



Digital/online symptom checkers and health assessment/triage services

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Systematic review: What evidence is there for the effectiveness and safety of apps and websites providing advice on urgent care?

- A **systematic review** of evidence on digital/online symptom checkers and health assessment/triage services identified 27 relevant studies (29 publications).
- The overall strength of evidence was weak, with **uncertainty** around most outcomes, including diagnostic accuracy and impact on service usage, although users generally reported satisfaction with these types of services.
- Digital and online services are disproportionately used by **younger and more highly educated people**. This could have implications for **health equity**.
- There are no studies **directly comparing the performance of different symptom checkers**, which may hinder decision-makers in choosing an appropriate system.

What is the problem?

Digital and online symptom checkers are used by people seeking information about a health problem. NHS England is planning to introduce a digital platform (NHS111 Online) to operate alongside the NHS111 urgent care telephone service. NHS England asked for a review of previous research in this area to inform strategic decision-making and service design. This project was funded by the National Institute for Health Research Health Services & Delivery Research Programme.

What did we do?

We performed focused searches of seven bibliographic databases, supplemented by phrase searching for names of symptom checker systems and citation searches of key included studies. Brief inclusion criteria were:

Population: Any individual seeking information online or digitally for an urgent health problem

Intervention: Any online or digital service designed to assess symptoms, provide health advice and direct patients to appropriate services.

Comparator: Telephone or face to face assessment; comparative performance in tests or simulations. Studies with no comparator were included if they reported relevant outcomes

Outcomes of interest included safety; clinical effectiveness; costs or cost-effectiveness; diagnostic and triage accuracy; use of and contacts with health services; compliance with advice received; patient/carer satisfaction; and equity and inclusion.

Because the studies were too varied to compare by quantitative methods, we carried out a narrative synthesis of the included studies. Overall strength of evidence was assessed for each outcome

What did we find out?

We included 29 publications describing 27 studies. The overall strength of evidence was weak, with major uncertainty around most outcomes.

There was little evidence to suggest that symptom checkers are unsafe, but studies evaluating their safety were generally short-term and small-scale. Diagnostic accuracy was highly variable between different systems but generally low. Algorithm-based triage tended to be more risk-averse than that of health professionals in comparative studies. We found inconsistent evidence on effects on service use. There was very limited evidence on patients' reactions to online triage advice. The studies showed that younger and more highly educated people are more likely to use these services. Study participants generally expressed high levels of satisfaction with digital and online triage services, albeit in uncontrolled studies.

What are the implications?

Further robust research is required in order to address current uncertainty regarding outcomes from these types of services.

There are no studies directly comparing the performance of different symptom checkers, which may hinder decision-makers in choosing an appropriate system.

Evidence from other fields suggests that once digital services are introduced their use may increase rapidly. Hence, the health service may need to respond to short-term increases (or decreases) in demand and/or shifts from one part of the system to another.

Digital and online services are disproportionately used by younger and more highly educated people. This could have implications for health equity if urgent care pathways prioritise (or appear to prioritise) requests originating from digital sources.

Source

Chambers D, Cantrell A, Johnson M et al. Digital and online symptom checkers and assessment services for urgent care to inform a new digital platform: a systematic review. *Health Serv Deliv Res* 2019; 7(29).

