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Assistive technology and older people

By Roger Beech and Diane Roberts

Key messages

- The term 'assistive technology' incorporates a wide variety of devices.

- Assistive technology can be supportive, preventive or responsive.

- The increasing proportion of older people in the population makes the use of assistive technology an attractive option in social services.

- Perceptions vary as to whether or not assistive technology has sufficient benefits.

- Existing research supports the greater use of assistive technology but further evaluation and 'local learning' is needed.

- The views and needs of people using assistive technology need to be taken into account.

Introduction

This briefing will focus on various forms of assistive technology (AT) supplied to people over the age of 65. AT can be defined as '...an umbrella term for any device or system that allows an individual to perform a task they would otherwise be unable to do or increases the ease and safety with which the task can be performed.'[1]

An alternative definition which emphasises the role of AT in maximising the independence of older people is, 'AT is any product or service designed to enable independence for disabled and older people.'[2]

The technologies embraced by these definitions include devices that might form part of 'telecare' and 'telehealth' service packages (that is, assistance devices linked to response teams via a person's telephone, such as community alarm services, detectors or monitors of fire, gas or falls). The definitions also embrace a range of technologies from low-level to high-tech devices, however. These may also include more general technologies such as access to the internet which might have a role in promoting the independence and wellbeing of older people. When reviewing

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the research evidence for this briefing paper, this broad perspective of AT was adopted.

The briefing does not examine how specific devices work or their specific uses, but focuses on the ways in which such devices may be used by individuals, practitioners and organisations in meeting the needs of older people. It is a priority in AT to help people remain in their own homes, increasing their independence and reducing their social isolation. The briefing therefore examines some of the claims about the benefits of AT for people who use services and for health and social care organisations, addressing some of the challenges that have been identified to date. The majority of material used relates to the United Kingdom, with the addition of studies undertaken in other countries where these illuminate points relevant to the UK health and social care system.

What is the issue?

The UK currently faces a significant growth in the number of its citizens aged over 65 years, with an anticipated 47 per cent increase by 2026. Increased access to assistive technology is seen as a cost-effective means of maintaining the independence, health and wellbeing of this growing population.[3,4,5] The promotion of independence using AT, however, relies on an increasingly wide range of devices which cover an equally wide range of individual situations. Developments have meant devices are now more sophisticated although there are concerns over cost and user accessibility. Despite this, the types of AT available (or in development) can be categorised or grouped according to their role:

- supportive technologies for helping individuals perform tasks that they may find difficult (for example, video entry systems, and medication reminder units)

- detection and reaction (responsive) technologies to help individuals manage risks and raise alarms (for example, unburned gas detectors and panic buttons/pendants)

- prediction and intervention (preventative) technologies to help prevent dangerous situations and, again, to raise alarms (for example, falls predictors, monitors for assessing physiological symptoms, room occupancy monitors).[6]

The wide variety of devices and interventions that can be described as assistive technology therefore means that an equally wide range of users and user needs can be accommodated. The use of individual devices are, therefore, attached less to specific user groups or clinical conditions and, instead, can be used across a range of needs.

Why is it important?

With a growing population of older people, the increasing cost of acute interventions has focused policy makers on ways of reducing this need. In recent years, therefore, there has been greater recognition of the need to maintain health and wellbeing as a means of preventing ill-health.[7] In its desire to promote individual independence among older people, the UK Government has committed a high level of funding to the provision of AT. A total of £80 million was allocated to local authorities and their partner organisations between 2006 and 2008 using the Preventative Technology Grant[3] and a further £80 million is planned between 2008 and 2010 under the banner of Extracare Housing.[8] In return for this investment, the Government anticipates potential benefits for people who use services in addition to a redistribution of health and social care spending.

There is also an increasing awareness of the need for person-centred planning in health and social care which is supported by the moves toward personalisation in a number of policy areas. The use of assistive technology potentially provides a level of flexibility and choice which supports this agenda[9] although there are also potential conflicts between client and

practitioner views of the relevance and role of AT in care packages.[10]

What does the research show?

