

the voice of NHS leadership



Remote control

The patient-practitioner relationship in a digital age



The voice of NHS leadership

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Introduction and summary

There are ambitious claims for the potential of multi-channel, remotely delivered healthcare to lead a self-service transformation of the NHS. Currently the UK is not perceived to be at the forefront of telehealth, relying heavily on face-to-face consultations to achieve continuity of care. Success is mixed, with half of patients still feeling that they are insufficiently involved in making decisions about their health.

As an increasingly digital society changes the nature of one-to-one relationships, this report asks whether health technology will involve patients more or exclude them even further.

In considering these issues, we present evidence that illustrates how powerful everyday technology can be in disrupting the roles and relationships of patients and practitioners. Sometimes the effects are positive, sometimes not. The real opportunity lies in elevating shared decision-making to be as important a concern for health technology as cost savings and efficiency. Where this is done, the digital future can offer patients far more opportunities to be involved in decisions about their care, while

protecting face-to-face services for the people it has value for.

Building a multi-channel NHS that supports empowering, as well as efficient, care requires some fundamental questions about health technology to be asked again. The final section of this paper sets out the three most important questions for further discussion, and challenges some assumptions about what the answers might be:

- **Who** should the multi-channel NHS be for? This chapter looks at some of the trade-offs between the preferences of clinicians and patients.
- **What** should the goals of health technology be? This chapter asks whether technology should be designed to define patients as consumers or self-managers.
- **How** should the multi-channel NHS be realised? This chapter sets out some of the problems that have beset the development of health technologies in the past, and asks what market models might avoid these in the future.

Context

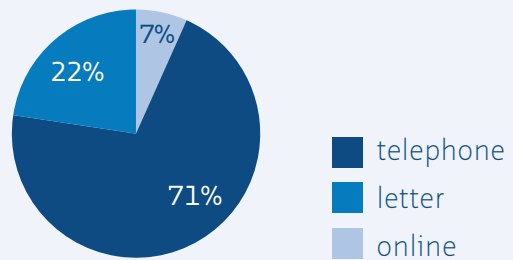
It seems a fundamental contradiction in the modern NHS that many of the procedures available to patients today were once the subjects of science fiction, yet the structures and systems through which they are delivered still have much in common with a pre-industrial handicraft industry¹ – the 21st Century coexisting with the 19th.

While other sectors have undergone a decade of radical transformation as a result of the ‘information age’, much of the way patients receive healthcare remains unchanged. Registration is still with a small, local practice and the vast majority of communication still takes place over a desk rather than a desktop, often supported by paper records with hand-delivered prescriptions and referral letters.

Meanwhile, society seems increasingly comfortable with self-service models of interaction. One-to-one relationships with bank managers, travel agents and shop assistants are changing rapidly as customers opt to make many of these transactions digitally. The result is an ever more ‘multi-channel’ economy of 24/7 web, telephone, email, text and instant messaging. Face-to-face services have not disappeared, nor will they, but their predominance has been supplanted by a much more diverse mix.

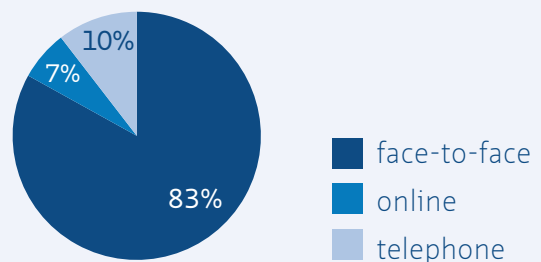
Having observed the benefits accrued by other large organisations that have embraced digital channels, there has been a series of policy pushes from government over the last decade to introduce these service models into the NHS. Most recently, the ‘information revolution’ announced in the coalition Government’s health white paper includes commitments to implement a range of new remotely-delivered health services, from online consultations to electronic patient records.² More long-term visions see using digital channels as a way of radically redefining the core business of the NHS whereby, with the exception of acute ill-health and short bouts of intensive treatment,

