Department of Health & Social Care

Research and development work relating to assistive technology

1 June 2024 to 31 May 2025

December 2025

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Introduction

About this report

Section 22 of the Chronically Sick and Disabled Persons Act 1970 requires a report to be placed before Parliament each year on progress made in government-funded research relating to equipment that might increase the range of activities and independence or well-being of disabled people, known as assistive technology (AT). The reports are produced by the National Institute for Health and Care Research (NIHR).

This report has the added feature of enabling those interested in specific areas of AT research to search topics of interest and obtain more detail on this year's research activity by visiting the associated funding data located on the NIHR Open Data site.

NIHR Open Data is an open platform hosted by NIHR in the UK to promote transparency and accessibility of government-funded research data. Since 2023, it has hosted all the current funding data associated with reporting on AT research and development work. In addition, it allows funded studies to be filtered by AT research 'focus areas' for findability.

This report provides a summary of the complete information and dataset located on NIHR Open Data. It also outlines developments in priority setting and funding, and the spread and uptake of AT.

Assistive technology: definition

Working with stakeholders, in 2001 the following definition for AT was developed:

> "Assistive technology is any product or service designed to enable independence for disabled and older people."

This broad definition means that a wide range of products and services were eligible for inclusion in this report. As technology advances, the breadth of work covered is constantly expanding. This report covers not only specific AT products but also systems, combinations of technologies and interfaces that enhance or increase the accessibility of services, such as internet-based solutions.

The scope of this report also extends beyond physical health and includes research addressing the needs of those with mental health challenges, whether through innovative devices or online interventions such as behavioural therapies. Importantly, products and systems are considered to be ATs when they place some level of control in the hands of the end users. This emphasis on user empowerment sets aside ATs used exclusively in clinical settings or those that rely primarily on healthcare professionals, like telehealth services. Although the report excludes surgical interventions such as hip replacements, it does include surgically implanted devices where the end user retains control, such as cochlear implants.

The report's scope is intentionally comprehensive, aiming to reflect research that covers a broad spectrum of long-term disabilities and conditions. This extends to research on service delivery,

patterns of AT use, technology development and evaluations. Furthermore, the report highlights developments in priority setting, funding for AT research and innovation, and efforts that facilitate the uptake and spread of AT.

Developments in priority setting and funding

This section highlights developments in priority setting and funding for AT research and innovation. It features examples of funding schemes, either current or planned, and action plans or service changes aiming to develop and improve AT use at the national level. This includes recommendations to shape the direction of future AT research and any planned work arising from funded projects.

James Lind Alliance Priority Setting Partnerships

The James Lind Alliance (JLA) is an initiative that brings patients, carers and clinicians together in Priority Setting Partnerships (PSPs) to identify and prioritise the top 10 unanswered questions for research. The aim of the initiative is to ensure that researchers and funders are aware of the issues that matter most to patients and clinicians. NIHR funds the co-ordination of the JLA.

The JLA has completed over 167 PSPs. Between June 2024 and May 2025, it identified research uncertainties in 10 PSPs. These PSPs cover:

- veterans' health
- cardiomyopathy
- outpatient service delivery
- occupational therapy for musculoskeletal conditions and arthritis
- hip replacement
- major trauma

Two PSPs identified uncertainties around the use of AT for:

- how new technology and assistive devices can help people with spinal muscular atrophy and their carers
- identifying what non-drug treatments for managing chronic conditions (for example exercise and other lifestyle changes, physical therapies, talking therapies) could be integrated into Irish primary care services instead of or in addition to medications

Core shifts in assistive technology research and the UK's health plan

NIHR and UK Research and Innovation (UKRI) continue to fund research in AT that is strategically aligned to support long-term economic efficiency and improve quality of life across diverse demographic groups.

The UK government's 10 Year Health Plan for England is centred on reinventing the NHS through 3 radical shifts:

- hospital to community
- analogue to digital

- sickness to prevention

The core components of this new care model require the NHS to deliver these shifts through a new operating model:

- by encouraging transparency
- by creating a reformed workforce model
- through a reshaped innovation strategy
- by taking a new approach to NHS finances

Funded research on AT directly addresses the core themes of promoting independence and accelerating digital transformation.

Research current in 2024 to 2025

This section of the report is a brief summary of the government-funded AT research delivered in 2024 to 2025. It refers to the full account of the research activity located on the NIHR Open Data website, and includes the AT focus areas, project details and links to original research pages (where available). The research activity addresses a variety of challenges affecting the independence of older and disabled people, and covers diverse areas of AT application.

