Ageing well with technology.

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While telecare and telehealth are not new concepts, the technology-based provision has seen a global rise in prominence in recent years. This can be explained in terms of the challenges presented by ageing populations and increased demand on health and social care services, as well as in economic terms as public institutions search for a panacea to shrinking budgets and uncertain futures. For its part, the technology industry has been eager to demonstrate the seemingly limitless capability of technological innovations not only to present solutions to complex health and social care conundrums but also to enhance the general wellbeing of all of us as we age.

The UK Government has consistently advocated, over the past decade, widespread adoption of these services. It has backed this position with large-scale funds and encouragement of prominent industry players. The White Paper 'Our Health, our care, our say: a new direction for community services' (DH, 2006) drew attention to the ageing population [1] and kick-started the debate on investment in preventative and community-based services that aim to keep people ageing well and to maintain independence. The Preventative Technology Grant (DH, 2005) allocated £80 million to local authorities between April 2006 and April 2008 for the purpose of setting up telecare innovations to support people to live independently in their own home and so reduce avoidable admissions to residential care. This emphasis on enabling people to live well at home has been a constant in government policy, continuing in the White Paper 'Building the National Care Service' (DH, 2010), which promotes use of new technologies in housing and social care policy to give people the confidence that they are safe to stay in their own homes. There is also a raft of evidence showing that older people want to stay at home for as long as possible, and that their feelings about home are interlinked with their sense of identity and independence, connections with their communities and feelings of security and familiarity (Clough et al, 2004; Peace et al, 2006; King & Farmer, 2009; Wiles, Leibing, Guberman, Reeve, & Allen, 2012).

The recent publication of 'A concordat between the Department of Health and the telehealth and telecare industry' (DH 2012) reiterated ministerial belief in the potential of telehealth and telecare to improve people's quality of life. This public declaration followed positive headline results from the Whole Systems Demonstrator (WSD) programme – the largest randomised control trial of telecare and telehealth in the world, set up to provide a clear evidence base for investment in technology (DH, 2011). The WSD tested telehealth aimed at supporting people with long term conditions. The trial focused on diabetes, heart failure and chronic obstructive pulmonary disease (COPD), with over 70% of participants aged over 65. The intervention was shown to reduce mortality rates by 45% and emergency hospital admissions by 20% (Steventon et al., 2013).

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[1] UK projected increase in people aged over 65 of 47% to 11.6 million by 2026.

Telecare and telehealth have developed in the context of tackling health and illness issues and of efforts to ensure older people who may be at risk of losing their independence are helped to avoid entering long term hospital placements or residential care for as long as possible. Maintaining independence is the critical factor that the technology aims to address through, for example, falls detection, aids for sensory impairment, medication management, memory prompts, and vital signs monitoring (Malcolm J. Fisk, 2003). The type of equipment in use ranges from low-tech standalone pieces, such as vibrating pagers or movement sensor lights, to sophisticated monitoring equipment, such as GPS trackers or even ingestible sensors in pills to promote medication compliance (Bryant Howren, Van Liew, & Christensen, 2013). The technology is advancing rapidly and the scope for enthralling a variety of different beneficiaries is beginning to be realised.