Figure 1. Administrative patient transactions with the NHS per year



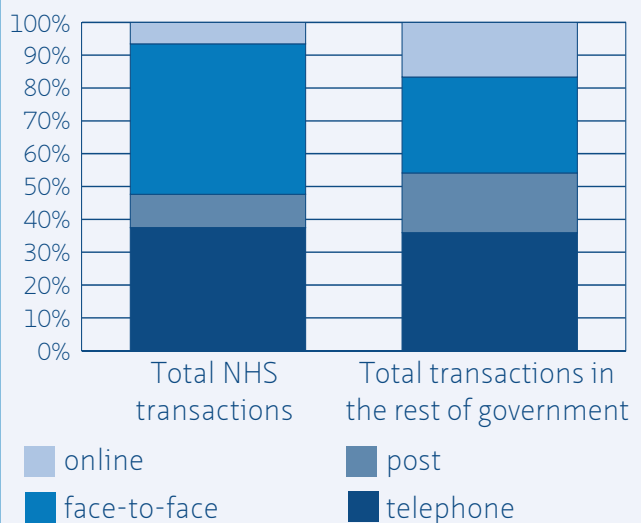
Source: Cabinet Office

Figure 2. Clinician-patient contacts per year



Source: Cabinet Office

Figure 3. Transactions with the public by channel: NHS compared to other public services



Source: Cabinet Office. Rest of government totals calculated from transaction volumes from DWP, HMRC, DVLA, IPS and local authorities

the default role of the health service should be to give patients the information and self-service tools they need to manage their own health.^{3,4,5}

Alongside these initiatives is the policy drive toward shared decision-making, which also features prominently in the recent health white paper under the maxim ‘no decision about me, without me’.² It has been a long-term goal of policy to involve patients more in their care, guided by the philosophy that good medicine is about much more than the science of accurate diagnosis and treatment. The quality of interactions that patients experience with their clinicians has been shown to have a profound effect on health outcomes,⁶ and achieving richer and more equal relationships, where decisions are made jointly between patients and practitioners, is one of the most effective ways of improving these.⁷

Despite this understanding, the last decade has seen no improvement in the extent to which patients feel as involved as they would like in the decisions about their health.^{8,9} Across government, there is a growing appreciation of the need to deepen relationships between

citizens and professionals by removing barriers between them. Foremost in this effort is the need to treat people as individuals, not information, and to create new ways of working that take better account of people’s personal assets and needs.¹⁰

Slowly, the digital health tools now available to patients are already starting to change the patterns of use of traditional services. For example, a recent study demonstrated the effectiveness of NHS Choices at reducing demand for face-to-face appointments.¹¹ Such shifts hold the promise of developing more efficient and sustainable models of healthcare. The question we consider in this report is what effects we can expect greater use of digital services to have on the traditional relationship between practitioner and patient.

“Across government, there is a growing appreciation of the need to deepen relationships between citizens and professionals by removing barriers between them.”

Picturing a multi-channel NHS

The idea that a large proportion of patient interactions could switch from face-to-face onto digital channels may seem ambitious given the limited impact that most telehealth systems have made so far. But there is already much activity moving from the margins to the mainstream of the NHS. Simply taking advantage of the everyday technologies already used by most patients in their daily lives would lead to a very different health service. While predictions should be read with great caution, this chapter outlines how multi-channel healthcare could be occurring in the not-too-distant future.

The **administration** of simple transactions could rely much more heavily on self-service, automated systems. This would involve shifting face-to-face, telephone and postal interactions onto more efficient channels, following reforms already made to tax, benefits, driving licences and student loans. Online booking could become the default option for arranging appointments in primary and secondary care.

Personalised medicines management programmes that allow patients to link their prescriptions to their medical records already exist and could enable them to keep track of their medications more easily. These programmes could be used to generate dosage plans of what to take when, order and receive certain repeat prescriptions electronically, and spot possible adverse drug interactions earlier on.

Those with a personal health budget could manage the services they receive using support software, as well as being able to browse and compare options for what to spend it on.

Routine care could also be centred around the patient having ownership of their electronic medical record. This could be shared with relevant clinicians and any family members or carers to whom the patient wanted to give access. Test results could be reported directly to the patient via their communication channel

of choice and could be presented with prompts for what the patient might want to think about and raise in their next consultation (www.patientsknowbest.com). If patients choose, they could also link their electronic record with other aspects of their online life – either personal profiles or records held by other public services – so that the physician has a window into the patient’s broader social context.

Some consultations could take place online, although patients may find email more appropriate for many minor interactions that previously required a visit. Immediately prior to consultations, the patient’s medical history could be taken via an automated, computerised interview (www.medicalhistory.com).

