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Accessibility and inclusion in digital health

This item contains selected online content. It is for use alongside, not as a replacement for the module website, which is the primary study format and contains activities and resources that cannot be replicated in the printed versions.

Contents

Introduction

In this free course, *Accessibility and inclusion in digital health*, you will consider some of the ways that people can access digital health in the UK and how they are able to take more control over their physical and mental health. However, for a number of reasons not everyone has access to digital health technology; for example, affordability, fear of using technology or personal circumstances. This is why the NHS Digital Health organisation in England and the Scottish and Welsh government have also developed initiatives to increase accessibility and to empower people to feel included in decisions about their health and wellbeing. This is explored in the context of a variety of different people from different backgrounds and for different health conditions.

This OpenLearn course is an adapted extract from the Open University course K102 *Introducing health and social care*.

Learning Outcomes

After studying this course, you should be able to:

- explain what is meant by digital health
- identify the contexts in which digital health is used
- evaluate some of the ways in which using digital health can give people greater control over their health.

1 Why create digital citizens?

While digital health technology can mean better access to and control of patients' information, health and care, more control of patient health and shared care, the people most likely to benefit from digital health are least likely to do so. According to the NHS Digital Report (2019) 11 million people, or almost one-fifth of the population, in the UK lack the skills to engage with digital technology and some don't use technology at all. NHS Digital suggest that those more likely to be affected include the following people:

- older people
- people in lower income groups
- people without a job
- people in social housing
- people with disabilities
- people with fewer educational qualifications and those who left school prior to 16
- people living in rural areas
- people whose first language is not English.

(NHS Digital, 2019, p. 11)

To address this, NHS Digital published a guide to assist commissioning groups and NHS managers to develop initiatives to enable people who may currently be or feel excluded to become 'digital citizens' and to access health care. This is the focus of the next activity.

Activity 1 Digital Ambassadors: creating digital citizens

First, read the article 'Being a digital ambassador for young carers', in which Amen Dhesi gives an insight into the value of being a digital ambassador.

Next, go to the Good Things foundation website and use the search function to find and read the following two articles, each of which describes a case study of a Good Things Foundation project designed to help people who lack skills in digital literacy:

1. A Place of Welcome
2. Disadvantaged in Leeds developing Skills for Tomorrow

As you read the case studies, make notes on the following:

1. identify who each project reaches out to help
2. what are some of the issues that each project helps address?

Discussion

A Place of Welcome

This project is in an area of high social deprivation. The project reaches out to the following:

•   people who live in social housing

•   people with fewer educational qualifications

•   people in lower income groups

•   people of different ages including older people.

The location of the project is familiar, welcoming and comfortable for many people. It provides opportunities for people to learn new skills from each other in an informal environment. There is access to digital technology and support. This has helped some people maintain social contact with family members. The example is given of a woman being supported to search and find housing association accommodation.

Disadvantaged in Leeds developing Skills for Tomorrow

This project appears to have a broad reach across a multicultural community. It specifically offers help to:

•   people with fewer educational qualifications, perhaps because they left education prematurely or because they had negative learning experiences.

•   people currently without work or who are seeking employment

•   people on low incomes

•   disabled people.

The project helps people develop learning, literacy, numeracy and IT skills. It also helps develop confidence and more general life skills. Achievement with basic skills can be a stepping-stone towards developing more complex skills. The project recognises that some people need help overcoming a fear of technology and that people can develop IT skills to find employment.

Digital technology initiatives have clearly had a significant impact upon the lives of people affected by various physical and mental health conditions and social issues as experienced in the case studies.

The focus of the next section explores the potential of digital technology to improve the life of someone experiencing anxiety in Wales.

2 Accessing mental health in Wales

In 2014, the Department of Health made improvement in mental health a key priority. Its first objective was to ensure that mental health had equal priority with that of physical health and its second was to reduce the gap between people with mental health problems and the rest of the population (Department of Health, 2014). Their vision was that everyone who needs it should have access to an intervention, through the 'Improving Access to Psychological Therapies' (IAPT) programmes including children and young people. While the Department of Health aimed to reduce waiting times in accessing services, more people were being offered the service and as a result, waiting lists significantly increased. This is a particular issue in Wales, where a significant amount of the population reside in rural areas and at considerable distance from psychological therapeutic services.

