Analysis
Digital health in primary care:
risks and recommendations

Growing demand for access to NHS primary care means services are under increasing pressure. Many GP providers are using digital technologies (video/email/other online consultations) to try to improve access and efficiency. Alongside this is rapid growth in health technologies, which collect, measure, or interpret health data, and provide health information or advice. Many technologies have positive potential; however, the speed with which they are becoming available, increasingly blurred boundaries between health and lifestyle technologies and traditional healthcare provision, and the confidence and skills GPs have in using digital health technologies, bring new complexities and concerns.

A NEED FOR TRAINING
Successful adoption of innovative technologies in primary care requires effective preparation of future and current primary care workforce, enabling appropriate use by healthcare professionals, patients, and communities. Although some training programmes do exist, these are not routinely integrated within primary care training. There is a distinct gap in both training and capacity building in this area, and the evidence base to inform development and content of training is limited. In this article we explore risks and challenges of digital technologies in primary care and relate these to training needs for GPs, trainees, and medical students.

In this analysis we draw on literature as well as first-hand experience of practising GPs. In June 2019 we conducted two workshops on digital health with approximately 30 GP teachers who supervise medical students' placements, which informed our understanding of four key areas of digital health risks and challenges in general practice. Based on risks and challenges identified, we present recommendations for training to support the implementation of digital primary care.

KEY CHALLENGES AND RISKS
Consultation skills
Telephone consultations (TCs) were initially introduced to meet increased patient demand to speak to a doctor. As early as 1978 TCs were described as being as much a part of a doctor's equipment as a stethoscope, and are now commonplace.[1] Video consultations (VCs) incorporate visual elements lacking in TCs. Studies confirm that clinicians value

VCs as they allow them to pick up non-verbal cues, and patients describe greater confidence in VCs compared with TCs.[2] However, compared with face-to-face consultations, both TCs and VCs tend to be shorter, with lower exchange of information between the patient and physician.[3] Safety of remote consulting remains unclear as physical examination is not possible and subtle signs may be missed.[4] The recent COVID-19 pandemic has resulted in rapid widespread adoption of remote consultations (TC and VC) in general practice in the UK (Box 1) with many healthcare providers conducting the vast majority of interactions with patients remotely.

Currently, communication skills training takes place almost exclusively in face-to-face formats, thus not reflecting the reality of increasingly digital practice. Communication skills training in undergraduate education and beyond should incorporate digital interfaces, emphasising strategies for effective, safe communication.

Access vs. workload
The NHS Long Term Plan describes a 'digital first' approach where technology will supplement face-to-face models of care, improving efficiency and quality.[5] However, the ability of digital health technologies to control demand for face-to-face primary care contact and healthcare costs remains unclear.[4] Studies suggest that non-face-to-face (electronic) consultations may actually increase demand for urgent face-to-face consultations.[6,7]

New ways of interacting digitally with patients include through remote consultations, email, and text messaging. This new way of working requires GPs to self-direct, manage workflow, and understand where and how to set boundaries around continual patient access. Training should thus emphasise how to manage digital workflow.

Safety/effectiveness
The growing number of apps and new technologies for health care are easily accessible to patients, but often lack clear regulation, robust evidence base, and evaluation.[8,9] Furthermore, reviewing and appraising the ever increasing number of healthcare technologies is likely to be beyond the remit of the NHS.[8] There is a rapid increase in use of wearable devices allowing clinical observations. While in theory these are

powerful tools for identification of important abnormalities in asymptomatic patients and self-monitoring of various medical conditions, accuracy and need for calibration are often unclear, leaving patients and clinicians unsure how reliable readings are.

Despite potential risks, the King's Fund describe how *'technology-supported self-management can help to empower patients to better manage and understand their condition, supporting improved behavioural and clinical outcomes'.*[10]

Primary care professionals need training on critically appraising safety and effectiveness of new technologies including basic guidelines. Training is needed in interpretation of app-derived data and how to discuss this data with patients. Patients should also be supported in choosing between apps and technologies on offer.