The majority of research to date is based on case studies and other research based on observable evidence. Some researchers would argue that the results of studies using these methods do not provide 'solid' research evidence. They would argue that evidence can only be provided by randomised controlled trials or experimental or quasi-experimental studies without randomisation.[11] In part, the traditional perspectives taken by health and social research are responsible for this difference in perception about the relevance of observable evidence-based research, which is more commonly a social science approach.

Benefits claimed for people who use services

- increased choice, safety, independence and sense of control

- improved quality of life

- maintenance of ability to remain at home

- reduced burden placed on carers

- improved support for people with long-term health conditions

- reduced accidents and falls in the home.

When placed against wider research with older people, AT devices do target issues that they have identified as being important.[6] These issues include concerns about being unable to undertake household chores; not wanting to be a burden on family members; fear of being taken ill when alone; and fear of accidents such as falls. These issues are categorised in AT provision as supportive, responsive or preventative.

Case studies of individuals in receipt of care packages that include AT confirm that it can help

users to address these anxieties and fears. The following two excerpts, from different studies, outline situations that are very common in the lives of older people. These excerpts also illustrate the nature of current qualitative evidence about the merits of AT.

'John had been admitted to hospital...and his wife Eileen went to stay with their daughter... John had dementia and his wife was not in a position to look after him any longer. Everyone wanted John to be able to join his wife at the daughter's house but the daughter and son-in-law were concerned about how they would manage...a number of items of technology were provided to enable John to be independent but also to support the whole family.'[12]

'A 90 year-old man had been in hospital for some time and his family had some concerns about him returning home...he was at risk of falls and fire...a smoke detector (accompanied by a protocol for the emergency services to be notified if triggered), a fall detector...and an enhanced hearing device for the phone were installed.'[13]

Positive feedback about the benefits of AT has also been obtained from people using services who have indicated that AT promoted independence; enabled them to remain in their own homes; helped them to perform daily tasks; and made them feel more safe and secure.[4,14] It is important to note that these aspects are fundamental to users' perceptions of AT and are likely to influence their willingness to accept AT interventions. The respondents in this study also highlighted specific issues that can affect the acceptability of AT for people who use services. They indicated, for example, that AT devices should be not only be easy and convenient to use but also reliable.[4] These considerations point to the need for older people to be involved, not only in recording satisfaction with devices supplied to them, but also in the design and development phases.[15]

Research into the use of AT by occupational therapists has also indicated professional

challenges that may have to be addressed when offering care. In one Swedish study, for example, 102 older people, living in their own homes and eligible for care supported by AT were interviewed.[16] One aspect of the study was a comparison of the characteristics and attitudes of individuals who accepted and those who declined care supported by AT. The study found that those individuals who accepted care supported by AT were more likely to have a positive attitude towards the potential benefits of AT.[16] These benefits were expressed in terms of AT allowing them to continue to develop their occupational and social goals. Individuals with a positive attitude were also more willing to have their home environment modified whereas others preferred 'retaining an undisturbed home and uninterrupted life',[16] opinions that may also be linked to individuals feeling stigmatised by the presence of AT.[17] As a result, there may be a discrepancy between users and practitioners in terms of their perceptions of the potential benefits of AT.[16,17,18,19] In addition, an 'ethical dilemma' may be created where the practitioner has to balance the client's wish 'to be left in peace' against their own view of the potential rehabilitation benefits if the client accepts care supported by AT.[16]

Such findings emphasise the importance of ensuring that the introduction of care packages involving AT are shaped by the desires and goals of people who use services. For community equipment, the outputs of the Trusted Assessor Project developed a set of competencies that those undertaking client assessments should adhere to.[20] Key competencies within the framework include listening to and being guided by clients' wishes and ensuring that clients understand the role of equipment and its relevance to their needs. In addition to the usual legal considerations of confidentiality and data protection,[5] it is also important that there is a shared understanding of any risks for the client surrounding the use of the technology and that these risks are documented.[10]

