Can intelligent clouds stem the tide?

In primary care, demand currently outstrips supply and will continue to do so. As a result, more patients will have to learn how to look after themselves at an earlier stage. What will this self-care look like in practical terms?

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Many are saying that the NHS has little option but to start deploying, and actively encouraging, patients to use intelligent self-care services. This is particularly the case in primary care, where the queue for appointments spills out into the national press and beyond, into A&E. Cries of 'humanitarian crisis' and 'untold misery' are disappointing for the many health professionals who are doing an excellent job.

Even if unlimited funding was poured into primary care tomorrow, training the shortfall of GPs would take years. It is acute care that attracts the limited finance, with desperate fiscal shortfalls and media reports of patients on beds in corridors. More patients will just have to learn how to look after themselves at an earlier stage; but how? The internet is a primary source of self-care; but as any moderate hypochondriac will tell you, it is a very scary place. What started as a minor ailment can be converted by a brief search into a convincing set of symptoms for a stage 4 tumour, with an urgent imploration to seek an appointment with GP.

On the other hand, many patients who need assistance have not grown up with the internet and, for them, even turning the computer on is a scary process. For an large proportion of people, the telephone is still the instrument of choice. Self-care, or at least triage, awaits the brave, as well in the form of the 111 service, although it has not got off to a glowing start in the few years since its inception. Claims that it is staffed by 17 years olds determined to make more work for GPs and A&E have led to increasing demands for it to be scrapped altogether. At best, results are likely to be of mixed quality delivered by competing providers. For many, it's a matter of getting on the phone to book to

see the nice doctor – and at 8am on a winter Monday morning, the competition to do that is fearsome. Many practices have queues into the hundreds and some patients are still waiting by 9am. Those without substantial queuing systems end up giving patients a lottery, favouring those most nimble on the redial button.

Triage

GPs are increasingly putting processes in place for telephone triage, but studies are mixed on how much time this saves, particularly when the GPs themselves make the call and the result is that an examination is required, effectively increasing the overall time. However, such studies tend to ignore factors such as did not attend rates and reduction in cross infections. No surgery wants a waiting room full of patients with norovirus. Telephone triage processes are sometimes rudimentary and manual. They may rely on non-integrated phone systems with a receptionist booking and managing both stages of the appointment. In some cases, GPs resort to mobiles to call back patients due to lack of line capacity or punitive call cost contracts.

As a bridge between a computer-driven diagnosis and a face-to-face consultation, the phone call at least gives the patient the human contact and reassurance they are seeking. Telephone triage may be offered to callers as an alternative to a predicted lengthy queue wait, contributing towards patient empowerment. Many patients really don't want to bother the doctor and feel others are more deserving of their time. Technology can help with the efficiency of triage at many levels. Administratively, it can allow patients to book the call on the phone, or via the web. It can line up the calls and dial them automatically, speeding the process, handling retries and

avoiding error. Rather than typing up the notes, cloud-based telephony can record the calls, convert them to text and attach them automatically to the patient notes, leaving the GP to move on to the next patient.

Can the technology go a stage further and increase the quality of clinical decisions during the triage process or replace it altogether? Artificial intelligence and machine learning are spawning applications that provide patients with advice distilled from the acquired knowledge of hundreds of health professionals. The technology means that the immediacy and accuracy of the responses can be guaranteed to exceed those of an average single consultation with a GP. However, the majority of people prefer dealing with people. Even to use an automated service to book an appointment is an anathema to some, for whom the warm (or strained) voice of the receptionist is preferred. When it comes to clinical decisions, the GP is assumed to have a sixth sense and this belief will override any evidence from the statistics. In addition, there is the relationship angle 'my GP knows me'. To some extent, the last point is the most relevant to the technological challenge of automating consultation. We can give a robotic consultant a personality when chatting via text, or even a warm conversational voice. However, without access to the patient's individual records, any consultation will necessarily be linear, meaning two patients displaying the same symptoms will be guided down the same path.

Information governance

It is the practicality and politics of sharing clinical records that poses one of the biggest challenges to provide personalised but automated care. Over 7,000 practices in the UK are geographically distributed and use a small variety of clinical systems, but a huge array of physical, network and telephony systems. Fear of patient data loss is a constant threat – we juggle the desire for accurate clinical advice with fear of becoming uninsurable and unemployable as our weaknesses are leaked.

Initiatives and standards are being created and revised, such that clinical data can be exchanged safely. However, these standards are stressed at both ends of the technological spectrum. Those trying to bring cutting edge artificial intelligence solutions to market find engaging with the standards too cumbersome. They end up working outside the system to avoid being trapped in interminable delivery

delays. At the other end, the telephone network, running on much infrastructure that dates back more than half a century, is mostly quietly ignored as being a risk to data security. It is interesting to note that the payment card industry, with similar challenges, regards the entire public telephone network as out of scope within its own, otherwise onerous, standards.

There are solutions here. Secure cloud telephony is available, with encrypted connections and solutions that integrate closely with clinical systems. But telephony is often purchased as an office commodity by cash-strapped practices and not as part of a joined up IT strategy. The competitive environment, beneficial to cost and competition in many ways, does not help when it locks practices into unfavourable contracts with companies whose size gives them an aura of respectability and authority.

Choice

Self-care will never be for everyone. Some patients will be terrified of an intelligent system giving the wrong advice, like the driverless car that takes them hurtling off a cliff. Artificial intelligence does not imply the need for a robotic doctor. Between the two extremes above, advances in speech analytics and machine learning can take the results of millions of consultations, improve the sum of human knowledge and prompt a health professional to make optimal decisions while retaining human contact. In the meantime, there is much that can be done to ameliorate the supply and efficiency of primary care advice and triage. Dispensing with the option of self-care and intelligent non-linear triage at the phone, web and app interfaces can help stem the overload on GP services and, eventually, the NHS as a whole. **PM**