For some conditions, treatment itself could be delivered directly through remote channels. Computerised versions of psychotherapy for the treatment of depression (www.beatingtheblues.co.uk), for example, are already being used and have proved both clinically effective and popular with service users.¹²

The ‘front door’ to **acute care** in the NHS could see its physical facilities integrated much more closely with online and telephone triage, so that conversations could be started in one channel and finished in another. Where a choice of treatment is available, such as in elective surgery, web-based patient decision aids (PDAs) are already being developed in the NHS to get the most out of face-to-face consultation time.¹³ Additional health information is increasingly being sought by patients themselves, and is already among the top five things UK internet users say they look online to find out about.¹⁴

For **long-term conditions**, digital tools could be used to support greater self-management. For example, multi-lingual wellness services that use a mix of telephone and web support are currently being piloted in Birmingham (www.birminghamownhealth.co.uk). In-home

and portable monitoring systems could be used to reduce the burden of self-management for conditions such as diabetes and prevent the need for intensive treatments.¹⁵ NHS and non-NHS peer support networks are likely to continue growing online, providing emotional and practical support to people managing chronic diseases (www.community.macmillan.org.uk), (www.rareshare.org).

Public health could see the continued expansion of digital media as a means of targeting outreach and prevention initiatives to key health demographics through networks such as bebo and mumsnet. Local outreach workers such as counsellors, health visitors and sexual health nurses could make themselves more available through a greater presence in new media.

Health protection could be supported by ever more advanced 'syndromic surveillance' systems, which detect potential outbreaks of illness in a community through monitoring

patterns of digital behaviour in real-time, such as when a surge of people in one area search the internet for information on the same symptoms.¹⁶

Service improvement could be stimulated by the collective eyes and ears of patients and professionals being harnessed to generate continuous feedback and response.¹⁷ High rates of user-generated suggestion and comment, much of it real-time, could be seen as an asset to managers and clinicians, with patient ratings given equal weight alongside national regulators' measures in determining the local organisation's reputation.

"Service improvement could be stimulated by the collective eyes and ears of patients and professionals being harnessed to generate continuous feedback and response."

The debate about digital healthcare and its impact on relationships

Introducing any technology into a human system can have far-reaching effects that are difficult to predict. The patient-practitioner relationship is especially complex and emotionally loaded, with knowledge and power rarely shared equally. Replacing any interaction that used to be conducted in person with one of digital tools outlined in the previous chapter won't simply change the channel of communication, therefore, but will impact on how each party sees themselves, their role and the type of information and behaviours that are exchanged.

This highlights the importance of having an understanding of how remote channels are likely to alter the way patients and health professionals interact in the future; particularly if, as some have argued, digitisation is often damaging to participatory and person-centred approaches:

“The huge investment in public sector IT (over £70 billion in the past decade) has tended to subordinate the human skills of frontline staff to software, and has often locked in the inefficiencies in services. These have been projects which reduce, define, standardise and control, and set processes in concrete. They also undermine face-to-face relationships that so often make the difference between success and failure.”¹⁰

It may be that there are good reasons behind the slow pace with which the NHS (and health systems worldwide) has adopted digital channels compared to other service industries. If it is found that the continuing reliance on face-to-face interactions is because they are

an indispensable, high-value component of good quality care, then telephone and internet health services will always be a parallel, duplicative offer to a niche group of patients.

The popular belief that digital health services are an add-on to the 'core business' of the NHS is implicit in much of the scepticism that is often expressed about their value. When surveyed for their recommendations of where cuts should be made in the health service, GPs rated NHS Direct and the National Programme for IT among the leading candidates.¹⁸ Attempts to utilise new media are also commonly portrayed as frivolous, as seen in coverage of figures obtained by the BBC on government spending to develop free mobile phone 'apps' such as the Department of Health's smoking cessation and alcohol unit tracking applications.¹⁹

The next chapter will test these arguments against the evidence available, and explore how multi-channel healthcare is likely to change the roles and relationships of patients and health professionals.

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Examining the evidence

The effects of transforming the NHS with a meaningful shift towards digital, self-service channels are envisioned in divergent ways. This chapter looks at some of the evidence available about whether multi-channel health services would create empowered patients and participatory medicine or disconnected communities and 'call-centre care'.

The discussion is divided into three themes: power and identity; trust; and equity.

Power and identity

Some of the evidence around the psycho-social effects of digital healthcare is concerning. Almost by definition, remote technologies rely on substituting a patient's real-life presence with much smaller, virtual fragments of their identity: an image on a screen, a graph displaying diagnostic data or a disembodied voice on the phone.²⁰ Such changes in presentation can affect how a person is perceived and treated. Hjelm, for example, has observed that patients and practitioners interact differently during a consultation using video conferencing and often miss out important features such as introducing themselves naturally and in such a way as to identify each other's role.²¹ Others have found that the presence of electronic medical records during a patient visit can be a distraction for doctors, sometimes causing them to pay more attention to the screen than to the person.²² And while 'hospital at home' technologies are generally designed to make patients feel they are gaining autonomy, some remote monitoring systems have been found to create the feeling of being a passive player, alone yet under constant observation.²⁰