Similar competencies frameworks have been generated for practitioners caring for individuals who are suffering from long-term conditions[21] and they are relevant for practitioners involved in the supply of AT. More specifically, the Care Services Improvement Partnership[22] suggests that to ensure there is an ethical approach to shared decision making, a number of issues should be addressed by practitioners in their conversations with people using their services about the use of telecare. They pose the following questions:

1. Does the person understand what the telecare is supposed to do?

2. Have they been given a full explanation of the options?

3. Have they agreed that they would like to try telecare?

4. Have their closest family and friends been involved in these discussions?

5. Have you considered how you will balance any tension or conflict between the rights and risks of all parties involved?

6. Have you a suitable assessment tool to identify need?

7. Have you planned how to introduce telecare to the person?

8. Have you planned how the telecare will be installed?

9. How will you review its usefulness?

10. How will you review its continued usefulness?

11. Have you a decommissioning plan?

12. Have you a protocol for the use of telecare?

Further reflections on ethical issues surrounding the use of AT for patients with dementia can be found in reports resulting from the TED (Technology, Ethics and Dementia) project[23] and the ASTRID (A Social and Technological Response to Meeting the Needs of Individuals with Dementia and their Carers) project.[24] The Joint Improvement Team of the Scottish Government has also produced a telecare factsheet on ethics and assessment.[25]

It is also important that users have access to information which clearly describes the role of AT, how to obtain devices, their costs and who is responsible for covering those costs. These may include costs associated with purchasing, maintaining and installing devices, and concerns have been raised about the quality of existing information and its sources.[4,26] A range of distribution outlets for the information should also be considered. Those older people and their carers who were accessed in one study[27] suggested outlets including health centres and GP surgeries, videos and the internet. They also stressed the importance of the text font size and colour of such information, and the importance of including a picture of an older person using the equipment.

The requirement to ensure that those users who receive AT services are satisfied with the service has led to the development of questionnaires for assessing user satisfaction. The questions posed in one such questionnaire[28] are:

1. Could you always reach the service delivery professionals easily (**accessibility**)?

2. How clear was the information about the application and the possible solutions that the service delivery professionals gave you (**information**)?

3. How good was the cooperation and the communication between the different service delivery professionals (**coordination**)?

4. Did the service professionals have sufficient know-how (**know-how**)?

5. Was your application handled quickly and efficiently (**efficiency**)?

6. Were your own opinion and wishes considered in choosing an assistive device (**participation**)?

7. Was the use of the assistive device well explained to you (**instruction**)?

In general terms, computers and access to the internet represent technologies which are now widely used by the general population. They potentially offer benefits for older people in terms of reduced social isolation and increased access to information that might support their health and wellbeing.[6] A study commissioned by the Joseph Rowntree Foundation, however, identified some of the challenges that older people might face in achieving these benefits.[29] These included individuals being able to access computer skills training and also having sufficient funds to purchase computing and internet services, a finding which is also identified in other research.[15]

Benefits claimed for health and social care organisations include:

- reduced acute hospital admissions

- more timely acute hospital discharge

- reduced need for residential and nursing home care

- the ability to redistribute spending on services for health and social care.

Turning to the benefits of AT for health and social care organisations, findings from client case studies of the type previously discussed, do back up the hypothesis that access to AT can reduce an older person's use of beds for acute and long-term care.[12,13] Again, no studies were found that had used randomised controlled trials, experimental or quasi-experimental designs without randomisation. One study identified, however, did indicate that access to AT can reduce an older person's need for personal assistance at home.[30,31] That study used a cross-sectional design to analyse the responses of 2,368 individuals who had participated in a National Long-Term Care Survey in the United States of America.

