



Department
of Health &
Social Care

Research and development work relating to assistive technology

1 June 2023 to 31 May 2024

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1 June 2023 to 31 May 2024

Presented to Parliament pursuant to Section 22 of the Chronically Sick and Disabled
Persons Act 1970

February 2025



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ISBN 978-1-5286-5133-2

E03179898 02/25

Printed on paper containing 75% recycled fibre content minimum.

Printed in the UK by HH Associates Ltd. On behalf of the Controller of His Majesty's Stationery Office.

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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 wellbeing of disabled people, known as assistive technology (AT). The reports are produced by the National Institute for Health and Care Research (NIHR).

Following the Parliamentary report format used in the last reporting period (2022 to 2023), 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 [2023 to 2024 funding data 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 funded research data. As of 2023, it hosts all of the current funding data associated with reporting on AT research and development work, and, additionally, allows funded studies to be filtered by AT research 'focus areas' for findability.

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

Assistive technology: definition

Working with stakeholders, in 2001, the Foundation for Assistive Technology developed the following definition for AT:

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

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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.

Glossary

The following governing and funding body acronyms are used in this report:

| Term | Definition |
|-------------|--|
| CSO | Chief Scientist Office |
| EPSRC | Engineering and Physical Sciences Research Council |
| HCRW | Health and Care Research Wales |
| JLA | James Lind Alliance |
| NICE | National Institute for Health and Care Excellence |
| NIHR | National Institute for Health and Care Research |
| PHA-NI | Public Health Agency (Northern Ireland) |
| PSP | Priority setting partnership |
| UKRI | UK Research and Innovation |

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, as well as action plans or service changes aimed at developing and improving 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 this 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, identifying, between June 2023 and May 2024, research uncertainties in 10 PSPs. These PSPs include:

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

The JLA has identified uncertainties around assistive technologies in one PSP: [Spinal Muscular Atrophy \(Europe\)](#).

National Institute for Health and Care Excellence

The [National Institute for Health and Care Excellence](#) (NICE) plays a crucial role in shaping research priorities and guiding health and social care research investments. NICE also commissions health institutions to produce evidence reviews, which inform practice guidelines and recommendations for further research.

In October 2023, NICE updated its guideline '[Hearing loss in adults: assessment and management](#)' [NG98], originally published in June 2018. This guideline addresses the assessment and management of hearing loss in primary, community and secondary care settings. It is intended for:

- health and care professionals
- commissioners of health and social care services
- individuals with hearing loss, and their families and carers

The guideline provides recommendations on the referral, support and assessment of adults for hearing aids and assistive listening devices. It also highlights the need for further research to explore whether or not the use of hearing aids, in particular, reduces the incidence of dementia in adults.

The update was a recommendation to consider a suspected cancer pathway referral for adults of Chinese or south-east Asian family origin who present with hearing loss and specific symptoms, in line with NHS England's [Faster Diagnosis Standard](#).

National Institute for Health and Care Research

[NIHR](#) continues to significantly contribute to advancements in adult social care and AT research, working with councils and adult social care research units, as well as participating in joint funding initiatives, to improve care accessibility, health outcomes and overall quality of life for older or disabled individuals.

Current funded projects focus on several areas of social care and AT research. Specifically, these aim to develop:

- [enhanced professional training on the use of AT](#), which focuses on user needs
- a [digital solution for smell training](#) to support self-care, independence and early disease diagnosis
- a [mobile app to enhance brain health and cognitive enrichment in older adults at risk of dementia](#)

Notably, NIHR is co-funding the Engineering and Physical Sciences Research Council's (EPSRC's) [Technologies to enable independence for people living with dementia](#) initiative together with the [Alzheimer's Society](#). This initiative focuses on the development of novel assistive tools that are, for instance, wearable or integrate artificial intelligence (AI, to help individuals with dementia live more independently at home and in their communities.

The funding is particularly targeted at fostering collaborative research networks and embedding the lived experiences of people with dementia into patient-centred innovation research, leading to technological solutions that can be implemented in the health and social care systems.

UK Research and Innovation

[UK Research and Innovation](#) (UKRI) continues to drive developments in AT research by funding innovative projects that integrate engineering, healthcare and digital innovation, and foster cross-disciplinary collaborations.