For instance, research money is also being heavily invested in robotic technology. A rough distinction can be drawn between single purpose robotic devices and more ambitious care robots, multi-functioning single units that, linked into smart home technology and telecare technology, could potentially become carer-companions for users. These latter robots – of the kind being developed in the [Acceptable robotiCs COMPanions for AgeiNg Years (ACCOMPANY)](#) – are terrifically expensive at present and many more years of research and development will be required before they can be used as a meaningful substitute for, or supplement to, human carers. There is particular interest in the development of such robots in Japan, where the increase in the ratio of older persons to working persons is likely to be particularly marked over the next couple of decades, and where relationships with robots and virtual beings relationships seems increasingly acceptable. More promising in the shorter term are single function devices. These include companion type devices such as Paro the seal (a responsive soft toy that is marketed as a therapeutic robot), robotic feeding spoons, and devices that can aid rehabilitation following strokes being developed alongside increasingly sophisticated devices that can help with household chores such as robotic floor cleaning devices. Aside from the cost, ethical concerns about the use of robots as care devices have been raised. These were usefully summarised by Vallor (2011) as objectification (Sparrow and Sparrow 2006, Sharkey and Sharkey 2010) or infantalisation (Sparrow and Sparrow 2006, Sharkey and Sharkey 2010, Turkle), loss of control and freedom (Sparrow and Sparrow 2006, Borenstien and Pearson 2010, Decker 2008), loss of opportunities to engage with surroundings (Sparrow and Sparrow 2006, Borenstien and Pearson 2010) and other people (Sparrow and Sparrow 2006), loss of privacy (Sharkey and Sharkey 2010), lower standard of care (Sparrow and Sparrow 2006, Coeckbergh 2010). In response to these concerns, an empirically informed ethical framework for careobots is being developed as part of the ACCOMPANY project (Draper and Sorell 2012).

In the past couple of years, there has been a move towards embracing a more comprehensive account of telehealth, in particular. Defined by the Department of Health as a service that 'uses equipment to monitor people's health in their own home... [monitoring] vital signs such as blood pressure, blood oxygen levels or weight' (Davies & Newman, 2011) telehealth has often been regarded as clinically-focused and requiring considerable investment in hi-tech hardware. However, the teleSCoPE project, which developed a European Code of Practice for Telehealth Services, argued that approaches to telehealth 'should not solely reflect clinically driven responses to the higher-level needs of some 'patients'' (Fisk, 2013: 1) and accordingly adopted the definition of telehealth as 'the means by which technologies and related services concerned with health and wellbeing are accessed by them or provided for them at a distance' (teleSCoPE, 2014: 14). Crucially, this definition

recognises the need for people to access services to manage their health on their own terms and in whatever way suits them – smart phone apps can be part of the service, for example. It also gives a nod to the preventative agenda, proposing that telehealth can respond flexibly to people's needs and choices and encourage them to adopt lifestyles that are conducive to better health (Fisk, 2013). Furthermore, it blurs a previously more clearly defined distinction between telecare (as concerned with supporting social care) and telehealth (as supporting medical care) (Fisk, 2003).

This broadening in scope of ideas about telehealth has complemented advancements in smart home technology aimed at improving people's quality of life through the management of their home environment, usually through non-obtrusive monitoring of the inhabitant and/or encouraging their independence (Chan, Campo, Estève, & Fourniols, 2009). The few studies that assess the feasibility of smart home technology cite the potential for wide ranging benefits for a large market of older adults, and lucrative opportunities for the technology industry (Blaschke, Freddolino, & Mullen, 2009). As such, there is global interest in smart home developments, with demonstrator homes being cultivated around the world that use ubiquitous environmental sensors focused on comfort, energy efficiency, safety and security, activity monitoring, smart appliances and biometrics, as well as the more usual fall detection systems and memory prompting technologies (Chan et al., 2009; Helal et al., 2005).

Aside from the core monitoring capabilities, smart home technology is beginning to incorporate ways of facilitating social interaction, for example enabling video-mediated contact between friends and family and virtual participation in group activities (G Demiris & Hensel, 2008). The ethical implications of promoting virtual contact in a way that might replace more face-to-face and in person forms of communication and care have been much debated (M. J Fisk, 1997; Perry, Beyer, & Holm, 2009; Pols, 2010; Schermer, 2009; Sorell & Draper, 2012; Draper and Sorell 2013). Similarly discussed are the attitudes of older people towards this form of social interaction, as well as the acceptability of smart technology more generally (Demiris et al., 2004; Mitzner et al., 2010; Zwijsen, Niemeijer, & Hertogh, 2011). While these studies have found that older people have some concern about the user-friendliness of devices and the possible replacement of human assistance by technology, they also show that older people can see the potential for smart home technology, as a concept, to enhance their lives (Demiris et al., 2004). There is certainly evidence that stereotypes of older people's unwillingness to engage with technology can be readily contradicted (Mitzner et al., 2010). There are also studies highlighting the potential for information and communication technology to increase social interaction by increasing people's desire to leave home and meet others (Bradley & Poppen, 2003; Osman, Poulson, & Nicolle, 2005).