The literature has also indicated challenges that health and social care organisations might face as they pursue a policy of expanding access to care packages supported by AT. One paper considered the practical issues that need to be addressed when implementing AT and stressed the importance of recognising that AT is usually just one component of a care package. As a result, it

needs to be integrated adequately with the other components of the package.[31,32] For example, telehealth systems for monitoring a person's vital signs must be linked to systems and protocols for providing assistance when required. In addition, given its holistic approach to health and health care, strategies for increasing population access to AT need to be developed by and have the support of all statutory and voluntary agencies responsible for the 'health' of older people. It should also be recognised that some professionals may resist the further development of AT.

Organisations involved in the health and social care partnership also need to develop approaches for prioritising client access to the types of AT that they deliver.[31] There is concern, for example, that procedures for prioritising population access to AT vary across the country which potentially leads to inequality depending on where the users live.[31] The limited availability and cost of some devices also emphasises the importance of ensuring sound criteria for assessment and allocation.[33]

Conclusions of an evidence working group[34]

This Department of Health working group reached a positive consensus about the merits of telecare, a finding that is also likely to be applicable to AT in general. They recognised not only the benefits to individuals and carers but also to health and social care organisations. They responded to perceptions of there being little 'scientific' evidence by arguing that a pragmatic approach was necessary when researching AT and that this approach should incorporate a variety of methodologies. They draw attention, for example, to the differences between evidence-based practice in healthcare, which relies on experimental study designs, and evidence-informed practice in social care which draws on a variety of research techniques. The working group highlights, however, that more evaluative

studies need to be undertaken to generate local learning about the impacts of AT for users and carers; the process of implementation; and the costs of AT.

Implications from the research

For policy makers

To increase the evidence for the development and use of AT, policy makers should continue to promote further research and local monitoring activities. A key component of the research agenda should be further work both to increase understanding of the acceptability of AT for people who use services, and to address the ways in which people are being prevented from using AT.

There are also indications that there may be geographical inequalities in user access to AT. Policy makers should explore current differences between health and social care partnerships in the ways in which they determine client eligibility for packages of care supported by AT and, as a result, whether there is a need to develop a standardised national approach for determining eligibility.[31]

For health and social care organisations

Those organisations which are investing in AT should support evaluation and monitoring activity that generates local learning about the impacts of AT and any difficulties surrounding its implementation.[34] When deciding the areas of 'impact' that are most important to monitor, those involved in the design of studies could consider the primary role of the scheme in question and where it might be placed within the approach to clustering AT schemes outlined earlier in this paper. For example, in the short term, schemes within the 'supportive technologies' cluster may offer fewer benefits for 'health and social care organisations' than those within the 'prediction and intervention' cluster. Likewise, benefits to people who use services such as reduced accidents and falls, and better

support for the management of long-term conditions, may be more evident for schemes within the 'prediction and intervention' cluster than the 'supportive technologies' cluster.

This early definition of the expected benefits of schemes should not be seen as a means of placing a value on their relative importance. Instead, it should offer a means of obtaining shared clarity about the potential impacts of schemes relative to those outlined in government policy documents such as 'Building telecare in England'.[3]

Any local evaluation study is likely to focus on the impacts for people who use services. Research demonstrates the importance of ensuring that outcome measures include those that take into account issues important from the perspectives of people using services, as well as those important for professionals and practitioners.[17] For example, for a technology such as a falls detector, the ability to remain at home and maintain social contacts are likely to be more important benefits for users than any reduction in hospital admissions linked to falls.

Organisations can also play a role in improving the scope and quality of information that is available about AT. The role of AT devices, their price and who should pay for the equipment are key issues that the information should include. Organisations also need to provide a variety of outlets and formats to enable older people to access the information required.