In Cardiff, research is currently ongoing to evaluate the potential of digital technology to both reduce waiting times in accessing services and provide people experiencing mental health problems access to much-needed support.

Activity 2 My 24 hour app

Watch the video below, which features Sarah Cosgrove talking about her use of digital technology to help her to obtain support due to Post Traumatic Stress Disorder (PTSD).

Video content is not available in this format.

Video 1 Digital support for PTSD

Next, answer the following questions and complete the grid below.

In what ways has the use of digital technology increased Sarah's confidence, skill and knowledge in managing her symptoms? In what other ways has the use of digital technology led to improvements in care delivery?

Confidence	*Provide your answer...*
Skills	*Provide your answer...*
Knowledge	*Provide your answer...*
Other ways	*Provide your answer...*

Discussion

Confidence:

Since using the app, Sarah has grown more confident in applying what she has learned in her everyday life; in particular, about managing her symptoms and realising they are a part of her condition. She also knows that she has a therapist available, and this knowledge gives her confidence that she has backup, should she need it, to manage her condition. Her confidence has increased significantly because now she feels able to socialise and has even got a dog which was a long-term goal for her to aspire towards.

Skills:

The app has taught Sarah a number of strategies in which she can manage her condition such as being able to feel calm. She has also learned to be reflective by writing about what led to her PTSD and going over it again and again until she feels that she is less impacted by the events that led to it.

Knowledge:

The app has assisted Sarah in finding out about her condition and the symptoms associated with it, and this has enabled her to normalise what is going on for a condition that sounds overwhelming at times and prevented Sarah from socialising.

Other ways:

The app has afforded Sarah a great deal of flexibility. She can use the app at any time, day or night, and is reassured that she has access to an intervention that makes her feel safe. Without the app Sarah may not have had timely access to psychological services when she needed it, which could have worsened her condition considerably. The app also gives Sarah more time, as the appointments she has with her therapist in person are not as long as they would normally be, but they still allow Sarah sufficient time to build a good relationship with her therapist which is an important part of therapy.

The researcher in the video also demonstrated the power of the app for people living in rural areas who would not be able to access psychological therapies.

Digital technology has the power to improve mental health and transform people's quality of life.

You'll continue with this theme in the next section, as you explore ways in which digital innovation is being used to enhance the wellbeing of babies in Scotland.

3 Innovation in health at the beginning of life

Around 60,000 babies are born prematurely in the UK every year. This means that 1 in every 13 babies who are born in the UK will be premature, i.e. born before the 37th week of pregnancy (Bliss, n.d.).
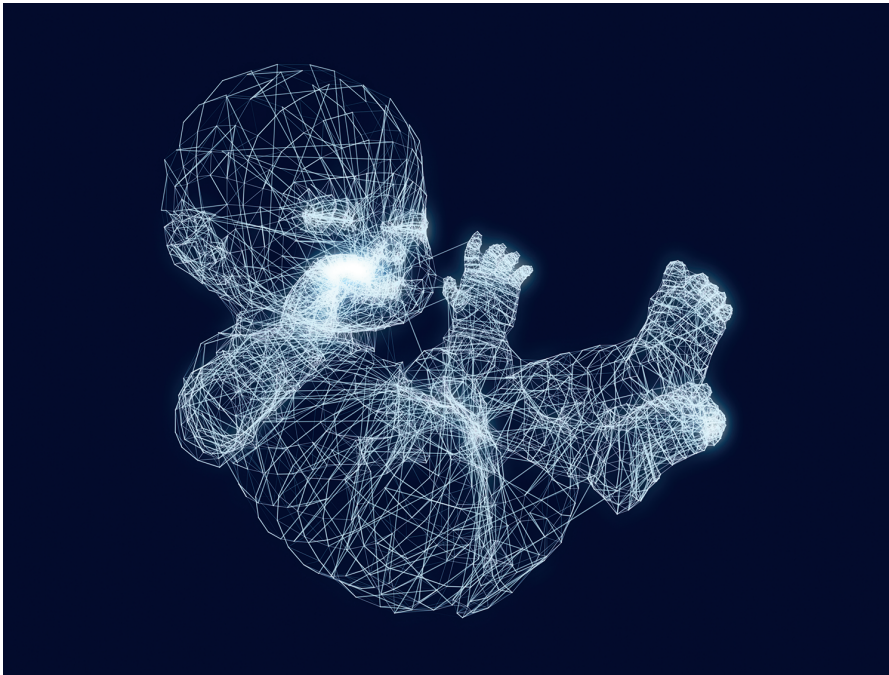
There have been many advances in neonatal technology in the last few decades which have saved the lives of premature babies. However, the focus for innovation in the healthcare of babies has been directed primarily towards health professionals and ways of improving the delivery of care. Parents, therefore, have been insufficiently consulted about developing innovation to improve babies' health. To bring patients into the equation, NHS Fife developed an innovation with the intention of changing this. An interactive virtual platform was developed to enable parents and their families, including children and grandparents, to become much more active in the care of their sick or premature baby while they are on the neonatal intensive care unit (Kimber, 2015).