Ethics
As digital technology use in health care has grown, so have concerns around privacy, confidentially, transparency, data ownership, sharing, and storage. For example, for the NHS care data programme, patient data was shared for not only research purposes but also with businesses for commercial exploitation.[11]

Regulators have raised safeguarding concerns in relation to digital technology because of difficulty in identifying patients and others who might be present or overhearing confidential conversations.[12]

The likely impact on health inequalities must also be considered given that 11 million people (20% of the UK population) lack basic digital skills.[13] These patients are more likely to be less well educated, older, unemployed, in social housing, disabled, homeless, and those for whom English is not their first language.[13] Some also argue that we must get the basics right first, such as computer log-ins and Wi-Fi before spending on complex technologies.[14]

If we do not train clinicians and patients on how best to use and integrate digital technology with standard medical care, we risk creating a parallel digital health system. Will patients use a symptom checker app or book a GP appointment?

The psychological burden of health data and impact on patient wellbeing must also be considered, for example, anxiety about REM sleep activity or low-risk gene profiles via private genetic screening tools.

Box 1. Impact of the coronavirus pandemic on remote consultations

- The recent COVID-19 pandemic has resulted in a significant increase in remote consultations in general practice. The increased use of remote consultations has been necessitated by this international emergency, with vital safety considerations requiring substantial reductions in face-to-face contact between patients and healthcare professionals.
- Previously it was estimated that up to 50% of UK consultations could be conducted remotely by 2030, but it is very likely these levels of remote consulting have been significantly exceeded in response to COVID-19.[5]
- In response to COVID-19 health professionals are now routinely having to navigate, often for the first time, the challenges of remote consulting. Safety and ethical considerations remain, including patients left behind by technology (digital exclusion), and the risks of missing clinical signs in remote consultations.
- The GMC has stated, *'many doctors are being asked to make sudden and unexpected changes to adapt to remote working for everyone's safety during the pandemic. We understand this may be daunting and it may take you time to adjust … we recognise that doctors may need to depart from this* [GMC provided] *advice and apply their professional judgement to make best use of the resources available to them.'*[15]
- The huge and rapidly executed move towards remote consulting, made necessary by an unprecedented public health emergency, is likely to result in sustained change in the health system once the COVID-19 pandemic is over; the need to prepare doctors and patients for this new reality is consequently even more pressing.

Digital ethical issues need to be incorporated into safeguarding training, training on documentation, and storage of data and awareness of digital exclusion and equity.

RECOMMENDATIONS FOR EDUCATION AND TRAINING

- Education about digital health technologies must be fully integrated into undergraduate and postgraduate curricula.
- Continuing professional development in digital health must form part of the training portfolio.
- Competencies in digital health must be defined and formally assessed.
- Healthcare professionals need to be educated on the risks and challenges of digital health in particular around confidentiality, data sharing, safeguarding, digital exclusion, and disempowerment of patients, with minimum standard requirements.
- Teaching materials and evidence base for digital health technologies must be regularly reviewed and adapted to keep up with rapid technology development.
- The Department of Health and General Medical Council (GMC) should recognise our digitally innovative climate and reflect this in their policies and outcomes.
- Patients need support and training on how to use readily available resources beyond the NHS Apps Library. Doctors need to be able to advise patients how to use digital technologies in conjunction with standard medical care.

CONCLUSION

We live in a digital age, which is increasingly reflected in our healthcare system. New ways of consulting and incorporating technology into patient care pose multiple risks and challenges. There needs to be an increased presence of digital health learning and experience in the undergraduate and postgraduate medical curriculum to ensure that tomorrow's doctors and patients are prepared for the reality of 21st-century healthcare.

Georgina Neve,
GPST4 Academic Clinical Fellow, Imperial College London, Department of Public Health and Primary Care, School of Public Health, London.

Molly Fyfe,
Senior Academic Fellow, Imperial College London,

ADDRESS FOR CORRESPONDENCE

Georgina Neve
Imperial College London, Department of Public Health and Primary Care, School of Public Health, Charing Cross Campus, the Reynolds Building, St Dunstan's Road, London W6 8RP, UK.

Email: Georgina.neve@nhs.net

Department of Public Health and Primary Care, School of Public Health, London.

Benedict Hayhoe,
Clinical Lecturer in Primary Care, Imperial College London, Department of Public Health and Primary Care, School of Public Health, London.

Sonia Kumar,
Director of Undergraduate Primary Care Education and the Medical Education Innovation and Research Centre (MEdIC), Imperial College London, Department of Public Health and Primary Care, School of Public Health, London.

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