Delivered through [EPSRC](#), priorities and initiatives include improving the quality of life for older and disabled individuals and creating technologies that are accessible, sustainable and user-friendly. Examples of funded technologies include:

- memory prostheses for individuals with cognitive impairments
- advanced hearing aids and assistive listening devices
- bionic prosthetics and exoskeletons
- digital health apps and wearables for chronic disease management
- smart homes and AI-driven assistive systems

These efforts align with UKRI's goal to [enhance digital equity and accessibility](#), with [cross-disciplinary collaboration](#) and [innovator training](#) playing a key role in technological advances. Jointly funded opportunities include the [Technologies to enable independence for people living with dementia](#) initiative with NIHR (linked in the previous section).

Research current in 2023 to 2024

This section of the report is a brief summary of the government-funded AT research being delivered in 2023 to 2024.

It refers to the full account of the research activity now located on the [NIHR Open Data website](#), and includes 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.

Adaptive and smart homes

Thanks to a combined £7.5 million in funds from NIHR, EPSRC and the third-sector charity [Disabled Living](#), 5 projects are currently focused on making home environments more accessible and adaptive to the social care needs of individuals with disabilities or older people. These projects are leveraging assistive and 'smart' technology to enhance independent living and health outcomes for older adults and people with disabilities or dementia, through innovations in home-based AT products and services, which include:

- timely [provision of walk-in showers for the home](#)
- an [accessible home design with integrated automation and tablet-based health-monitoring systems](#)
- a [light therapy solution aimed at improving sleep quality for people living with Alzheimer's disease and their caregivers](#)
- a [digital tool for social housing tenants and landlords to efficiently manage properties and allow tenants more independence](#)
- a [real-time remote assessment platform for occupational therapists to evaluate individuals' home environments](#), monitor mobility and reduce the risk of fall-related hospital admissions

Together, these initiatives are combining cutting-edge technology with existing home infrastructure and care services to improve the independence and quality of life of individuals, while also alleviating the demands on health and social care systems.

Carer support and training

Three projects receiving a combined £1.6 million in support from NIHR and Public Health Agency (Northern Ireland) (PHA-NI) are currently focused on developing digital tools and interventions to support carers of individuals with learning disabilities or dementia.

The research focuses on creating accessible, scalable and cost-effective technologies and services that can help reduce caregiver stress, improve mental health outcomes and enhance care quality. They include:

- an [online learning and support programme designed for dementia carers](#)
- a [digital care model tool to help carers plan and monitor the daily activities of adults in care](#)
- an [online mental health resource for family carers of people with intellectual disabilities](#)

By supporting the mental health of and care models for carers, these technologies aim to enhance care quality, reduce the burden on carers and foster greater independence for individuals with disabilities, with the ultimate goal of scaling up successful tools for broader implementation.

Communication and speech

Supported by NIHR and UKRI, with funding that exceeds £4.5 million in total, 11 research projects are currently developing and testing ATs that aim to enhance communication for individuals with disabilities, particularly those with speech, language and communication needs from acquired conditions such as aphasia or physical speech impairments.

The solutions in development leverage both digital and wearable technologies, and notably enhance accessibility and inclusivity for individuals. They include:

- an [earphone-integrated device that enables control of communication devices via ear movements](#)
- a [computer game for children with social communication difficulties](#) that is designed to improve pragmatic language skills
- a [tablet-based vocabulary-building tool for children with language and behavioural challenges](#)
- a [communication aid for individuals with dysarthria](#) that recognises disordered speech and translates it into clear speech
- [portable smart camera technology to aid people with aphasia in reading and communication](#)
- [visualisation tools designed to help people with communication impairments make decisions](#)
- a [speech tracker that monitors talking time](#), supporting social engagement and speech recovery post-brain injury
- [augmentative and alternative communication devices](#), such as those designed for non-speaking children or those with neurodisabilities
- a [smart glove that translates hand gestures into speech](#) across multiple languages and offers a personalised voice output

These projects and technologies reflect a broader movement in AT towards developing innovative assistive tools to target and accommodate diverse communication needs, while also fostering inclusivity and accessibility to improve the independence and quality of life for a diversity of users.

Exercise and rehabilitation

NIHR and UKRI are supporting 14 projects, with funding that exceeds £11.5 million, to develop wearable and home-based technologies aimed at improving strength, mobility and independence for people with frailty or physical disabilities resulting from long-term conditions or injury such as stroke.

