



What can we do to improve the management of common conditions of ageing?

The quality of life of older people is often affected by chronic and noncommunicable diseases such as lower back pain, diabetes, osteoarthritis, falls, and age-related hearing loss. These conditions can also lead to disabilities.

The numbers are clear: At age 65, more than half of the population will live the rest of their life with a disability (1), and many will need at least one assistive technology product to support them (2). As most of these common health conditions cannot be directly linked to an increased mortality risk, they are seen as low priority for healthcare services (3). A holistic approach that brings together support services and healthcare technology has the potential to address some of these challenges and enable older adults to sustain their independence for longer.

Why now?

Healthcare access and usage has been dramatically impacted by the COVID-19 pandemic. Healthcare systems were challenged, stretched, and had to quickly adapt as the situation escalated. At surge times, older people were among the most disadvantaged as their chronic

and age-related conditions were neglected. Continued deferral or cancellation of treatments for chronic and episodic health issues can lead to an aggravation of conditions and store up greater demand for the future capacity of healthcare systems.

About this briefing

An expert community from Government and its agencies, the health and social care sectors, charities and academia was invited to come together for a co-development workshop to identify research questions of interest to both the policy and the research communities. Participants identified four big challenges in this space, and three research questions that could help better management of the common conditions of ageing become a reality.

Challenge 1: How can we use data to predict conditions before they arise?

- How do we encourage people to share their health data for research purposes to help understand different conditions?
- How can we take advantage of big data and AI to predict health conditions?
- How can we use technology, and the data collected through it, to promote self-management of certain conditions?

The application of artificial intelligence (AI) and big data for clinical purposes is still rare. However, it is acknowledged that technology is opening many opportunities for prediction and consequently preventive medicine. For example, health monitoring technologies could support older adults to stay independent for longer, as well as promoting self-management of certain conditions. For this to become a reality there is a need to investigate the barriers that prevent people from using such technologies. Whether it is people's trust, and worries around privacy, or lack of digital literacy, more research is needed to pinpoint the causes. Only then can research be done on the design of new policies to promote the active participation of older adults in their own care by boosting their confidence in technology and data sharing. In the workshop, encouraging NHS patients to use unobtrusive sensors and hearing aids that collect real-life data were two of the examples discussed. Balance analysis for falls prevention, cardiac monitoring for early arrhythmia detection, imaging analysis for early diagnostics, and automated diabetes monitoring were some of the uses debated (4).

Challenge 2: How can we understand why people feel stigma, and how can we address this?

- What are the most appropriate methods to understand older adults' concerns?
- How can we be more inclusive and consider the impact patient abilities may have in seeking support?
- How can we best engage hard-to-reach populations and BAME groups in proactive care?

Ageism and negative attitudes towards older adults have an impact on physical and mental health as stigmatisation can lead to delayed diagnosis, or late requests for support. An example presented at the workshop was the fact that people with hearing disabilities often do not realise it immediately since it happens gradually. Even when they do realise, people may be ashamed of admitting it, so they delay seeking intervention. In addition, the aesthetic of hearing aid devices can make some users reluctant to use them due to perceived stigma (5). Other illustrative cases include the fact that wheelchairs give mobility but also attract attention, or the fact that placing someone in medical care might be beneficial for their physical health but impact on mental wellbeing if they have to leave their home and family behind.

There is the need to investigate which methods would be more effective in collecting information from older adults on why they feel stigma, and what needs to be done from an innovation perspective to mitigate that. For example, co-design of technology and care pathways could be a way to reduce stigmatisation and better design assistive technologies or treatments that meet older adult needs.

More frequent use of participatory approaches such as focus groups, and patient interventions are needed in the design of more inclusive research and user-centred policies to promote engagement with the hard-to-reach



communities such as BAME groups when it comes to their personal care.

Challenge 3: How can we better harness the technology we already have?

- What lessons can be learned on how digital inclusion supports or hinders social connections?
- What are the facilitators or barriers to accessing digital support, and how can we best assist people in overcoming those?
- What offline solutions are needed to ensure no one is locked out of service, information or opportunities?

Participants noted that there are many opportunities to use existing technologies in new ways to help improve health outcomes. There is the need to investigate the potential of repurposing existing technologies to address some of the current unmet needs.

The rapid deployment of virtual medical appointments (instead of in-person consultations) during the COVID-19 pandemic is one such example. But as with all innovations, there are benefits and drawbacks to be considered. In this example, virtual consultations were more easily accessible for people with reduced mobility or who needed to shield. On the other hand, people with hearing problems or cognitive impairment may have faced challenges with phone or video appointments.

Research to help test technologies (including new applications for existing technologies) with real users in order to identify users' needs was stressed as a priority.

One of the suggested approaches to educate older adults in the use of new technologies was the creation of a friendly space to open the discussion helping to identify user struggles and needs, could work as a research platform to collect quantitative and qualitative information to back the design of targeted interventions. An opportunity to coach older adults in the use, and functionalities of different technologies, at the same time as we educate tech developers to avoid misinterpretation of older people's needs and preferences.

Challenge 4: How can we use technology to manage multi-morbidity?

- Which systems or apps already exist to help people manage health conditions?
- Which elements might most usefully be combined into a single interface?
- What are the barriers (both social and technical) that might prevent greater integration across platforms and systems?

Older people are more likely to be living with two or more health conditions (known as "multi-morbidity"). By 2035, two-thirds of adults aged over 65 in the UK are expected to fall in to this category (6). People living with multi-morbidity can often face complex self-management routines. Workshop participants discussed the potential for technology to help to coordinate and streamline information and processes such as:

- Receiving alerts and reminders about medication;
- Tracking symptoms;
- Coordinating specialist healthcare visits;
- Helping to resolve conflicting advice about medicines.

Managing these different activities through a single interface could help to empower individuals and make managing multiple conditions more straightforward.

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Acknowledgments

Our research

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Find out more:

- PIU: www.ucl.ac.uk/steapp/collaborate/policy-impact-unit-1
- IHE: www.ucl.ac.uk/healthcare-engineering
- CelebrAGE: www.ucl.ac.uk/pharmacy/research/celebrage

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