

Editorials

eHealth:

where next?



INTRODUCTION

This issue of the *BJGP* focuses on eHealth and telecommunications, with four articles exploring the effectiveness and acceptability of a range of eHealth interventions, including: a smart phone app to improve physical activity,¹ a tablet-based intervention to promote self-monitoring in people with COPD,² the telehealth intervention used in the Whole System Demonstrator,³ and the use of phone-based triage to manage the demand for appointments in general practice.⁴ Such a focus is timely, as despite the demise of the National Programme for IT (NPIt), the number and range of eHealth solutions that primary care health professionals will encounter is growing.

The drivers leading to the need for eHealth solutions both in the UK and internationally are inexorable. People are living longer, with more long-term conditions, requiring long-term use of medication and other NHS resources to maintain an optimal quality of life. This, combined with rising consumer expectations, results in ever-increasing costs. After a period of rapid increase in NHS funding, we are again facing austerity. Hence, we have to find ways of improving the quality and quantity of care without increasing costs. As far back as 2002, Wanless identified two key factors in achieving this: an activated population who engage in self-care; and the use of eHealth,⁵ where eHealth refers to the use of information and communication technology, such as the web, computers, mobile phones, or smart phones to improve health and health care.⁶

It may be helpful to consider eHealth interventions acting at one or more of three levels: those delivered directly to patients

or the public; practice level interventions; and interventions aimed at policy makers or commissioning bodies such as clinical commissioning (CCG) groups.

INTERVENTIONS FOR PATIENTS AND THE PUBLIC

Interventions aimed directly at patients and the public tend to focus either on health promotion, through encouraging the adoption of healthy behaviours, or on enhancing self-management skills for people with long-term conditions. Digital interventions can be delivered via the internet or smart phone applications, making them widely accessible. They can combine the reach of traditional media, such as television, radio, or poster adverts with the personalisation and individualisation of face-to-face interventions, and thus have tremendous public health potential. Importantly, such interventions go far beyond the simple provision of information. Software programs enable the intervention to obtain data from the user, and tailor content provision accordingly. Successful behaviour change programmes exist for smoking cessation, exercise promotion, healthy eating and weight loss, reducing alcohol consumption, and practising safer sex.⁷⁻¹⁰ Online treatments have been well described in mental health, with online cognitive behavioural therapy programmes available for depression, anxiety, obsessive compulsive disorder, and other common mental health disorders.¹¹ There are also a number of digital interventions that aim to promote an individual's ability to self-manage their long-term condition, for example diabetes, asthma, hypertension, and arthritis. These interventions vary in complexity, with some focusing on simple information and self-monitoring, while others attempt to address the whole range of patient self-management needs, including behaviour change, managing the complex emotional responses to having a

long-term condition, and enabling users to adapt to new life roles.¹² There are systematic reviews in all these areas, which support ongoing research and development. It is clear that well-designed, theoretically-informed digital interventions can work, with many demonstrating the sort of effect sizes seen in the work by Glynn *et al.*¹ There remain, however, a number of problems which need addressing. Although theoretical underpinning is an important predictor of effectiveness, there is still considerable uncertainty as to the 'active ingredients' (or effective components) of many successful interventions.⁷ There are significant concerns about the 'digital divide': overall 78% of the UK population report using the internet, but older people and those with low incomes, low educational attainment, or poor health are less likely to have access.¹³ Low engagement or non-adherence to digital interventions tends to limit effectiveness and further work is needed on promoting adherence; for example, by automated prompts such as e-mails or SMS, or through human facilitation.

INTERVENTIONS AT PRACTICE LEVEL

The pressures on GPs and practice staff are well known, with many practices experiencing increasing workload including demand for appointments and administrative tasks. For many of us, eHealth solutions have long been an integral part of our practice; for example, we rely heavily on electronic medical records for systematic recording and reporting of clinical activity. Newer developments that aim to improve efficiency include systems that allow for data sharing across primary, secondary and community care. Such systems should improve communication, prevent duplication of investigations, and reduce workload related to scanning and coding current (often paper-based) communications from other providers.

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Models of consultation are also likely to evolve from traditional, face-to-face consultations. The past 20 years has seen a huge increase in the use of telephone consultations,⁴ and it is likely that the next 20 years will see a similar increase in other forms of consultation, including use of e-mail and telehealth.^{2,3,14} It is also likely that the current move from reactive care (where we see the individuals who present most often) towards proactive care (where we identify and target patients with most need) will continue. This will require more sophisticated use of data in electronic medical records to identify patients with greatest healthcare needs.

INTERVENTIONS FOR COMMISSIONERS, MANAGERS, AND POLICY MAKERS

Effective policy and commissioning decisions require accurate and timely data. Without high quality data it is difficult to describe or predict healthcare needs for a population, identify areas of unmet need, determine the effectiveness of new initiatives, or monitor the quality of care across different providers. Significant improvements are needed in processing, linking, analysing, and reporting routinely collected data. The Medical Research Council has recently acknowledged the importance of 'big data' and data linkage, not only for informed decision making as described above, but also for the promotion of new knowledge, and have established four Health Informatics Research Centres. The goal of these centres is to address the technical, statistical, and governance barriers to providing researchers with access to health records and enabling data linkage with other routinely collected environmental, social, and economic data in a secure environment that protects patient confidentiality, hence enabling researchers:

*'... to identify more effective treatments, monitor drug safety, identify risks to public health, improve healthcare and study the causes of diseases and disability.'*¹⁵

TURNING POTENTIAL INTO REALITY

All of the eHealth innovations described here exist already, albeit as pilots or research. However, as has been repeatedly demonstrated, achieving the benefits of eHealth innovations is extremely challenging. The history of eHealth is littered with high profile delays, disappointments, and services that have failed to deliver expected benefits.^{16,17} Such failures are not inevitable; for example the Picture Archiving and Communication

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System for digital storage of images has been widely adopted. It has been argued that eHealth successes and failures are often predictable. Features that promote success include intervention features (for example, provision of clear clinical or other benefit, ease of use), contextual features (for example, strong and sustained leadership, adequate resourcing for training and change management), and a good 'fit' between the goals of the organisation and the innovation.¹⁶ At national level, achieving the potential of eHealth will require political will and leadership sustained across changes in government; and significant investment, not only in technical expertise, but also in often overlooked sociotechnical aspects. Understanding and overcoming genuine concerns about governance, confidentiality, and patient rights will require ongoing close collaboration between IT developers, health professionals, patients, academics, lawyers and ethicists.

CONCLUSION

Like it or not, the inexorable pressures on health costs and the need to develop innovative and efficient models of care means that eHealth is not an optional extra: it is an essential part of a cost-effective health service that offers high quality care. Making it work is a challenge; one that has to be met and that requires innovative, multidisciplinary research that brings together patients, clinicians, health service managers, and academics with expertise in clinical medicine, behavioural and social sciences, organisational change, and computer science.

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Provenance

Commissioned; not externally peer reviewed.

DOI: 10.3399/bjgp14X680365

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