Yet where technologies increase the information and control available to patients they can help to enhance their role and involvement. The knowledge gap between patient and practitioner

is one of the main drivers for the paternalistic experience that is often reported. If shared decision-making is to become the norm, this gap needs to be narrowed, and digital interfaces can help to achieve this. Some of the best researched examples of patients being empowered through information are patient decision aids (PDAs).²³ These are evidence-based tools used to inform patients about the risks and benefits of the various treatment options available to them, and to facilitate the process of shared decision-making with their clinician to be discussed in the consultation. Rather than replacing a face-to-face interaction, PDAs are usually supplements used to improve the quality of consultations. Most present the patient with a screen-based programme which outlines their condition and the procedures they should consider. It also asks about the patient's values and personal goals, a summary of which is sent to the clinician, who is more able to treat the patient as an individual as a result. The relationship between patient and practitioner is therefore a more equal one as a result of this standardising approach to patient information. The patient knows about the trade-offs involved in the different treatment options and the clinician knows something about what is most important to the patient. The quality of discussions that PDAs generate has been found to be significantly higher as more of the appointment time can be spent on discussion and decision-making and less on explanation.

There are other ways in which even very simple technologies can facilitate patient empowerment through information. Studies into the effects of physician email have found that among the benefits most valued by patients is that they can save and reread the medical advice given to them.²⁴ This is something that face-to-face interactions rarely allow, as information delivered and retained this way tends to decay rapidly. Many telecare systems facilitate a great deal more

knowledge to be exchanged between patient and practitioner. While more data is not always beneficial, a more effective flow of it can intensify relationships.²⁵

Trust

Just as important as issues of power and control are the effects of digital health channels on trust between patients and practitioners. Both must have confidence that new ways of interacting, whether with the clinician, a telehealth worker or an automated system, are safe. Some participants in this study commented that face-to-face encounters have the advantage of allowing the health professional to spot symptoms the patient might not think important enough to mention. But the evidence for such occurrences is largely anecdotal and it is questionable to what extent 'medicine by serendipity' is worth protecting. There are also risks inherent in the status quo which must be taken into account. Many people exhibiting apparently minor symptoms will, being stoic or time-pressured, not seek to see a physician at all, in which case a service such as NHS Direct offers a far more accessible route to spotting serious conditions early on, and one that still functions after 5pm. Furthermore, for some problems, patients actively value some degree of distance from their health professional, as observed in patients feeling emboldened to ask embarrassing or sensitive questions when physician email is available.²⁴

Digital healthcare can damage trust when remote delivery means the patient is less able to participate in the decision-making process. Research into teler dermatology systems found that some patients reacted negatively to having their consultation with a dermatologist replaced with a nurse and digital camera, who sent the images to a specialist

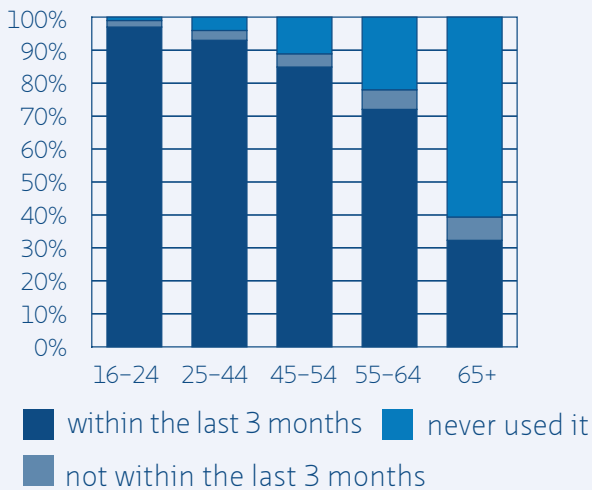
electronically.²⁶ This unease was not caused by the service having been 'de-skilled', but rather that decisions about diagnosis and treatment were now being taken by someone unseen, in a separate location that the patient could not influence. Building in processes of recourse to lead clinicians and giving those in contact with the patient more authority can both be effective ways of mitigating this.