This innovation is the focus of the next activity.

Activity 3 My Little One

Watch the short video about NHS Fife's initiative, called My Little One. This will help you to answer the following questions. Provide your answers in the box below.

Please note: due to the nature of the recording, you may find the audio quality to be noticeably poor. If this is the case, use the subtitles and transcript provided.

Video content is not available in this format.

Video 2 NHS Fife's My Little One

1. What is the technology for and how does it work?
2. Why is it so important for parents and families?

> *Provide your answer...*

Discussion

1. Not only are parents more involved in the neonatal unit, but they can also be reassured by having virtual contact with their baby. My Little One brings parents closer to their baby through the use of tablets and smartphones. A webcam is attached to the incubator and a real-time video is transmitted to the device held by the parents.

2. This innovation enables parents to have virtual contact with their baby which would otherwise be limited. It is much better than a still photograph as the tablet transmits moving and real-time images of the baby. This is particularly important for mothers who may be recovering from a Caesarean section on the post-natal ward.

4 Digital health, children and young people

Just as adults are affected by mental health problems, so too are children. The Cheltenham Holistic Health Centre have identified a number of psychological problems in children which can manifest in a number of ways including, but not limited to:

- anxiety
- depression
- behavioural difficulties
- eating disorders
- anger
- self-harm
- under-performance at school
- difficulties with friends.

While psychological therapies can provide children and young people with a space to think and talk about their problems, and also to find a variety of ways to cope, access to therapies can be limited (Cheltenham Holistic Health Centre, n.d.). Even if the services are free, they may be time-limited, meaning that only a few sessions are available.

A number of initiatives have been developed with digital technology and children in mind, such as Chat Health. This is an intervention involving a two-way communication system, in which children and young people aged 11 to 16 can ask a nurse questions through SMS text messages. A web-based management application allows teams of school nurses to reply; this is conducted anonymously and confidentially.

Other initiatives have also been developed for use by children such as web-based initiatives to improve health and wellbeing. These initiatives and Chat Health's digital interventions are the focus of the next activity.

Activity 4 Chat Health, the web and me

Watch the video and, as you do, make notes. This will help you to respond to the questions that follow.