The technologies and services in development include:

- a [home-based exercise programme for frail older adults](#) to recover after hospitalisation
- [digital home-based occupational and physiotherapy](#) to help reverse frailty
- a [smartphone-based cardiac rehabilitation programme](#) to support older adults living with and beyond cancer
- an [activity tracker for people living with rheumatoid arthritis](#)
- [smart insoles to track and improve exercise adherence and balance in older adults](#)
- [augmented reality glasses for home-based exercises](#) to improve mobility and balance in people with Parkinson's disease
- [computer-based interactive strength training for older adults](#)
- a [cognitive behavioural therapy-based self-management programme for post-stroke fatigue](#)
- wearable devices, such as [robotic exoskeletons](#) and [soft exoskeletons](#), for mobility and limb rehabilitation
- a [game-based tool for arm rehabilitation exercises](#)
- [functional electric stimulation for mobility and pain reduction in amputees](#)

While focusing on helping people stay active and motivated, these technologies aim to make rehabilitation more accessible, engaging and supportive, allowing people to work on their own health while staying connected to care teams and maintaining an independent lifestyle.

Game-based training

Funding support from NIHR and UKRI to the value of £4.7 million has enabled 4 projects to harness game-based and digital AT to improve social interaction, independence and physical health in diverse populations, including:

- children with social communication difficulties
- people with disabilities
- older adults
- those with hearing impairments

These projects focus on developing interactive and engaging platforms to support and motivate users in enhancing their quality of life. They include:

- a [computer game delivered by teaching assistants in schools](#) that is designed to enhance pragmatic language skills in young children with social communication difficulties
- a [multiplayer computer game to encourage physical exercise in people with arm disabilities](#), with engagement from family members or friends
- a [game-based training app for improving confidence and hearing in people with age-related hearing loss](#)
- a [gamified mobile app for older adults in home care](#) that helps them maintain social connections through seamless care interactions with caregivers and families

Through the development of fun and affordable digital platforms and ATs, the above projects aim to foster social engagement, improve accessibility to care and support targeted training or rehabilitation for people with various disabilities and age-related care needs.

Hearing impairment

Eighteen projects receiving over £10.3 million in support from Health Education England (now NHS England), NIHR and UKRI are currently innovating hearing technologies and support systems for individuals with hearing impairment, particularly focusing on adults and children with hyperacusis or severe hearing loss.

The research and interventions aim to:

- [improve hearing aid use in children](#) and [hearing aid use in adults](#) through behavioural change and support programmes aimed at families and caregivers
- evaluate the benefit and accessibility of [unilateral cochlear implants](#) or [bilateral cochlear implants](#) in adults and children, informing NHS eligibility criteria and policy
- improve [hearing test design](#), or design [novel device prototypes](#), to optimise the effectiveness of hearing aids and cochlear implants
- improve the signal-processing functions of hearing devices [to improve the accessibility of hearing-impaired individuals to music](#) or allow them to better [understand speech in noisy environments](#)
- improve access to hearing support, such as through [online educational resources for hyperacusis](#) and [digital auditory training for hearing loss](#)
- explore [tactile sensation to improve sound separation in people with hearing loss](#)

By targeting the diverse patient populations and conditions related to hearing impairment, the above research seeks to address current gaps in hearing management and support and ensure that users with all hearing needs can effectively manage their hearing health in everyday life.

Learning difficulties and autism

The Department for Education, Health and Care Research Wales (HCRW) and NIHR have invested over £500,000 into 4 projects focused on developing assistive and digital tools to improve quality of life, and support independence and skill-building, for adults and children with learning needs or autism.

Targeting diverse learning settings that include schools and supported or sheltered accommodation, the AT-based interventions include:

- developing a framework to assess the skills and knowledge required by special education staff to support students with AT in classrooms
- a comprehensive training and evaluation programme to increase confidence and skills in using AT in educational settings (aimed at both staff and students)
- exploring [the use of smart speaker devices for improving wellbeing, safety and independence among adults in supported living environments](#)
- a [positive behavioural and active support app to promote independence and daily engagement for adults with learning disabilities](#)

By equipping caregivers and social care and educational staff with the necessary skills, knowledge and technologies, the above projects aim to foster inclusive environments that encourage personal development, active engagement and community involvement.

