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Evidence *summaries*

Digital-First Primary Care: a rapid responsive evidence synthesis

- There is little high-quality evidence relating to 'digital-first primary care'.
- The broader evidence on alternatives to face-to-face consultation addresses certain policymaker concerns but quantitative empirical data are lacking.
- Much of the primary evidence relates to approaches and technologies that have changed since their evaluation, and new technologies continue to emerge.
- There is a tension between the rate of innovation and the time needed for evaluation. Future research may need to reconcile 'digital' and 'clinical' evaluation paradigms, integrating questions of usability with clinical objectives.
- Any evaluation needs to measure outcomes that matter to patients, professionals and the broader health service. Future studies should carefully consider the proximal and distal impacts of new engagement technologies to ensure that appropriate forms of outcome data are collected.
- Some questions of interest to policymakers cannot be answered by research evidence alone, and may require in-depth engagement with all primary care stakeholders.
- Engagement with health professionals may address the perceived technological barriers to implementation along with their concerns around: practitioner core roles, workload, medico-legal issues, patient access, equity, security, confidentiality and privacy issues.

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Why is this evidence needed now?

In 'digital-first primary care' models of health care delivery, a patient's first point of contact with a GP or other health professional is through a digital channel rather than a face-to-face consultation. Patients are able to access advice and treatment remotely from their home or workplace via a number of different technologies. The greater use of technology and digital tools and services in UK health care has been advocated by various stakeholders on the basis of the potential benefits to the National Health Service (NHS) such as improving service delivery, decreasing demand, and greater financial efficiency.

As digital-first services have increased in number and reach, so have questions about their implementation and actual impact on patients, staff and services. NHS England approached the HS&DR evidence synthesis centre at CRD to identify published evidence of potential relevance to digital-first primary care.

Summary of evidence

Stage 1: Initial scoping work

Many reviews of digital alternatives to face-to-face consultations were primarily concerned with "mainstream" technologies such as telephone consultation/triage. Only a minority specifically focused on primary care.

Most reviews narrowly evaluated the introduction or use of a class of technology (e.g. internet video consultation) rather than the integration of such technologies as part of a broader reorganisation or reimagining of services.

Stage 2: Results of the rapid evidence synthesis

Of the 92 Stage 1 documents, the findings from seven reviews²⁻⁸ and eight primary studies^{4,9-15} were included in the Stage 2 rapid synthesis. Five reviews were produced by UK-based authors.^{3-5,7,8} Evidence on a range of technologies was synthesised including telephone consultations, video, email and e-visits, in addition to digital/online symptom checkers and health advice/triage services.

What are the benefits of digital modes and models of engagement between patients and primary care?

Nature of the identified evidence

Much of the literature on digital modes and models of engagement focuses either on the inherent characteristics of the technology or the views and perceptions of users. Unfortunately, there is little objective outcome data to evaluate the benefits and risks of digital modes and models of engagement against standard practice in primary care. Where evidence is available, it is extremely limited, often from just one or two studies, and often conducted in a non-UK primary care setting.

The available evidence suggests that uptake of existing digital modes and models of engagement is currently very low, but evidence is either sparse or contradictory

Sources of evidence

An iterative process of scoping the literature was agreed and a review subsequently conducted in two stages. Stage 1 scoping searches were conducted in July 2018 and a summary of relevant records was produced (n=92) and presented to NHS England. Following discussion we then moved onto Stage 2 where we conducted a rapid evidence synthesis of a narrower evidence base (seven reviews and eight primary studies) which addressed seven key questions identified by NHS England.

Details of the project are presented in the full report,¹ available online: <https://www.journalslibrary.nihr.ac.uk/hsdr/hsdr07410/#/abstract>

for: patient health outcomes; quality of care; access to care; continuity of care; breaches of privacy or confidentiality; financial costs and cost-effectiveness; diagnostic accuracy; accuracy of triage and signposting.

Effects of digital modes and models of engagement

Alternative modes and models of engagement change the interpersonal dynamic of the traditional primary care consultation. Many of the rich sense stimuli of a face-to-face consultation are lost, though digital modes of engagement allow patients to share recorded images and sounds to aid remote assessment and diagnosis. Some evidence suggests that video consultations are shorter, and result in less information being shared and fewer problems being discussed than face-to-face consultations. However, other evidence suggests that video consultation may be preferable for patients who feel apprehensive about face-to-face encounters with GPs or other practice staff.

Patients were often satisfied with alternatives to face-to-face consultation that provided convenience, flexibility and control, particularly when dealing with 'simple' problems. Some evidence suggests that face-to-face consultations were more highly rated than alternatives when time was needed for discussion, making decisions and for taking problems seriously. Patients expressed concerns about confidentiality, for example in relation to web requests being viewed by non-clinical staff. GPs' satisfaction rates suggested that face-to-face remains the preferred 'gold standard', with substantially lower ratings for video consultation. Both patients and GPs commonly encountered technical problems with video consultation.

There does not appear to be evidence to suggest harms, but the few studies measuring this were generally short-term and small-scale. There is also some evidence to suggest increased GP caution when using alternative consultation models, leading to "safety netting" behaviours, such as higher than usual antibiotic prescribing.

As GP workload and workforce is the main threat to primary care, how do we use these innovations to alleviate this, rather than only increase patient convenience and experience?