Video content is not available in this format.
Video 3 Chat Health
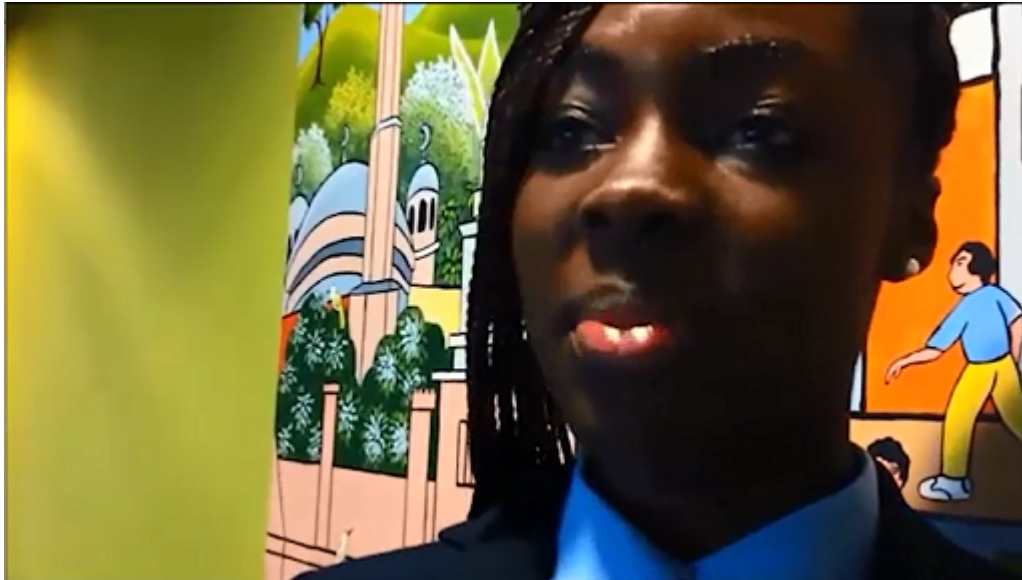
1. From the perspective of the school nurses, what are the advantages of Chat Health?
2. From the perspective of young people, what are the advantages of Chat Health?
3. From the perspective of children and young people what are the benefits of web-based innovations to improve health and wellbeing?

Provide your answer...

Discussion

1. Chat Health gives nurses flexibility; for example, they are able to respond to texts and help young people deal with issues they would otherwise not get help with. Nurses can go out to other schools to demonstrate its use and promote the app for young people. Participating in supervision also assures that the most appropriate and considered responses are provided to young people. Supervision means they can ensure that the service is delivered to a high quality standard.

2. Children and young people are able to address issues they don't have the confidence to raise in person via the app. They can talk about issues that they find embarrassing. Chat Health assists them in finding ways to cope. Children value the fact that the service is confidential, anonymous and that they don't feel judged as they feel they might in a face-to-face situation.

3. For children and young people, interacting with web-based interventions to improve their health and wellbeing was appealing and fun, and it was clear that the children were engaged. For older children (those in their teenage years), becoming involved in the design of the interventions was key. They were

> enthusiastic, but also consulted as 'experts of their own experience', and this gave them the confidence to endorse an intervention. They would have also developed key skills and knowledge in the process of developing the app.

Chat Health and similar web-based interventions are able to capture a young audience and harness technology to support children and young people.

> If you're interested in exploring more about children's mental health and wellbeing, you might be interested in the free OpenLearn course
> *Supporting children's mental health and wellbeing*.

What about other age groups and other forms of digital innovation to deliver support and care? This is the focus of the next section.

5 Caring robots

You will already have considered some of the benefits and challenges associated with implementing digital health care and promoting its wider use. But what about artificial intelligence (AI)? That is, the use of intelligent machines that work and react like humans.

AI is not new. Passport control employs facial recognition techniques, and voice recognition on virtual assistants such as Alexa and Siri are a part of everyday life. Driverless cars and 'companion robots' that care for the frail and elderly are currently undergoing trials. Google's DeepMind has taught machines to read retinal scans with at least as much accuracy as an expert (Galeon, 2016).

While AI is said to bring more relief to many of the pressures the healthcare system faces, can AI ever replace human care? This is the focus of the next activity, in which you will explore the extent to which AI can be 'culturally competent', i.e. being sensitive and aware of the needs of different cultures and responding appropriately.

Activity 5 Can artificial intelligence care?

Watch the video by CARESSES, a company that is developing a robot that provides care for the elderly, then answer the questions that follow.

Video content is not available in this format.
Video 4 CARESSES, the Flower that Taught Robots about Culture

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1. Would you be prepared to use a robot to help you with a disability? For example, in the case of memory loss the robot would remind you to take your medication and to contact family and friends.

2. Do you think robots can truly replace humans in the care of the elderly?

Provide your answer...

Discussion

While AI can bring about significant benefits and opportunities, there are a number of implications. A central concern raised by the Academy of Royal Colleges Report (2019) is whether AI will make patients safe or safer. This is the focus of the next activity.

The next activity asks you to critically evaluate two sides of an argument and also to consider the practical and ethical implications of using AI.

Activity 6 Doing my job

Think about the place of the usefulness of robots to the social care profession. What do you think the implications would be for a professional working in health and social care?

Provide your answer...