Mental and social health

Five NIHR-funded projects in England, and one PHA-NI-funded project in Northern Ireland, (supported by a combined £5 million in funds) aim to enhance the effectiveness, delivery and accessibility of interventions aimed at improving the mental and social health of disabled or older people. The funded research is particularly focused on helping:

- disabled children
- young people experiencing self-harm
- adults with intellectual or mental disabilities

The interventions include:

- [improving the quality of telephone-based psychological treatments for people with depression and anxiety](#)
- [a smartphone self-harm prevention app to assist young adolescents in managing the urges to self-harm](#)
- [an online guided self-help programme for military veterans experiencing post-traumatic stress disorder](#)
- [an online programme to support family carers of individuals with intellectual disabilities](#)
- [new assistive and AI-powered technologies that help visually impaired and blind children develop social skills and better interact with non-disabled children](#)
- [a speech monitoring device that aims to support speech recovery after brain injury](#)

The overarching goal of the above research is to develop, and improve accessibility to, innovative digital and AT-based solutions that effectively enhance diverse mental health outcomes, facilitate social engagement, and ensure inclusivity across target population groups.

Mobility and musculoskeletal health

Twelve research projects in England (funded by NIHR and UKRI) and one in Scotland (funded by the Chief Scientist Office (CSO)), receiving a combined £12.4 million in support, aim to improve the independence and quality of life of people physically affected by ageing, arthritis or acute injury, through innovation in ATs.

The funded projects focus on diverse technological and digital applications, including:

- [a glove to aid hand recovery in stroke survivors](#), and the 'Tetragrip' device for people affected by tetraplegia from spinal cord injury
- [a knee brace and elastic taping](#) for joint support and pain relief in patients with knee osteoarthritis
- [functional electrical stimulation devices](#) for impaired mobility due to Parkinson's disease or following below knee leg amputation
- [implantable artificial muscles](#) for people with muscle loss
- [a high-tech wheelchair](#) for children with physical disabilities
- [devices to help people with visual impairment walk and navigate](#), including a 'smart' cane and pedestrian navigation systems
- [a digital behaviour change app](#) to track and encourage physical activity in people with rheumatoid arthritis

Together, the above research projects aim to enhance mobility and physical activity in older people or those with diverse physical disabilities. Several of these projects will also investigate whether or not these solutions could be broadly used within healthcare services, including the NHS.

Neurological and cognitive health

NIHR, UKRI and HCRW are supporting 14 research projects, through individual funding opportunities exceeding a combined £10 million, to develop advanced technologies and tools for enhancing self-management and independence in people with neurological and cognitive disabilities.

Focused on neurorehabilitation, symptom reduction and preserving cognitive function, the technologies and topics of research include:

- augmented reality glasses, [nerve functional electrical stimulation](#) and [implantable devices](#) or [wearable devices](#) for enhancing physical function in people with Parkinson's disease
- [near vision glasses to support motor skills development in infants with cerebral visual impairment](#)
- a [visual training app](#) and a [brain injury sensory prosthetic](#) for people experiencing vision and eye movement issues due to stroke
- a [cognitive stimulation app](#) and [personalised reminiscence therapy](#) to improve memory, communication and quality of life for people with dementia
- [at-home behavioural strategies to improve brain activity, informed by neurofeedback using functional magnetic resonance imaging](#)
- a [wearable trigeminal nerve stimulation device to manage symptoms in people with attention deficit hyperactivity disorder](#)
- a [physiotherapy mobile app for children recovering from traumatic brain injury](#)

The above technological advancements will enable people to self-manage their neurological and cognitive health from the comfort of their homes with digital access to caregiver support, allowing for greater independence and reducing the need for constant clinical oversight.

Prosthetics and orthotics

NIHR and UKRI are supporting 17 projects, with a combined £15 million in funds, to develop prosthetic and orthotic devices aimed at supporting children, stroke survivors and individuals with upper limb loss to live more independent lives. These projects leverage innovation in device technology with input from experts and users to develop devices with better functionality, comfort and adaptability.