There appears to be little quantitative evidence on the impact of email on overall workload in primary care, whereas findings on e-visits and e-consultation are mixed. There is some evidence that online triage tools can divert demand away from primary care services, but results vary between interventions and outcome measures. One recent UK study suggested that video consultations were time-neutral for clinicians.

The impact of alternative consultations on the number and duration of follow-up consultations is not well established, and authors of the most recent UK studies recommend that future evaluations specifically measure any 'knock on' effects in the two weeks following a digital consultation.

Which patients can benefit from digital (online) modes and models of engagement between patients and primary care?

The available evidence consistently suggests that patients who use alternative consultation methods are younger, healthier and have higher levels of education, employment and income than patients who use traditional primary care services. This has raised concerns about the potential for digital modes and models of engagement in primary care to reduce access for older patients with complex health needs, as well as patients from more deprived areas. However, there is some evidence that - for those able to access these services - alternative consultation methods may be popular among some older patients and patients with mobility or anxiety issues.

It should be noted that much of the empirical evidence about the impact on subgroups is from a health professional rather than a patient perspective.

What channels work best for different patient needs, conditions?

There appears to be little in-depth comparison of the effects of different channels of engagement in primary care. The main distinction in the literature is between technologies that rely primarily on verbal or textual interaction. Often the advantages and disadvantages of each mode are theoretical rather than empirical.

Telephone consultations are challenging for people with hearing or speech problems, learning difficulties, cognitive impairment, or who do not have English as a first language. There does not appear to be strong evidence about whether digital modes of engagement can mitigate any of these challenges.

Are there differences in synchronous and asynchronous models?

Much of the identified literature emphasises the theoretical rather than empirical differences between synchronous and asynchronous models. Synchronous

models retain some advantages of interpersonal interaction between patient and clinician. Asynchronous models lose these advantages and are generally unsuitable for urgent health needs. However, asynchronous models can provide flexibility for both clinicians and patients and may be preferred by patients with anxiety or communication difficulties.

How to integrate "digital first" models of accessing primary care within wider existing face to face models?

The identified publications did not provide information on how to integrate digital models into primary care, but did identify a number of barriers to implementation of digital modes and models of engagement.

Health professionals have expressed concerns about: workload changes; patient access and equity; security, confidentiality and privacy issues; and medico-legal concerns around medical errors and medical negligence due to the absence of physical examinations and the potential for miscommunication. With the possible exception of patient access and equity, there appears to be limited empirical data to either substantiate or allay these concerns.

Several studies identified technical barriers to the implementation of digital models of engagement. Beyond having adequate IT infrastructure to deliver digital engagement, primary care staff felt implementation of such technology would also require integration with established appointment and electronic record systems.

Some studies observed that the presence of an established relationship between GP and patient facilitated alternative forms of consultation.

GPs and nurses value the clinician-patient relationship and some have identified physical proximity as an important factor in its development. New technology may need to enhance what the professional sees as their core role, otherwise it is unlikely to be accepted into practice.

The absence of clear local policies, procedures and guidance relating to alternative models of engagement can create inconsistencies in practice that lead to inefficiency and inequality. Problems noted in the literature include: unclear contingency planning for staff absence or technical failure; lack of promotion of consultation options to eligible patient groups; and lack of targeted training for administrative staff.

How to contract such models and how to deliver: what geography size, population size?

Available evidence typically focused on the impact of alternative consultation models in the context of individual primary care practices. The identified evidence did not inform contracting these models at a regional or national level.

Conclusions

Rapid scoping of the literature suggests that there is little high-quality evidence relating to 'digital-first primary care' as defined by NHS England. The broader evidence on alternatives to face-to-face consultation addresses certain policymaker concerns, such as the possible impact of new technologies on workload and workforce, inequalities, local implementation, and integration with existing services. However, while this evidence gives an insight into the views and experiences of health professionals, quantitative empirical data are lacking.

As well as obtaining better empirical data on the effects of 'digital primary care', policymakers may want to engage directly with the concerns of health professionals around: practitioner core roles, workload, medico-legal issues, patient access, equity, security, confidentiality and privacy issues. Engagement with professionals might also address the perceived technological barriers to implementation.

Some of the questions of interest to policymakers - such as how the delivery and funding of primary care services might be reconfigured as a consequence of digital consultation methods - cannot be answered by research evidence alone, and may require in-depth engagement with all primary care stakeholders.

What is most important for future research?

A broad scope qualitative or mixed-methods review of the literature is unlikely to be of great value in informing future decisions about digital-first primary care. This exercise has identified recent reviews of both digital/online symptom checkers and triage services and alternatives to face-to-face communication. However, much of the primary evidence relates to approaches and technologies that have changed since their evaluation, and new technologies continue to emerge.

A major difficulty for establishing an evidence base relating to digital technologies in general is the rate of innovation and the time needed for evaluation. Future research into the digital delivery of clinical interventions may need to reconcile 'digital' and 'clinical' evaluation paradigms, integrating questions of usability with clinical objectives.

Evaluation of any new health technology that changes the means of triage, diagnosis or consultation needs to measure outcomes that matter to patients, professionals and the broader health service. Alternative forms of engagement may influence clinical practice, diagnostic accuracy, safety, harms, quality of care, consultation dynamic, costs, and organisational factors. Future studies should carefully consider the proximal and distal impacts of new engagement technologies to ensure that appropriate forms of outcome data are collected.

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