Discussion

You may have thought that it was a good idea to have the involvement of robots as it may help people who are frail to remain in their own home for longer as the robot would be on call to conduct certain tasks. However, you might argue that human contact, affection and compassion cannot be simulated by a robot. Moreover, robots could have implications for people's jobs and threaten livelihoods. There is also the issue about the extent to which artificial intelligence can ever truly be safe. This is the focus of the next activity.

Activity 7 AI and the patient: safe or safer?

Read pages 11 and 12 from the Academy of Medical Royal Colleges report
Artificial Intelligence in Healthcare about Patient Safety. Use this information to complete the table below.

What are the practical and ethical advantages and disadvantages that can arise from using AI in health care for the following factors?

Factors	Advantages	Disadvantages
1. Reliability and safety	Provide your answer...	Provide your answer...
2. Efficiency	Provide your answer...	Provide your answer...
3. Data management, accountability and security	Provide your answer...	Provide your answer...
4. Effect on patient	Provide your answer...	Provide your answer...
5. Effect on health professional	Provide your answer...	Provide your answer...
6. Trust	Provide your answer...	Provide your answer...

Discussion

Advantages

Reliability and safety

Unlike humans, machines are designed to keep going; they don't require sleep which means they can be available to assist any time of the day or night, which is important for anyone needing help. Going digital offers a solution to variation in patient care.

Efficiency

Providing digital consultations enables patients to access services irrespective of where they live. This is especially helpful for people who live in rural areas where services may be more limited. Patients don't have to rely on a specific appointment which means they access a service at a time which is convenient for them. This type of service is particularly useful for those who may experience communication difficulties.

Data management, accountability and security

Algorithms ensure that the latest guidelines are imported into a system, so that all information contained within it is kept constantly up-to-date. It does not need manual involvement – it is able to update itself, saving the need to use manual labour. This also means that tests and prescriptions are also kept up-to-date.

Effect on patient

Artificial intelligence can improve healthcare access and can save people from having to travel for appointments because they can receive any information and advice wherever they are. It is also important for health professionals as it can identify if a patient may be in danger and alert a health professional to intervene.

Effect on health professional

Providing clinical care in a digital format enables health professionals to deliver health care which is standardised which reduces the potential for any negative impact on a patient's health and care.

Trust

Can rely on being kept up to date with the latest information and guidelines.

Disadvantages

Reliability and safety

Much of the advice and decisions that doctors make about a patient's health are based on what they know about the patients. This not only includes information about their medical condition but how this is affected by other factors such as their personal life and behaviour. Knowing this information enables a doctor to tailor the type of treatment and support they can offer which can vary from one individual to the next. Algorithms which tend to standardise systems are unable to do this.

Efficiency

It is difficult to judge how safe any AI can be. If it is not programmed well it can create problems and could be used inappropriately. If it is poorly programmed it is unlikely to be efficient because the data it needs to work well might not be complete, potentially leading to inaccurate advice.

Data management, accountability, and security

Just like any system, AI is vulnerable to abuse and security breaches. There is also the issue of who is accountable if something goes wrong with the software or if information is leaked out. Is it the technology company who designed it? Or is it up to the regulator to ensure everyone is trained in how to use the technology safely and securely? There is no indication about who should be ultimately responsible, which means there is a lack of accountability. There is also the issue about who is in charge. Is it the doctor who has precedence over an AI's decision?

Effect on patient

While AI will be helpful for some people it could cause harm to others.

Effect on health professional

Health professionals are trained to possess certain clinical skills in order to deliver health and care. Therefore, the information guide and any training in how to use available technology to manage health needs to be good. If it isn't, this can lead to frustration and a lack of engagement with the technology – even for a technological wizard.

Trust

It could be difficult to trust an AI as they won't be able to discern between what seems to be good medical advice and the patient's wishes. This is important because a patient may not follow the advice of an AI that recommends something they find difficult to do or take.

Clearly, there are several ways AI can offer solutions to pressing health concerns, but it also has implications for issues such as security of some highly sensitive and personal information.

In the next section, the focus turns to the way digital innovation is delivered across four nations and the way this has transformed both the relationship between a person and a health professional and its impact on health service delivery.