A major pillar of the government's vision is providing better care in people's own homes or closer to their communities to help promote independence. The research funded by NIHR and UKRI overwhelmingly focuses on enabling this shift by reducing reliance on clinical care. This empowers people and caregivers in their familiar environments (for example through remote rehabilitation and self-management using digital technologies in the home) and shifts away from traditional clinical settings. This section encompasses a broad technological spectrum, ranging from robotics to sophisticated platform-based solutions designed to manage and deliver personalised care.

An important focus includes tackling unmet healthcare needs, notably in traumatic brain injury (TBI), which affects millions of individuals worldwide each year, and how NIHR is funding research to address significant research gaps.

Last year notably saw a new direction of focus for AT on promoting inclusivity and accessibility for older people or people with disabilities across diverse social and care contexts.

AT research is playing an important and transformative role in fostering more inclusive employment practices across the UK. With disabled people facing significant barriers, innovative AT research is crucial to unlocking the full potential of a diverse workforce, promoting independence and aligning with the UK government's commitment to a fairer and more inclusive society.

AT research is critically important for improving travel and public infrastructure in the UK and is an important driver towards a truly inclusive society. Its importance stems from the need to address the fact that disabled people, including those with hidden disabilities such as autism, use public transport less frequently due to stress, uncertainty and physical barriers. This lack of access restricts their social participation, limits employment opportunities and reduces their overall quality of life.

The promotion of independence and activities of daily living is a cross-cutting goal. By leveraging advancements in areas such as artificial intelligence (AI), robotics and sensory technology, AT research develops personalised solutions that overcome environmental barriers and promote independence.

AT research is improving cultural access for disabled people by creating more inclusive, customisable and equitable experiences in venues such as cinemas and museums. This research actively co-designs solutions with a diversity of users to create shared and meaningful cultural experiences.

Assistive technology research addressing the UK government's 10 Year Health Plan

From hospital to community

The 10 Year Health Plan's radical shift 'from hospital to community' necessitates innovative solutions to change where and how care is delivered. AT research provides the evidence base and the products required to build a resilient, patient-focused health system for the future. The 10 Year Health Plan sets out details of the neighbourhood health service, which is designed to bring care into local communities and is critical for the long-term sustainability and equitable function of the NHS.

The following research studies demonstrate the contributions of AT to the strategic goals of the 'hospital to community' shift.

Moti Me aims to transform paediatric physiotherapy in the UK by providing crucial assistance to children with disabilities, motivating them to achieve their full potential while ensuring consistent rehabilitation practice outside clinics and digitally monitoring progress.

ICONIC investigates if an adapted DIALOG+ (a tablet-based, person-centred intervention) can reduce challenging behaviours and be cost-effective in people with mild to moderate intellectual disabilities by improving their quality of life.

Early value assessment of digital osteoarthritis technologies provides a digitally supported remote self-management pathway, accessed through mobile apps, for the millions of people affected by musculoskeletal conditions – these technologies deliver specialist therapeutic exercise and advice directly to the patient, offering a viable alternative to in-person appointments.

From sickness to prevention

The 10 Year Health Plan sets out a fundamental restructuring of healthcare delivery, shifting the focus from reactive treatment of illness towards proactive prevention. AT allows individuals to manage their health, environment and capabilities to delay the progression of illnesses and reduce dependency on acute care services. By empowering disabled people to remain physically, cognitively and socially active within their communities, AT prevents the cascading physical and mental health issues that arise from isolation, loss of functional independence and inaccessible environments.

The following research study demonstrates the contributions of AT to the strategic goals of the 'sickness to prevention' shift. A social exergaming platform for older adults takes a holistic approach, designing video games that promote a balanced lifestyle. Using motion capture technology, the games promote physical activity, are cognitively stimulating and can be played socially with others to help older adults with memory problems maintain their independence.

Innovation to drive healthcare reform

AT research is directly contributing to the UK government's core ambition outlined in the 10 Year Health Plan, specifically the goal of 'powering transformation: innovation to drive healthcare reform'.

The health plan positions innovation as the engine for reinventing the NHS, focusing on creating a system that is AI enabled, digitally accessible and preventative. The plan explicitly names wearables and robotics as 2 of the 5 transformative technologies (data, AI, genomics, wearables and robotics) essential for achieving better outcomes, increasing productivity and ensuring financial sustainability.

The following research studies demonstrate the contributions of AT to the strategic goals of the 'innovation to drive healthcare reform' shift.

Specialised footwear for footdrop is developing comfortable, unobtrusive footwear that incorporates support, offering a superior, usable alternative to current, conspicuous foot drop devices.

The 'PowerBead', delivered by a Fitbit-type wristband with an earpiece, represents a sophisticated, non-invasive wearable that uses gentle tapping and sound to stimulate neural connections, aiming to help stroke survivors regain movement.

