NUFFIELD COUNCIL ON BIOETHICS

Practitioner survey: summary of responses

August 2021

Introduction

On 8 June 2021, the Nuffield Council on Bioethics' working group on the future of ageing launched an anonymous survey aimed at practitioners who work with older people.

The survey – titled 'Health technologies and the future of ageing' – was hosted on Microsoft Forms and was publicised via the working group's professional contacts, social media, the Nuffield Council's newsletter, and personalised emails to practitioners' membership organisations. The survey closed on 2 August 2021 and received ten responses (from six doctors, one physiotherapist, a researcher, and two other practitioners who did not specify their roles).

This summary draws together key themes from the survey and illustrates them with quotes taken from practitioners' responses. The outcomes of this survey will support the Nuffield Council on Bioethics' project on 'the future of ageing', which is due to be published at the end of 2022.

Survey scope

The working group indicated its interest in a wide range of health-related technologies and offered a non-exhaustive list of examples to prompt respondents to offer their views. The technologies listed in the survey were:

- **Assistive technologies**: from the use of assistive robots in healthcare to provide physical and cognitive assistance to older people, to the use of telehealth equipment to manage long-term conditions at home
- **Communications technologies**: from video software to keep in touch remotely, to 'big button' easy-to-use mobile phones
- **Monitoring technologies**: for example, devices that can detect if a person has had a fall
- **New diagnostic and treatment options emerging from biomedical research**: for example, developments in identifying biomarkers that predict age-related conditions
- **Design-led technologies**: for example, examining how smart fabrics and textiles can support older people to live independently
- **Artificial intelligence (AI) technologies**: for example, to support the early diagnosis of Alzheimer's disease
- **Virtual reality (VR)**: for example, by assessing if VR supports older people's emotional and social wellbeing.

Using health technologies to support older people: respondents' descriptions

The first question of this survey asked respondents to describe how they use the technologies in scope to provide support for older people. Practitioners offered a wide range of examples, including:

- Telehealth to monitor long-term conditions;
- Telemedicine "for acute stroke assessment and decisions regarding hyperacute treatments, such as thrombectomy and thrombolysis. Remote assessment via a laptop and video link (and access to images) allows us to view the patient at the bedside, in conjunction with another practitioner at the bedside";
- Portals, mobile phones, and tablets to enable communication with families (in hospital contexts, one practitioner noted "usually there is a member of staff to assist with the technology on the ward");
- Communications technology: "in the case of older people this technology is the easy to use big button mobile"
- Pendants / accelerometers attached to 'life lines' to detect falls;
- Use of webcams (by families);
- Monitoring technologies, including those to check a patient's heartrate;
- Door alarms;
- Apps to provide patients with information, or "for entertainment or attempting to improve various aspects of rehab";
- Technologies focused on keeping people with dementia safe, including GPS trackers and monitoring services such as 'Technology integrated healthcare management';

- Devices such as exoskeletons and mouth-operated wheelchairs to assist people who have a physical impairment;
- Biomarkers – for example, "to monitor how well or poorly a person ages, that is, his/her biological age."
- Gene therapies "to help people live longer and healthier lives."
- AI – for example, "Some imaging software is starting to use AI in the interpretation of CT brain scans to assist the physician in clinical decision making";
- Virtual reality 360 bespoke videos "created to bring outside spaces, imaginative stories and ideas as requested by patients to life through tablets, and headsets as suitable for each patient. The films enhance wellbeing."

A small number of respondents suggested that use of some of these technologies was not yet standard. One practitioner noted, for example, that "there has been limited implementation of technology on the ward to facilitate rehabilitation." Another suggested that the use of technologies is not "as widespread as [it] could or should be."

One respondent indicated that they worked in an NHS hospital without access to any of the technologies described in our question.