6 Digital health and the patient/ professional relationship

The *NHS Five year forward view*, published in 2014, had a vision that the NHS should be paperless by 2020. The National Information Board (2014) then developed a framework of action which would see patients being able to use digital technology to manage their health, e.g. booking appointments, checking medical records and communicating with health professionals with the use of the internet, Skype or texts.

Since 2014, implementation of digital health schemes has been driven by local commissioning groups in the form of digital road maps (Honeyman *et al.*, 2016).

At the time of writing (2019) there are a number of innovative digital health schemes in place across England, Wales, Scotland and Northern Ireland. Some of these schemes are targeted at specific sectors of the population and are designed to involve service users being more in control of their health and in accessing services. For example, in Wales 'Patient Knows Best' is an online portal which enables patients with diabetes to instantly access their medical records. Patients are able to obtain up-to-date information on treatments, acquire medication from the online portal and access messages from health professionals. This information can be shared securely with different medical teams and carers, and take-up of the service has been good, although not all patients are joining. However, this example is just one of many. It demonstrates both the potential benefits of the service and also the challenge it represents for some patients who may not have access to technology, or even their own email address.

Digital innovation is also deemed to be beneficial to the individual person and professional relationship because it empowers the patient (Meskó *et al.*, 2019). A patient-centred approach is at the heart of many digital interventions, often being designed and developed along with potential recipients. Along with initiatives such as e-health records shared among professional teams and patients, this approach can help decisions to be made jointly, with the individual driving choice and control. However, there are potential barriers

to empowering the individual, for example, a lack of knowledge about technology, access to knowledge and resources as well as language skills (Meskó *et al.*, 2019).

This is the focus of the next activity, in which you will explore digital healthcare delivery from Wales and Northern Ireland as well as the way it changes the relationship between an individual and a health professional.

Activity 8 Going digital across the nations

Below are links to two examples of digital health that have helped people to be more in control of their health. Read these examples and make notes, as these will enable you to answer the questions below.

Part 1: Wales

Wales: turn to p. 50 of the PDF and read the case study, 'Telehealth for frail elderly people in rural North Wales'.

Where is the digital health delivery service located?

> *Provide your answer...*

Who is it intended for?

> *Provide your answer...*

Describe briefly what it is about.

> *Provide your answer...*

What are the benefits and how has the service transformed the relationship between patients and professionals?

> *Provide your answer...*

What, if any, are the challenges faced by the digital health service?

> *Provide your answer...*

Discussion

Where is the digital health delivery service located?

Betsi Cadwaladr Health Board Area in Wales.

Who is it intended for?

Patients over the age of 85.

Describe briefly what it is about.

Remote healthcare through Skype and online consultations are provided at a local community hospital (rather than a city hospital) in rural North Wales where there is poor public transport. Patients see their doctor by telemedicine clinics at their local community hospital.

What are the benefits and how has the service transformed the relationship between patients and professionals?

It reduces the need to travel for many frail patients. There has been positive feedback, with over 83% of patients stating they would recommend the clinics to family and

friends. A digital inclusion officer secured the support of the community to use the service by working in consultation with county councillors, local community groups, the local media, patient champions and representatives. This provided the opportunity to raise awareness of the service but also to dispel any myths or anxieties. It also removed the need to travel which some people find extremely stressful. Individuals can converse with professionals in real time, be reassured and be provided with the right information by the professional to help them make the right choices. This gives the individual access, choice and control about the decisions they make about their health and provides for a much more equal relationship.

What, if any, are the challenges faced by the digital health service?

Some patients may still prefer to see a health professional in person.

Part 2: Northern Ireland

Northern Ireland: read the press release.

Who is it intended for?

Provide your answer...

Describe briefly what it is about.

Provide your answer...

How has the service transformed the relationship between patients and professionals?

Provide your answer...

What, if any, are the challenges faced by the digital health service?

Provide your answer...

Discussion

Describe briefly what it is about.

Orion is a shared care record about patients' diabetes. This means that health professionals can now access more information about the patients and this information is shared between trusts.

How has the service transformed the relationship between patients and professionals?

Patients no longer need to repeat to different health professionals what their symptoms or current state of health are, because this information can now be accessed in a way that enables those professionals to offer more appropriate treatment and advice. This information can now be accessed by different professionals who can provide more appropriate treatment and advice. As a result, this should reduce the risk of the individual becoming frustrated and tired and the professional has the information to hand to be able to provide better advice more efficiently.