One key consideration is how these technologies are designed to be user-friendly, with particular reference to older people. Manufacturers have been accused of failing to take into consideration the functional limitations that come with age (Demiris et al., 2004). Devices need not only to be usable to a wide range of people with varying needs and expectations of the technology, but also to be acceptable to potential users and not stigmatising (Turner & McGee-Lennon, 2013). This requires a commitment to seek the input of older people at the design stage (Mitzner et al., 2010).

Evidence to the Commission

The Commission's final workshop was held at [The ExtraCare Charitable Trust's Pannel Croft Village](#) in

Newtown, Birmingham. It focussed on the City of Birmingham and ageing in a place that is highly diverse, in economic, ethnicity and health terms. Discussions centred around ways of achieving a high quality of life through use of telecare and telehealth, as well as giving choice through different models of housing.

The Commission heard from [The Good Governance Institute (GGI)](#) and [doctoral research](#) being carried out in Sandwell that telecare and telehealth systems have been fully embraced in the wider Birmingham area. The technology tends, however, to be implemented in homes of vulnerable older people who already have some contact with social care and/or the NHS. Nevertheless, there are efforts to make telecare and telehealth services part of the preventative strategies of positive health promotion, that aim to establish these services as the default option for intervention before other forms of social care are considered, and before any adverse incidence (such as a fall) arises. Sandwell Metropolitan Borough Council (MBC) in their commissioning priorities for 2013/14has been explicit about investment in telecare and extra care housing, as well as the development of an integrated prevention platform with health and housing, which aims to keep potential service users out of formal services.

Evidence from [Birmingham City Council's Director of Public](#) Health demonstrated the recognition in Birmingham that statutory services have a key role in supporting older people to remain as healthy as possible for as long as possible. He suggested that Birmingham currently has the healthiest generation of older people that the city has seen, and will see, for a long time. He argued that this is due their having survived periods of austerity and having had previously active lifestyles. In his opinion, efforts should therefore be focussed on helping them to 'reactivate' healthy behaviours by raising awareness about their health and the continued need for exercise. He identified 'information poverty' as a key challenge for older people, particularly in terms of accessing the benefits of online information, for example in achieving the best energy tariffs. This issue was equally recognised by Birmingham City Council's ['Making It Real'](#) action plan, which highlighted residents' request for timely and appropriate access to information and advice. This is not just a question of willingness to embrace new technology but is also related to the affordability of internet access. The point is particularly pertinent if it is accepted that public services should be enabling and not just providing information to ensure people take control of their health and independence.

Internet access is also vital for developments in social networking to reach their potential in tackling social isolation. Sandwell MBC have been working with software company Red Embedded to implement Virtual Visiting in the homes of some of their service users, and this initiative has the capacity to be of interest to a wide range of residents with dramatically different support needs. Virtual Visiting requires configuration of a person's television so that an additional channel is set up and video calls are enabled. The council then sets up a broadband connection, if one does not already exist, and provides the person with a simple control handset for making and answering telephone calls. A person calling in can do so from their PC with a webcam. A message will appear on the recipient's TV screen showing that someone is trying to call them. They can then accept or reject the call using their control and, if accepted, the TV will switch to the Virtual Visiting channel where the live video call can take place.