Aims of these technologies

Some respondents highlighted the substantive aims of these technologies. The use of monitoring technologies, for example, was felt to "ensure that older people are able to live an independent life as much and as long as they can, and as long as their health allows it." Respondents also highlighted issues which had arisen through the introduction of a particular type of technology:

> *"One project assessed VR in helping establish home circumstances (without the need of a home visit). Participants found it disorienting and unusable."*

> *"Some imaging software is starting to use AI in the interpretation of CT brain scans to assist the physician in clinical decision making. There is inequity of access across different hospital sites (research active centres more likely to use)"*

Older people's conditions or issues assisted by these technologies

Our second question asked practitioners: "in your work with older people, what conditions or issues do you find are especially helped by any of these technologies?" Several conditions and issues were identified by respondents.[1]

Conditions

- Falls (via telehealth, including pressure mats, accelerometers, and webcams)
- Diabetes and blood pressure
- Dementia

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[1] Some conditions were captured by practitioners' answers to the first survey question.

- Musculoskeletal conditions
- Stroke assessment, and rehabilitating patients who had suffered a stroke

One respondent also highlighted biomarker targets, including epigenetic methylation, chronic inflammation, antioxidant capacity, reactive oxygen metabolites, IgG glycosylation, NDA levels and C-reactive proteins.

Issues

- Falls (via telehealth, including pressure mats, accelerometers, and webcams)
- "Access to otherwise inaccessible spaces"
- "Support for socially isolating patients"
- "Familiarity bringing a sense of happy nostalgia and calm"

The effect of the COVID-19 pandemic and the role of technologies to support older people was also highlighted by one respondent.

> *"Using easy to use big button mobile allowed patients to feel independent and able to keep in contact with the outside world rather than being cut of from it. In the case of individuals with dementia and Parkinson's I have discovered that they liked to use these devices as it allowed them to not feel like they had been abandoned by their loved ones during covid 19. In cases where dementia and Parkinson's patients were not able to communicate with their families their medical conditions got worse as they thought they had been abandoned by their loved ones during covid 19. They could not understand what covid 19 was and why visiting had stopped."*

Substantive points were also raised by respondents who chose to answer this question, including the observation that technologies are not accessible to all older people:

> *"I know that many older people use alarms and sensors for falls, but the majority do not. Many of our patients have a fall and a 'long lie' before help arrives. I work with patients who are living with dementia and even accessing such things as dementia specific radio stations is not possible as they are mainly online and we do not have smart speakers or adequate internet access. Many patients are lonely and bored on the wards, especially as visiting is so restricted at present."*

Another respondent suggested that this question was *"more about trying to reassure individuals - usually carers, family, and MDT [multidisciplinary team] members about safety of discharge in those that wish to be supported at home where the discharge is deemed 'risky'".*

Technologies in current use which cause practitioners concern

Our third question asked respondents: "Do any technologies you currently use in the context of your work cause you concern? Why / why not?"

One concern raised by respondents focused on how disabilities such as deafness or cognitive impairment could hinder people's access to technologies such as telehealth. One respondent stated:

> *"A major hurdle is the ability of our patient group to engage in the technology, always needing assistance due to: cognitive impairment, poor eye sight, lack of dexterity due to arthritis or stroke deficit."*

Another respondent raised a more general concern about the accessibility of health technologies, noting that where video consultations are offered, they might be affected by "insufficient understanding of health and digital literacy amongst older people".

Using the technologies in scope was not only highlighted as an issue for patients, but for practitioners too:

> *"There will be physician uncertainty with respect to the sensitivity and specificity of the use of AI in detecting abnormalities on brain scans, on particular when this is confounded by changes in the ageing brain."*

The intrusiveness of technologies was also highlighted – for example, using GPS monitors and tracking devices "to ensure that people with dementia do not wander too far." This, suggested one participant, leads to a "tricky balance between safety versus autonomy."

More generally, there was a call for a more comprehensive evidence based to inform how and when technologies should be used. One practitioner, for example, noted: "we do not have the evidence to suggest that they [technologies] are actually of benefit."