What, if any, are the challenges faced by the digital health service?

The shared record might mean more shared information, and the right treatment can be provided, but it doesn't mean it can promote the right behaviour; for example, lifestyle choices (e.g. exercise, a good diet) to keep diabetes in check.

You may have identified some real benefits to certain members of the population. However, implementing and using digital health is not without its challenges. Implementing new systems requires financial resources and some organisations have struggled to find the funds to implement digital healthcare due to the cost of buying the hardware (Macguire *et al.*, 2018). There are also cultural organisational factors such as a workforce's willingness to change and engage with new systems when they are already feel stretched (Macguire *et al.*, 2018). Others might be reluctant, fearing that digital health reduces the human face of healthcare because some digital health schemes are conducted remotely. However, the benefits to many people living in rural areas have been improved health and wellbeing because individuals are now able to access services that would otherwise be challenging for them to reach.

Conclusion

Since 2014, NHS England's five year forward view has sought to deliver high quality care by taking advantage of digital technology and innovation. Already, there are services in place that support people of many ages across the four nations. There are also other initiatives at the community level that are aimed at supporting individuals, families and the general public in improving their health and wellbeing.

Technology is being used to integrate services, provide joined-up care and reduce duplication. Digital innovation is also about trying to provide choice and control for the individual and to empower them to take responsibility for their own health and wellbeing. That said, it is necessary use evidence to justify its benefits and limitations and where it is lacking find ways to overcome the issues that are presented. What is clear is that people need to embrace it, and be supported in doing so.

This OpenLearn course is an adapted extract from the Open University course K102 *Introducing health and social care*.

References

Bliss (no date) *Prematurity Statistics in the UK*. Available at: https://www.bliss.org.uk/research-campaigns/neonatal-care-statistics/prematurity-statis-tics-in-the-uk (Accessed: 2 December 2020).

Cheltenham Holistic Health Centre (no date) *Psychological therapy for children, adolescents and families*. Available at: https://www.chhc.co.uk/therapies/psychological-therapy-for-children-adolescents-and-fa-milies/ (Accessed: 2 December 2020).

Department of Health (2014) *Access to psychological therapies campaign. Department of Health's response to the 'We Still Need to Talk' campaign about psychological therapies*. Available at: https://www.gov.uk/government/news/access-to-psychological-therapies-campaign (Ac-cessed: 2 December 2020).

Galeon, D. (2016) *Google's AI can read your retinas to prevent blindness*. Available at: https://futurism.com/neoscope/googles-ai-can-read-your-retinas-to-prevent-blindness (Accessed: 2 December 2020).

Honeyman, M., Dunn, P. and McKenna, H. (2016) *A digital NHS? An introduction to the digital agenda and plans for implementation*. Available at: https://www.kingsfund.org.uk/publications/digital-nhs (Accessed 2 December 2020).

Kimber, H. (2015) mylittleone wins People's Choice Award at NHS Scotland event. Bringing mothers closer to their sick or premature babies. Available at: https://www.ic24.org.uk/news/mylittleone-wins-peoples-choice-award-at-nhs-scotland-event/ (Accessed: 1 August 2019).

Macguire D., Evans, H., Honeyman, M. and Omojomolo, D. (2018) *Digital change in heath and social care. The King's Fund*. Available at: https://www.kingsfund.org.uk/sites/default/files/2018-06/Digital_change_health_care_-Kings_Fund_June_2018.pdf (Accessed: 2 December 2020).

Meskó, B., Radó, N. and Győrffy, Z. (2019) 'Opinion leader empowered patients about the era of digital health: a qualitative study', *BMJ*, 9.

National Information Board (2014) *Personalised health and care 2020*. Available at: https://www.gov.uk/government/publications/personalised-health-and-care-2020 (Accessed: 2 December 2020).

NHS Digital Health (2019) *Digital inclusion guide for health and social care*. Available at: https://digital.nhs.uk/about-nhs-digital/our-work/digital-inclusion#download-the-digital-inclusion-guide-for-health-and-social-care (Accessed: 2 December 2020).

Acknowledgements

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