Current developments include:

- a [‘smart’ prosthetic hand that is lightweight, multifunctional and personalised for use in children](#)
- an [above-knee prosthetic joint](#) that mimics knee function in various daily activities
- a [brain injury sensory prosthetic that uses augmented reality to provide self-administered therapy for spatial neglect after a stroke](#)
- a [soft robotic prosthetic arm](#) that uses flexible sensors to mimic arm function

- an affordable prosthetic fingertip powered on mechanical haptic feedback
- innovative sensory foot orthotics for improving balance and movement in frail individuals
- innovative, multifunctional and user-focused facial prosthetics and oral prosthetics
- brain machine interface-controlled prosthetics to improve the symptoms of Parkinson's disease
- research initiatives to accelerate the development of child prosthetics and train future innovators in prosthetics and orthotics technology
- digitalisation and improvement of manufacturing processes to reduce production time for ocular prosthetics and ankle-foot orthotics
- a holistic soft orthotics community service for older adults with limb impairments
- exploring the use of real-time sensor data to design advanced prosthetic and orthotic devices

The above projects put special focus on multidisciplinary collaboration, user engagement and manufacturing innovation in designing and developing devices that are personalised, affordable and rapidly accessible to significantly improve the quality of life for diverse individuals with disabilities.

Breathing and sleep

NIHR and UKRI have invested £794,000 in 3 projects focused on addressing the impact of sleep disturbance and difficulty in breathing on quality of life and independence in people with long-term conditions, such as dementia and chronic obstructive pulmonary disease. These projects are addressing the critical aspects of ATs, such as personalisation, comfort and usability, which are essential for effectively supporting people with home-based care. They include:

- personalised positive airway pressure masks that are printed in 3D and custom fitted to effectively assist people with breathing while reducing discomfort and air leaks
- research and discussions with healthcare practitioners and policy-makers to assess how access to and use of ATs can be improved to support independent living and quality of life in people with chronic obstructive pulmonary disease
- a smart light therapy system for regulating sleep patterns and improving the sleep quality of people with Alzheimer's disease and their caregivers

Although the above research is focused on improving the delivery of home care for people managing the difficult symptoms and dependencies of long-term health conditions, there is also an emphasis on easing the strain on caregivers.

Robotics

Eight projects receiving over £3.7 million in funding from UKRI and one NIHR-funded project are exploring how innovative robotics technologies can enhance independence and quality of life for individuals living with various disabilities or age-related challenges.

With a focus on affordability, accessibility and rehabilitation, the technological solutions in development include:

- a wearable robotic exoskeleton designed to assist users with arm movements
- a soft robotic prosthetic arm with flexible sensors

- 'supernumerary' robotic limbs that provide ergonomic back support and balance for carrying out tasks in industrial settings
- a robotic 'third thumb' that can help a user's existing hand perform tasks that usually require both hands
- 'motor augmentation' robotic arms and fingers that integrate the movements of, and can be cognitively controlled by, users
- intelligent robotic systems that combine wearable sensors with social robots to encourage activity in older adults at risk of frailty
- AI-powered robotic devices that provide timely support and safety alerts for people living with dementia
- a virtual reality-based training programme for wheelchair users to practise navigation before facing real-life obstacles

By harnessing advancements in robotics, AI, 'smart' technology and virtual reality, the above research aims to empower users with diverse needs by providing them with accessible and adaptive tools to support their physical and cognitive needs.

There is also an aim to create an ecosystem of researchers, users, healthcare practitioners and policy-makers to build expertise and capabilities in robotic solutions for supporting people with frailty in the community.

Vision impairment

Twelve research projects have received over £4.6 million in funding support from NIHR and UKRI to explore how the independence and lives of people with vision impairment, particularly children, can be improved through innovations in AT.

Specifically, these projects aim to enhance visual rehabilitation and support social interaction, mobility and accessibility for people with vision loss or blindness through novel technologies and solutions, including:

- prism glasses for children with homonymous hemianopia (vision field loss on one side)
- near vision glasses to aid the development of infants at risk of cerebral visual impairment
- braille technology, including a multiline braille display tablet with innovative feedback mechanisms and low-cost braille access to educational resources
- a 'smart cane' with sensor, navigation and smartphone integration to help users safely navigate the outdoors
- a 'guide dog-like device' that uses 3D mapping and tactile feedback to help users walk
- affordable and user-friendly virtual reality software for people with visual field loss
- new frameworks for designing cross-sensory AT that foster social inclusivity for visually disabled children

The above projects place importance on inclusivity, affordability and accessibility in creating effective, user-friendly technologies that cater to the unique needs of visually impaired adults and children.

Wearable devices

Ten research projects funded by NIHR and UKRI in England, and one project funded by the CSO in Scotland, are receiving over £11.5 million in total funding to address the significant health and dependency challenges faced by people with age and mobility-related disabilities.