A small number of respondents indicated that they had no concerns about technologies in current use. One practitioner noted that this was because "as NHS staff we follow the NHS guidelines. Also we are very careful when using digital technology and only do so after obtaining the patient's consent."

Technologies in development which raise concern for practitioners' future work

Our third question asked practitioners: "Do any technologies in development cause you concern in the context of your work? Why / why not?"

Highlighted concerns included:

> *"The use of robots made to look like humans and respond in the same way, may be useful companionship, but [there is a need to ensure] that there are boundaries."*

> *"Information governance issues are complex and need to sort out."*

> *"My main concerns would be information governance, misuse by pharma / private companies of patient data, ensuring adequate consent, [and] data breaches."*

> *"Increasing use of tech will cause inequalities across age and socioeconomic status."*

Around half of the respondents who answered this question indicated, however, that they had no concerns, or did not have sufficient knowledge of the technologies to comment.

Technologies' contribution to practitioners' future roles

We asked practitioners: "Do you think technologies will change how your role is carried out in the future? If so, how?"

Some practitioners responded with a simple 'yes', whereas others explained more fully how technologies might change their roles. Several identified positive changes that the technologies could play in this respect:

> *"[They could give] better access to clinical data enabling decision making."*

> *"They will definitely inform my clinical practice and help me support this patient group."*

> *"AI will enable better monitoring of patients without the need for people to attend the hospital all the time."*

> *"It is possible [they would support] better monitoring in ITU [intensive care unit] and the wards with results moving from the measuring device directly to the patient record. Integrated records across the UK would help."*

> *"I foresee technology assisting with rehabilitation (e.g. robotic devices), aiding safer discharge, monitoring for falls and safety in the home (automatic alert for example with falls on the apple watch; GPS monitoring of ambulant people with severe dementia). The Internet-of-Things could benefit the older person in the home immensely - controlling central heating, assisting meal preparation, monitoring contents of a fridge, switching on lights to voice etc."*

> *"I think wearable devices will be really helpful in providing less invasive and speedier diagnostic ability, eg heart monitoring. There may be more information gained from these that will feed into assessments – how mobile, really going out, 'wandering', concordance with therapies etc."*

> *"… technology that can be accessed by patients and their carers at home such as easy-to-use video calling could mean that they can check in with a physio on a more regular basis and changes in abilities can be assessed more quickly, or before crisis is reached."*

> *"Biomarkers may be useful to point to a disease presence or to monitor it. At the present disease management is its main use. Few are used for diagnostic processes."*

Others were more moderate in their response:

"Perhaps but it's hard to say how without knowing what form such advancement may take."

"NHS systems are very gradually (painfully slowly) moving across to paperless systems. The transition has significant patient risk (incomplete records, some paper, some digital) but ultimately we should be using an integrated IT system to allow record access across NHS sites".

One respondent stated that they did not think technologies would change their role.

Barriers to people's use of health technologies as they age

Question 6 of the survey asked: "Do you think that there are any barriers to people's use of technologies as they age? If so, what are those barriers? How might they be overcome?"

1. Barriers identified

Every respondent indicated that there are barriers to older people's use of technologies. Barriers identified included physical obstacles such as potential reduction in people's hearing, vision, dexterity, and cognition. One respondent noted further that it might be difficult for older people with a cognitive impairment to use technologies unaided by a carer.

Participants also highlighted access issues, particularly with respect to the cost of technologies and their usability:

"Cost - usually the initial barrier to use in the NHS."

"Apps can be expensive, and with a wide range of devices, those who depend on personal devices may struggle, if not available on all such as Apple, Android and possibly Huawei's platform."

"They find it difficult as they are unable to understand the different types of technology. There needs to be more support for older people around the use of digital technology."

"Plenty of barriers [including] acceptance of technology".

"… some current technology is too complicated."

Participants also highlighted the potential barriers of health literacy and digital literacy. Another respondent highlighted how language might also be a barrier to consider:

"It is also important to include ethnic minorities in this and provide IT services and digital support in their languages."