The concept of video calling over the internet is clearly not new but this system does not require the person to have a computer. It also provides a higher level of security than publicly available

software and is designed to be very simple to use. Sandwell intend for the system to be used for a variety of health and care related 'visits' but are equally clear that it could provide potentially vulnerable older people with much needed contact with friends and family, and are actively seeking to set up virtual community groups to reduce feelings of isolation.

Enabling contact with family and friends in an accessible way is the focus of many other initiatives, such as Mindings. Mindings was originally set up as a way for the founder to share family photos with his elderly father living some distance away. It aims to provide families living far apart with meaningful contact, particularly where one or more family member is not 'tech-savvy'. It incorporates the core ideas of social networking but with an emphasis on active and visible responses to the sharing of captioned photos, text messages, calendar reminders and social media content.

In addition to information on support for older people through social networking, other evidence to the Commission revealed different approaches to community building that could benefit older people in Birmingham. The ExtraCare Charitable Trust provided the venue for the Commission's workshop at their Pannel Croft Village – an extra care scheme providing 180 one and two bedroom mixed tenure apartments to older people with wide-ranging care and support needs. Facilities such as shops, a gym, a restaurant and a hairdresser are all accessible on site. Pannel Croft is situated in Newtown, an ethnically diverse part of Birmingham. Prior to opening the village, the Trust set up a community group to ensure the interests of local were reflected and links to the community were established. Most residents of Pannel Croft moved from within a mile of the village and 70% are of African Caribbean origin.

The Trust emphasised the importance of the wellbeing service it provides to residents across its schemes, which includes an annual wellbeing assessment, health action plans and drop-in sessions for general advice. In 12 months of this project, 135 residents had previously undetected and untreated conditions dealt with. A team at Aston University are now engaged in a three year longitudinal study to evaluate the Trust's approach. This is due to be completed in mid 2015.

Technology and the BME population

During this workshop, very little evidence to the Commission specifically referred to the challenges presented by healthy ageing in multicultural communities. Some issues were identified, such as the need for culturally sensitive community facilities (for example, public gyms can deter Asian women). An ongoing theme, however, was access to information, and this can have a particular resonance with black and minority ethnic (BME) groups. Adrian Philips, Director of Public Health for Birmingham City Council, told us that many BME groups are concentrated in the most deprived areas of Birmingham, where access to technology – especially the internet – can be unaffordable. Melanie Gray, in her presentation on the 'Making It Real' project (which helps councils to work with their communities to improve services), concurred that people need to be provided with information and advice in places where they can access it – not just online – and in multiple languages.

Where telecare and telehealth are concerned, there is a paucity of research on the experiences of people of BME origin. Assumptions have been made about the role of family care, particularly in relation to Asian elders, negating the enthusiasm for technological support. A recent pilot study of

South Asian communities in Britain did conclude that the family remains central in the provision of care and support, and that the Bangladeshi and Pakistani elders who participated had strong and unambiguous expectations about care provision being gendered and provided predominantly by their children should the future need arise (Victor, Martin, & Zubair, 2012). However, the researchers also reported that the family networks of participants were complex and geographically diverse, sometimes complicating intergenerational ideas about 'duty'. Moreover, the reliance of older people from South Asian origin upon their families for care and support is a trend reflected in the general British population, suggesting little difference in their requirements of technology.

The WSD reported language issues as a barrier to participation in telecare and telehealth, suggesting that equipment operating in English only could impact on people's confidence to use the technology (Sanders et al., 2012). This point has been picked up by a collaborative project between NHS Walsall and CantabMobile, which is testing out an app that can detect early signs of dementia through a simple touch-screen assessment. The particular nuance here is that the test uses symbols rather than words and has voiceover instructions in 15 languages. The app was developed in response to issues raised with paper-based assessments that disadvantaged people who spoke English as a second language or had poor literacy skills. This aptly demonstrates the need for public institutions to recognise that future services must be sensitive to minority ethnic differences, particularly where prevention is a priority.

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