).

Men are more likely than women to develop hearing loss. This could be because more men work in jobs that can result in occupational deafness ([HSE, 2023](#)). There is also a higher prevalence of hearing loss in men from lower socioeconomic backgrounds because they are more likely to work in jobs with a risk of exposure to damaging levels of noise. But the use of hearing aids in this group is lower compared with use in higher socioeconomic groups ([Scholes et al, 2018](#)).

People's ethnic, religious, and socio-cultural background may affect their views of hearing loss and hearing aids. The uptake and use of hearing aids is

lower among Black, Asian and other minority groups than in the general population partly due to lower levels of self-reported hearing difficulty among these groups. However, even when hearing difficulty is self-reported, hearing aid use remains lower among many ethnic minority groups ([Taylor et al. 2023](#)). Some people would benefit from support or information on hearing loss and hearing aids in languages other than English.

People who are deaf or have hearing loss may need reasonable adjustments when accessing healthcare services, which could include a sign language interpreter ([RNID, 2025](#)). Patient experts mentioned that young people transitioning from children's service to an adult hearing service often experience difficulties such as lack of support and poor continuity of care during this period, leading to negative impacts on their wellbeing and independence in managing their hearing care.

Some people may need additional support or may struggle to use hearing aids such as people:

- with neurodiverse conditions
- with a learning disability
- with a visual, or cognitive impairment
- with problems with manual dexterity
- who are less used to using digital technologies in general
- who do not have access or private access to smart phone, tablet or a computer or internet (if internet is needed).

There are groups who may struggle to access or attend appointments including people with mobility issues, people in care homes and people living in remote areas.

8. Guidance type

Hearing aids will be assessed using an existing use approach because:

- the assessed group of technologies (interventions) comprise similar technologies, at least some of which would be considered established practice in the NHS ([NICE HealthTech programme manual](#) provides more detail on how established practice is determined)
- the technologies are potential incremental innovations, continuous improvements or copycat devices, as defined by the [Department of Health and Social Care's medical technology innovation classification framework](#)
- there is variation in price between alternative technologies in the assessed group of technologies.

9. Decision problem

The key decision questions for this assessment are:

- What is the clinical and cost effectiveness of technologies with particular features compared with technologies without those features?
- Are there other factors that can inform decisions about which technology to purchase?

Table 1: Decision problem

Type of assessment	Existing use
Population	<p>Adults with hearing loss who use or could benefit from hearing aids.</p> <p>If the evidence allows, the following subgroups may be considered:</p> <ul style="list-style-type: none"> • Severity of hearing loss: <ul style="list-style-type: none"> ○ Mild (21 – 40 dB) ○ Moderate (41 – 70 dB) ○ Severe (71 – 95 dB) ○ Profound (>95 dB) • Age • Sex • Socioeconomic status • Ethnicity

Interventions	Hearing aids which meet core technology requirements and have one or more additional or innovative features that are available on the NHS, including: BTE, RITE
Comparator	Hearing aids that meet core technology requirements and lack most or all of the additional innovative features being evaluated.
Setting	Primary, community and secondary care
Outcomes and costs (may include but are not limited to)	<p>Intermediate outcomes:</p> <ul style="list-style-type: none"> Measures of adherence and use, for example: <ul style="list-style-type: none"> Hearing aid uptake rates Daily wearing time Progression in usage over time (via data logging) Proportion of users continuing to wear hearing aids <p>Clinical outcomes:</p> <ul style="list-style-type: none"> Aided speech in noise testing using QuickSIN Aided threshold testing using functional gain testing Objective signal-based indices such as the Hearing Aid Speech Perception Index (HASPI) and the Hearing Aid Speech Quality Index (HASQI) Understanding speech in complex listening situations using Abbreviated Profile of Hearing Aid Benefit global score (APHAB-Global), Words-in-Noise (WIN) test Intervention-related adverse events such as pain, discomfort, dissatisfaction with sound quality Device related issues such as feedback (whistling), difficulty with insertion, battery changes, cleaning, and volume adjustment <p>Patient-reported outcomes:</p> <ul style="list-style-type: none"> Hearing-specific health related quality of life using validated self-reporting tools such as the Glasgow Hearing Aid Benefit Profile (GHABP) or the Client-Orientated Scale of Improvement (COSI). Health related quality of life Wellbeing Revised Hearing Handicap Inventory (RHHI) Listening ability, including music Communication ability Impact on social factors, such personal relationships and participation restrictions Impact on partner and family <p>Costs and resource use:</p> <ul style="list-style-type: none"> Cost of hearing aids and associated lifecycle costs

	<ul style="list-style-type: none"> • Cost of treating adverse events • Number of appointments for hearing aid fitting and repairs/reviews • Waiting times for hearing aid fitting and repairs/reviews • Costs of storage and transport of hardware • Costs of audiologist time including appointment, training • Cost of other resource use including health care professional appointments or visits (primary, community and secondary care), time for fitting and adjusting hearing aids, time for training <p>Measures of environmental sustainability such as battery waste, e-waste generation, carbon footprint, device lifespan and replacement rates</p> <p>A user preference assessment will be conducted to determine the preferences of users when choosing a hearing aid.</p>
Economic analysis	<p>A health economic model will be developed comprising a cost utility or cost-comparison analysis. Costs will be considered from an NHS and Personal Social Services perspective.</p> <p>Sensitivity and scenario analysis should be undertaken to address the relative effect of parameter or structural uncertainty on results.</p> <p>The time horizon should be long enough to reflect all important differences in costs or outcomes between the technologies being compared.</p>

10. Other issues for consideration

10.1 Potential implementation issues

Variation in access

Hearing aids are typically replaced every 3 to 5 years in the NHS which may limit access to newer features until refitting. While several modern hearing aids are available through NHS services, provision is usually limited to specific device types. Access to alternative device types, waiting times for assessment and fitting, and availability of services may vary between areas due to local commissioning arrangements, workforce capacity and service models ([RNID, 2024](#)).

Cost

There may be financial constraints within the NHS that influence the adoption of hearing aids with additional or innovative features. Some features, such as rechargeable batteries or advanced signal processing, may have higher upfront costs compared with standard devices. Other features, including app-based connectivity or remote management, may be associated with ongoing costs related to software, licencing or service delivery. The balance between initial costs, ongoing resource use and potential longer-term efficiencies is uncertain and may vary between settings.

Integration with IT systems

Some innovative features, such as remote hearing aid management, tele-audiology, and app connectivity, require reliable internet access and integration with existing IT systems used by audiology services and community care providers. Variation in local digital infrastructure and system compatibility may affect implementation and uptake.

Workforce capacity and training

Implementation of hearing aids with additional features may require more staff time for fitting, user education and ongoing support. The extent of training required may vary depending on the complexity of the technology and the level of manufacturer support available. Where remote monitoring or data-sharing features are used, this may have implications for staff workload and service capacity. Real ear measurements are recommended across hearing aid types, although custom in-ear fittings may require longer appointment times. Clinician interest and confidence in using these additional features and ability to train users may affect use.

Service delivery models

Innovative features such as remote programming and tele-audiology may support alternative models of care, including reduced reliance on in-person appointments. However, the extent to which these approaches can be

implemented and their impact on service capacity may depend on local pathways, workforce availability, and hearing aid user preferences.

Infrastructure requirements

Some features, such as broadcast audio technologies, may require compatible infrastructure to be installed in public or healthcare settings. Access to these features may therefore vary depending on local availability of supporting infrastructure.

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