For health and social care practitioners

For practitioners, AT provides alternatives to personal assistance in designing care and support packages for older people. It has, however, been indicated that practitioners and users may have differing views about the potential benefits that access to AT offers. This can create a dilemma for practitioners as they must balance their desire to address a client's needs against the requirement to respect a client's wishes. This dilemma again

emphasises the need to explore the potential benefits of AT in ways that are meaningful to users. Those users who were more willing to use AT did so because it helped them to continue to develop their occupational and social goals, with less motivated individuals more willing to accept the status quo. This suggests that early access to AT, before potential users have adjusted to a changed life situation, may be beneficial.[16] Evidence from early studies on the implementation of AT also indicates that appropriate staff training and recruitment is a key issue.[32]

For users and carers

Users of AT have identified the benefits and downsides to their experiences of AT. Many of the benefits relate to wellbeing and confidence in living independently rather than to direct health benefits, but have been shown to be important in the package of care delivered. Although many of the questions about service provision are posed by practitioners, it is relevant for users and carers to be involved in the process. Users and carers should be consulted during discussions about using AT in their care package and have the opportunity for continuing input. In this way, users and carers can help ensure that they are clear about the nature and use of the AT device, in order to get the most out of it. In addition, it would be beneficial to the increased use of AT as a health and social care response for users and carers to be involved in future design and development programmes.

Towards an ethical code

SCIE has been asked by the sector to convene an advisory group to consider the production of an ethical code for use by all those involved in the provision, commissioning and manufacture of assistive technology and telecare. This will be published towards the end of this year.

Useful links

Age Concern – charity which provides information, campaigns and funds research on issues relating to older people
www.ageconcern.org.uk

AssistUK – a national network of centres to give advice on independent living equipment
www.assist-uk.org

Astrid Guide
www.astridguide.org

AT Dementia – organisation providing information about the use of IT for people with dementia
www.atdementia.org.uk

Care Services Improvement Partnership
www.csip.org.uk

Cornwall Falls Prevention website – a health promotion resource produced in collaboration between Cornwall & Isles of Scilly NHS and Cornwall & Isles of Scilly Health Action Zone
www.FallsPrevention.co.uk

Department of Health – for information about long-term conditions; telecare; telehealth; risk
www.dh.gov.uk

Disabled Living Foundation (DLF) – a national charity which provides advice and support to disabled people on equipment and technology that can promote independent living. Also has Telecare Made Easy, an online database of products at
www.telecaremadeeasy.com
www.dlf.org.uk

Equality and Human Rights Commission (previously Disability Rights Commission) – general information about equal rights for older and disabled people
www.equalityhumanrights.com

Foundation for Assistive Technology (FAST) – research and development in AT and campaigns for service improvements
www.fastuk.org

Help the Aged – charity which provides information, campaigns and funds research on issues relating to older people
www.helptheaged.org.uk

NHS – for general information and the PASA Framework at
www.pasa.nhs.uk
www.nhs.uk

PROFANE – an active working group of healthcare practitioners, researchers and public health specialists dedicated to the prevention of falls
www.profane.eu.org

RADAR – national organisation run by disabled people
www.radar.org.uk

Ricability – user-focused guidance on accessing and purchasing equipment
www.ricability.org.uk

Scottish Telecare Learning Network
www.jitscotland.org.uk

Telecare Aware – a free information service about what is happening in telehealth and telecare around the world
www.telecareaware.com

Telecare Learning Information Network
www.icn.csip.org.uk/telecare

Tunstall – a well-known commercial provider of telehealth and telecare in the UK
www.tunstall.co.uk

Whole system demonstrator sites – a new resource from the Department of Health
www.dh.gov.uk

Related SCIE Publications

Knowledge review 13: Outcomes-focused services for older people (2007)

Practice guide NICE/SCIE joint publication: Dementia: supporting people with dementia and their carers in health and social care (NICE clinical guide 42) (2006)

Practice guide 02: Assessing the mental health needs of older people (2006)

Practice guide 09: Dignity in care (2006)

Research briefing 12: Involving older people and their carers in after-hospital care decisions (2005)

Research briefing 15: Helping older people to take prescribed medication in their own home (2005)

Research briefing 21: Identification of deafblind dual sensory impairment in older people (2007)

Acknowledgements

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