With the overall aim of improving rehabilitation outcomes and preventing complications associated with frailty or conditions such as stroke and osteoarthritis, the funded research is delivering innovation in wearable technology through the development of solutions, including:

- a rehabilitation aid glove for individuals experiencing difficulty opening the hand after stroke
- smart shoe insoles that enable home-based fall prevention exercises in older adults and promote exercise adherence
- a knee brace that provides pain relief and reduces the need for surgery in people with osteoarthritis
- a wearable dehydration device that monitors hydration in elderly users by analysing sweat
- elastic knee tape to provide pain relief, maintain joint range of motion and prevent muscle atrophy in people with kneecap pain
- a wrist-wearable device that monitors the symptoms of Parkinson's disease and recommends treatment adjustments
- artificial muscles designed to overcome the limitations of current wearables for restoring strength and mobility in older people affected by trauma, stroke or other conditions
- a splint for improving ankle function and reducing muscle weakness in young people with foot drop
- a sensor-based glove that translates hand gestures into speech as an assistive communication device for non-verbal individuals
- soft wearable devices that use advanced materials to enhance mobility and personalise rehabilitation for people with age-related mobility impairments

A focus of all of the above research is to improve on existing wearable technologies by integrating them with personalised assistive functions that include symptom self-management and rehabilitation, so as to improve independence and quality of life in individuals with limited strength or mobility.

Inclusivity and accessibility

NIHR and UKRI are supporting 7 projects, with £2.3 million in funding, to develop assistive and digital technologies that promote inclusivity, accessibility and social engagement for older and/or disabled people. These projects specifically aim to enhance experiences in art, culture and entertainment, as well as in certain healthcare settings.

Addressing the different accessibility barriers that vulnerable, disabled or older individuals may face due to physical, cognitive or sensory limitations, the projects focus on:

- assessing challenges in remote care delivery for people with chronic obstructive pulmonary disorder and ethnic minority groups (such as the need for language support)
- improving clinical trial diversity for children with cochlear implants through a virtual reality training game

- providing accessible and personalised film and television experiences for blind or visually impaired people through enhanced audio descriptions
- broadening participation in museum experiences using inclusive digital museum audio interpretation
- creating personalised digital content solutions for people with complex language impairments, such as aphasia
- designing guidelines and a toolkit to improve user experiences and enhance accessibility in virtual, augmented and mixed reality
- designing guidelines and tools to facilitate the inclusion of disabled and older people in social virtual reality experiences

The overall goal of the above research is to harness AT to reduce social isolation and enhance inclusive participation among individuals with accessibility needs, ensuring that everyone can engage meaningfully in digital and physical spaces.

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 in social care. These include new implementations and changes in practice, policy and law.

Improving outcomes for patients with knee osteoarthritis

Knee pain from osteoarthritis affects 5.4 million people in the UK, with women experiencing more severe cases. For mild symptoms, NICE recommends exercise, weight management, walking aids or medication. When symptoms worsen, surgery is often the next option and, for some people, this is not suitable due to the risk of complications and pain.

To bring new solutions to people who need them, the [NHS Innovation Service](#) has partnered with companies such as [AposHealth UK](#) to bring wearable ATs to the NHS Supply Chain and patients. The Apos® wearable device relieves knee, hip and lower back pain by shifting pressure off the knee and retraining muscles to work more efficiently.

Selected by NICE for evaluation under the Medical Technologies Evaluation Programme, the device was eventually approved and recommended as a non-invasive and cost-effective alternative to surgery in some osteoarthritis conditions, particularly for those who are eligible for knee surgery but who have not had success with first-line solutions.

Apos Health will also be part of the [Medical technology \(MedTech\) funding mandate for national rollout in 2024 to 2025](#).

Clothing tailored for people living with long-term catheters and ports

Patients with catheters or other medical ports face a high risk of accidental removal, which can lead to infections and stress and costs associated with device re-insertion. To address this, [Tookie](#) has created a range of vests with integrated catheter or port access to help patients manage these devices more effectively over the longer term. Initially developed for children with cancer, the expanded vest line now includes options for children and adults with kidney failure who require long-term central venous catheters or gastrostomy feeding tubes.

With the vests now listed on the NHS Supply Chain, practitioners and users are offered the support of the [Health Innovation Network](#) in accessing and implementing the products, hence reaching and supporting wider patient groups.

ISBN 978-1-5286-5133-2

E03179898 02/25