An assistive robotic hand augmentation used a 'Third Thumb', a motor-augmenting, supernumerary robotic device, to enhance the functionality of the non-injured hand during temporary immobilisation, targeting a significant unmet clinical need in upper-limb injury.

Lifeglov designed a soft robotic glove to help stroke patients with hand weakness by enabling more frequent and intense rehabilitation, both in hospital and at home, with minimal therapist assistance.

Assistive technology research in other priority areas

Targeting an unmet healthcare need

TBI, even in its 'mild' form, is a significant global health challenge, affecting over a million people annually in the UK alone and representing a critical unmet clinical need. Despite having a TBI classified as 'mild', between 30% and 40% of patients discharged from hospital risk facing severe, life-changing consequences, including debilitating fatigue, severe headaches, memory loss and mental health issues. The current standard of care, which often involves discharging patients from hospital with written advice and no further follow-up, is insufficient. This often results in patients not receiving the specialised care they require.

The I am brain aware app, developed in an NIHR-funded research study, directly addresses this gap. This AT shifts the management of TBI from written advice to proactive digital support. The app consists of 5 elements designed to streamline the recovery pathway:

- immediate advice following discharge from hospital
- continuous monitoring to track symptoms and identify any signs of deterioration

- tailored information to support self-management
- identification of patients who require further clinical follow-up
- the option for patients to provide long-term data to inform future research

Inclusive employment

AT research is vital for creating more inclusive employment opportunities in the UK. The importance of this research lies in its capacity to dismantle systemic and technological barriers that exclude disabled individuals from entering, thriving and progressing in the workplace. AT research is driving a societal change towards true inclusion. By providing equitable access and opportunities for financial independence, it enriches UK businesses through increased talent retention, through strengthened productivity and by highlighting the value of a diverse, supported workforce. The development of specialised, reliable and user-informed ATs is central to meeting the needs of a diverse workforce, thereby reducing the economic and social burdens of exclusion.

The following research studies illustrate how current AT initiatives are directly contributing to more inclusive employment practices.

Bridging the Gap investigates accessible creative tools to achieve equal employment opportunities through the collaboration of visually impaired and sighted music producers.

The Inclusive Curated Business Toolkit is an AI-driven digital toolkit that aims to support over 100,000 businesses, helping people with hidden disabilities to overcome traditional support barriers, fostering growth and contributing to UK productivity.

Wakari is a technology that aims to support inclusive employment by enhancing transparency in recruitment and fostering proactive preparation for the working environment, ultimately improving productivity and retention.

Travel and public infrastructure

AT research addresses improving travel and public infrastructure by moving beyond simple compliance with the social model of disability. It leverages technologies such as generative AI and extended reality to create proactive, personalised and reliable information and training tools. By designing systems that anticipate and address a passenger's specific access needs, from the need for step-free access to managing anxiety caused by disruption, research empowers disabled individuals to travel independently and confidently. This not only removes barriers but also leads to inclusive design benefits that enhance the travel experience for everyone, creating a safer and intuitive experience.

The following research studies illustrate how current AT initiatives are directly contributing to travel and public infrastructure.

AI Mapper provides accessible journey planning for disabled people, particularly visually impaired people and wheelchair users.

Extended Reality for Autistic Drivers (XRAD) uses immersive technology to help autistic people overcome challenges in learning to drive.

AccessRail ensures real-time status updates on accessible rail facilities to enable independent travel for those with access needs.

A travel companion for autistic people provides a multifunctional travel companion to help autistic and neurodiverse passengers manage disrupted rail journeys, enabling them to focus on more than just the route from A to B.

ChapARone is an augmented reality accessibility tool for train passengers. It uses a user-friendly content management platform for staff to upload station information, which passengers can then access through augmented reality points and QR codes throughout the station to get details like delays and platform changes.

Promoting independence and supporting activities of daily living

AT research plays a critical role in promoting independence and supporting activities of daily living for individuals facing physical, sensory or cognitive limitations. The continuous innovation in this field is vital because it directly enhances quality of life, autonomy and social inclusion, allowing individuals to participate more fully in society and maintain dignity in their personal lives.

The following research studies illustrate how cutting-edge AT is being developed to promote independence and support activities of daily living.

ActivATOR aims to develop an active robot with the ability to listen and use motion for improved sound perception and understanding at home. It specifically focuses on a collaborative robot (‘cobot’) designed to enhance the auditory experience of a hearing-impaired human partner.

Dandelion centres on the innovative enhancement of Tendertec’s AI sensors designed for home-based care assistance. These sensors, with their autonomous capabilities to detect falls, near-falls and seizures, and monitor daily activities and body temperature trends, significantly contribute to the safety and fitness of individuals receiving care at home.

