

Commentary

An Unintended Consequences of Digital Health Technologies & Tele Health in Primary Care to Virtual Primary Care

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Introduction

Information and Communication Technologies (ICTs) are acknowledged as vital tools to strengthen Primary Health Care (PHC) in low- and middle-income countries (LMICs). However, these technologies have been used only for selected services. Moreover, there is limited evidence on how effective these interventions are in improving comprehensive primary health care.

Preventive positive parenting interventions support healthy outcomes for children and have the potential to buffer the effects of poverty via changes in parent attitudes and behaviors. Delivering digital parenting interventions that have been adapted for the end-user population within pediatric primary care settings has the potential to support fit, acceptability, and reach of such interventions. By providing a detailed description of the development of digital primary care the study contributes to a growing understanding of the contributions that digital technologies can make to health care. Based on current trends digital primary care is likely to continue to increase in frequency over the coming years. As technologies develop and the public becomes more familiar to interacting with medical providers over the Internet also the scope of digital care is likely to expand. As the provision of digital primary care expands across Europe and beyond, policy makers will need to develop regulating capacities to ensure its safe, effective and equitable integration into existing health systems [1].

Health services are increasingly harnessing digital tools to deliver care. General practice in the UK is under increasing pressure to improve patient access to health care to address rising patient demand with limited capacity and a workforce crisis. 1–2 successive governments, therefore, have advocated for the adoption of online consultations to help alleviate these issues. The NHS Long Term Plan aims for patients to access ‘digital first’ primary care by 2023–2024, meaning patients can ‘easily access the advice, support and treatment they need using digital and online tools.’ The five-year framework for GP contract reform sets out intermediate goals: all patients should have had access to online consultations since April 2020 (and video consultations by April 2021). Online consultation tools allow patients to remotely and asynchronously contact a GP using a computer, smartphone, or tablet to ask questions and describe symptoms in writing. Multiple tools are currently on the market in the UK that use automated triage algorithms, structured questionnaires, or free-text submissions. Patients using these tools may be signposted to self-care resources, immediately given the option to book an appointment online, or re-contacted through an online message or telephone call to

resolve their problem or arrange a face-to-face consultation. Synchronous video consultation tools are not examined in this article [2].

Online consultations promise patients more convenient ways to consult with a GP, reducing the need to wait on the telephone to book an appointment, be available to receive a telephone appointment, and/or travel for a face-to-face appointment. Online consultations also promise general practice staff greater efficiency and flexibility over how they organise their workload and their working patterns. Evaluations of digital health technologies have generally found that their promise is not always delivered and they often produce unintended consequences; that is, positive or negative effects that were not intended at the outset. Moreover, because the root causes were not well understood, strategies for dealing with unintended consequences have been criticised for being speculative, anecdotal, and vague. Previous studies of online consultations have specifically noted the importance of examining unintended consequences in order to fully understand their impact. An understanding of these consequences is vital to minimise the negative effects and harness the positive [3].

Tele Health in Primary Care to Virtual Primary Care

Telehealth overcomes constraints of health reach and interaction due to time, distance as well as difficult terrains. It uses information and communication technologies to transfer medical information for the delivery of clinical and educational services. Telehealth is also described as the provision of primary preventive, diagnostic, and curative health services over distance, often under asynchronous conditions. A high speed communication network is preferred with an array of modalities like Telephone, Broadband, Mobile services, Satellite etc. It may be the only method of communication in times of emergencies - such as earthquakes and floods, etc.

Better lifespan and rising incidence of chronic diseases, has increased care complexity. This means longer interactions between patients and providers, as well as among providers. Simultaneously increasing the need and scope for telehealth [4].

Telehealth is broadly classified as Synchronous or real-time using Video conferencing, or Telephonic calls as well as live feeds and Asynchronous – also called Store and Forward through SMS, Messaging services, Email etc. An emphasis on use of data storage helps analytics. A third form is Tele monitoring, which means interaction with remote devices [5].

Clinical Consequences

Among required inputs for providing an opinion from a clinician,

telehealth can provide only text, sight and sound. Admittedly, these are the most important ones. However, having even these to the fullest extent is a challenge. Management of a problem has to go beyond listening to the patients' voice, or "treating an image". Aside from the few who state "I have not touched the patient", clinicians can find ways and means to overcome this challenge. However, there is a higher dependence on devices some of which is beyond the control of the clinician.

General Clinical data (audio and video) is information-rich and needs high throughput of information transmission. That is expensive and technologically demanding, especially for remote and resource poor places. While basic technical and infrastructure issues imposed limitations in the early stages of Telehealth, many of these components are now commonplace (e.g. high resolution display screens and inbuilt cameras; ubiquitous and broadband telecommunications connectivity). The emphasis in the technical domain has shifted to leveraging new technical opportunities presented by continual rollout of new ICT products and services, and overcoming of legacy issues when systems cannot adapt fast enough to embrace technical changes. The areas discussed below represent three different aspects of technical challenge: in specific clinical services situations (e.g. emergency support for retrievals and first encounters), in particular care environment settings (e.g. personal monitoring in home and assisted living facilities), and in elements of human factors affecting telehealth adoption (e.g. user acceptability of how new ICT technologies are deployed).

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