A further barrier identified focused on older people's fear of being 'scammed' or concerns about invasions of privacy.

2. How barriers might be overcome

A small number of suggestions were offered for how barriers might be overcome. They included a proposal that patient and public involvement (PPI) could be used to understand barriers better, and respond to them. One participant added further that this might include co-designing technologies with older people. A similar point was noted by another participant:

> *"Senses that decline with age need be taken into account from the product design phase - hearing, vision, cognition (ease of use), dexterity, equity of access in the home (broadband)".*

A further participant stated that "assumptions that older adults don't want to engage with technologies are unhelpful. Ask, demystify through demonstration and offer access." Growing familiarity was also highlighted as a method by which barriers might be overcome, and could "improve with younger generations as they age." Familiarity was also noted as an approach to barriers by another practitioner:

> *"I think they need to become more common place - acceptance will come from word of mouth or engagement with tech savvy family members, with stressing of positives - video calls, reminders, social applications, less appointments (though in my experience older adults like coming to appointments for interaction). Backing from groups such as AgeUK and advertising in areas seen by older adults would help."*

Government backing was the focus of a submission from another respondent, who suggested that – in order to overcome the barrier of the expensiveness of technologies in scope – said, "Government agencies need to help to expedite therapeutics to patients who cannot afford them."

Technologies' impact on older people

Question 7 of the survey asked practitioners, "Do you think these technologies will impact all older people in the same way? Please explain your answer."

Most respondents felt that the technologies would affect some older people in ways that are different their peers.

> *"No, every individual is different and has different levels of digital experience and knowledge. Therefore, it is important not to place all older people in one category. There needs to be more investigation into which individuals need help and with what type of technology."*

> *"… some people are far keener to embrace these technologies at any age!"*

> *"I think they will have greatest benefit for people living alone and those with dementia".*

> *"No, [there will be] different levels of uptake with technologies… Those with social support that use technologies themselves will likely drive uptake. Future generations will be much more used to living alongside technology."*

"…richer adults will be less disadvantaged."

"The impact of age and co-morbidity will clearly differ between individuals and their ability to use a 'device' depending on disability. Equity of access due to cost, social disparities will impact uptake".

One practitioner felt that the question could not be answered without contextual information.

"It's not possible to say yes or no to this question without speaking to a broader cross section of the older adult population."

Additional points raised by practitioners

We offered participants an opportunity to provide further points on how technologies are used in the context of their work with older people. Comments were diverse and included:

"Not used enough, but what is used must be able to cross organisational boundaries. There needs to be better research into the benefits of AI, its constraints and limitations. The population used to develop a device needs appropriate to set "norms" of behaviour. Many normal ranges are selected from the younger population."

"Tech is accessible, should be easy to use, and provide respite, familiarity, company and support where possible. It should be affordable and not intrusive and exciting to create moments of wonder."

"We need to be careful not to blur the boundaries between man and machine. Mankind needs to retain their independence, so the use of technology must not be used to create a virtual or real time prison."

"In my view there should be more IT support groups for older people. Also there should be easy to use digital technology for older people to use. This is to keep them a part of the digital age and not feel left out."

"We need more research in this field before widespread uptake".

Practitioners' stories

The final substantive question in our survey asked practitioners to share their stories about their experiences with health technologies in the context of their work. The stories we received included:

"I am an early career researcher looking to see if we can utilise technology at home to support people with delirium post discharge from hospital".

"I run a singing and social group for older people in the community to tackle loneliness and isolation. When the COVID pandemic first hit and we couldn't run our groups we tried to think of ways in which we could use digital technology to still provide a service to our clients. However,

very few of our members were willing or able to use the digital technology available, even when offered help to do so. A reluctance to engage in new technology is an issue that should be looked into and addressed. Eg. Why are they reluctant and how can it be made more palatable?"

Next steps

Responses to this survey will be considered by the Nuffield Council's working group on the future of ageing, and will inform its forthcoming project report.