AidMatcher is an AI-driven digital shopping platform for people with physical impairments. It provides personalised product recommendations, with all items pre-validated by healthcare professionals.

A handheld teleassistance-enabled navigational aid helps visually impaired people to navigate independently using cameras, sensors and digital localisations.

Cultural access

Improving cultural access for disabled people is fundamental as it dismantles long-standing barriers, ensuring that the more than one billion people globally experiencing some form of disability can fully participate in and benefit from cultural life on an equal basis with others. The importance of this research lies in its commitment to equity and inclusion and the development of technologies that allow users to customise their experiences to meet specific needs. This makes cultural engagement significantly more comfortable and effective while broadening participation and fostering diversity within cultural spaces and communities.

The following research studies illustrate a multifaceted approach to enhancing cultural access, focusing on digital innovation, co-creation and multisensory design.

The Inclusive Immersive cinema smart glasses app provides personalised subtitles through smart glasses for people who are deaf, hearing impaired or neurodiverse.

W-ICAD transforms how museums create digital audio interpretation for visually impaired people.

MuseIT creates an inclusive, multisensory digital platform to enhance cultural heritage engagement for all through co-design, innovative representations and remote co-creation.

The Difference Engine is a portable, affordable system that makes theatre performances accessible to deaf, hard-of-hearing, blind and partially sighted audiences in diverse venues.

Supporting the uptake and spread of assistive technology

This section highlights some of the developments in government and research funding that have had a visible impact on supporting the uptake and spread of AT through continued funding.

WeWALK

UKRI has funded 3 projects over a 15-year period enabling WeWALK. This is a start-up company dedicated to creating tailored solutions aiming to meet the unique needs of communities with disabilities and improving navigation and accessibility of urban spaces and the transport network for the visually impaired and elderly.

A long cane, regarded as the most familiar type of cane, is used by visually impaired individuals with extremely restricted or no vision to help them find their way and avoid obstacles. However, a long cane can only detect obstacles below knee height and within approximately 1 metre of the user. This makes it particularly challenging for visually impaired individuals to navigate safely in busy urban areas, especially where cars, bicycles and pedestrians are in close proximity.

WeWALK has developed a ‘smart’ device that screws onto the user’s existing cane and can detect obstacles from knee to head height. The device connects to the user’s smartphone to provide audio-based navigation through integration with Google Maps.

The first WeWALK project (September 2020 to March 2022) was carried out in collaboration with the:

- London-based small-to-medium-sized enterprise Astra-Terra
- Centre for Transport Studies at Imperial College London
- Royal National Institute of Blind People

It focused on developing a novel integrity-monitoring layer (providing safety-critical functionality) and a usability framework to detect beacon signals directly with the smart cane to provide high-accuracy, turn-by-turn indoor audio-based navigation. Beacon signals are detected by smartphones and other Bluetooth-enabled devices and can be used to locate the user and warn them, for example when they are approaching escalators, ticket barriers and platforms. This project aimed to ensure that visually impaired people have full access to urban spaces.

The second WeWALK project (March 2022 to November 2022) used the same design principles to improve indoor navigation for the elderly. Ongoing work to enhance the indoor capabilities of WeWALK’s smartphone app has so far resulted in the creation of a new service called WeASSIST. The service connects the user with trained agents by video, and through use of a smartphone camera, the user is guided through any environment.

The third WeWALK project (March 2024 to September 2025) focused on a comprehensive safety-critical and accessible navigation system for implementation in a railway environment.

BEARS (Both Ears)

The BEARS (Both EARS) projects, funded by NIHR, use virtual reality games to improve spatial hearing in older children and teenagers with bilateral implants. The games are being trialled at Guy's and St Thomas' NHS Foundation Trust.

The first BEARS project (January 2021 to December 2025) aims to determine whether the use of BEARS leads to improvements in the everyday hearing of older children and teenagers with bilateral cochlear implants.

The second BEARS project (February 2024 to December 2025), running in 11 of the 16 UK centres that care for children with implants, aims to offer the virtual reality games to all children with cochlear implants to use at home. The investigator team has, however, highlighted how some people may find it hard to take part in research, especially if they are from a minority community or feel excluded for other reasons. If the BEARS games prove to help, then the investigator team intends to roll them out into the NHS care pathway for children and young people with bilateral cochlear implants.

Some members of the investigator teams are the lead authors of Cochlear implant services for children, young people and adults. Quality standard (Cullington and others, Cochlear Implants International, 2023, issue 24). This paper sets out the quality standard for NHS-funded clinical cochlear implant services in the UK.

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