Equity

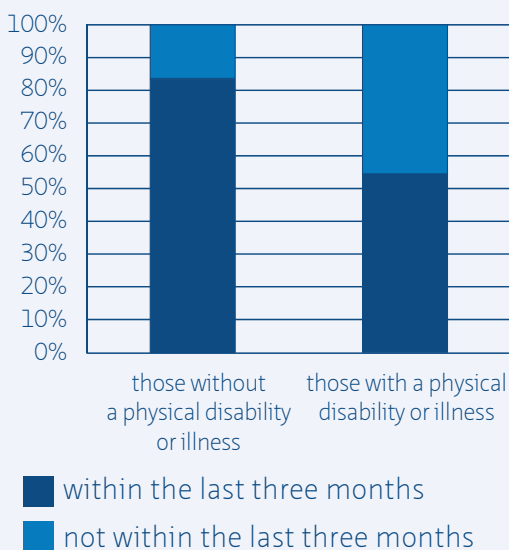
Another source of concern about healthcare that is delivered remotely is that it could exacerbate exclusion or social isolation – two distinct but related problems that already impact on the nation's mental and physical health. There are wide variations in digital literacy and access across the population, with lower rates linked to many of the same factors identified in health inequalities.²⁷ While there are almost 40 million internet users in the UK (77 per cent of the total adult population), internet use is lowest among older people (32 per cent of over-65s), people with physical disabilities (54 per cent) and those on low incomes (63 per cent of those earning less than £10,399).²⁸ Rightly, there are concerns, therefore, that digital channels may follow the 'inverse information law' observed in current healthcare delivery, whereby those with the greatest need for information about health are least likely to have access to it.²⁹

Social isolation is also an important consideration for the many patients who value

"For some problems, patients actively value some degree of distance from their health professional."

Figure 4. Adults' use of the internet by age

Source: Statistical bulletin: Internet Access 2010; Office for National Statistics

Figure 5. Adults with or without a physical disability or illness use of the internet

Source: Statistical bulletin: Internet Access 2010; Office for National Statistics

a personal relationship with their health professionals highly. The think tank Participle estimates that in Greater London alone 150,000 people over the age of 65 do not see a friend, relative or neighbour at least once a month (www.participle.net). And while the ability of the existing system to build meaningful relationships or continuity of care with these people should not be overstated, telemedicine trials have observed problems recruiting older participants, who state a preference for maintaining face-to-face contact.³⁰

Where introducing a particular digital health service means the wholesale replacement of the face-to-face option, there is a good chance that those who already have worse health or for whom human contact is an important feature of good quality care will be disadvantaged. However, increasing demand for digital health channels, even to the point where it becomes a default option for many activities, need not preclude the availability of face-to-face service options. And it is important to recognise that allowing patients to choose to move onto digital channels will allow face-to-face capacity to be better targeted at those who benefit from it most.

Innovative uses of telephone-based systems, as well as rising levels of internet usage amongst older people, people with disabilities and those on low incomes, should also be a cause for optimism.³¹ Health practitioners commonly underestimate the ability of their patients to benefit from and value digital healthcare.^{25, 32, 33} Kerr et al's study of internet health communication applications found that with a well-designed programme even the non-computer literate could use it with minimal tuition; and an important finding of the Government's digital inclusion strategy was that the main barrier listed by non-internet

users for not getting online (59 per cent) was not 'digital illiteracy' but that they felt they had nothing to go onto the web for.³⁴ If this is the case, it may be that offering more electronic health services will be an effective way of bringing more people online. The response to digital exclusion should be to tackle it, not work around the problem.

For social isolation, technology can also provide some solutions. Many patients already turn to web and telephone-based peer support networks designed for their age or condition. Murray et al's research into a web-based support package for those with long-term conditions found that users reported it significantly eased the emotional burden of their condition, helped them cope with negative emotions such as depression and isolation, and boosted their motivation and ability to cope.³⁵

It is also clear that, for an increasing proportion of the population, access to and participation

in healthcare is actually obstructed by the lack of remote channels on offer. For young people in particular, but also those with a high level of experience and breadth of use of digital platforms, the internet and mobile phones are fast becoming the primary means by which they can be communicated with and through which they will expect to access services.³⁶ For the NHS, this means that failing to develop ways to reach out electronically risks disastrous consequences for the long-term health of a large section of society, the needs of whom also need to be considered in any discussion of equity in a multi-channel NHS.

"For the NHS, failing to develop ways to reach out electronically risks disastrous consequences for the long-term health of a large section of society."

Future directions for multi-channel healthcare

The evidence outlined in the previous chapter, 'Examining the evidence', highlights how digital health technologies not only change processes, but also how patients and practitioners relate to each other at a fundamental level. There are instances where the change has been found to be negative, particularly where patients' choice and preferences were sidelined. But where self-service technologies are implemented with a view to strengthening the involvement and autonomy of patients, they can improve continuity of care, shared decision-making and self-management.

Enthusiasm for the multi-channel future among patients is unlikely to be uniform. For some, the convenience of 24/7 access and the chance to take a more active role will far outweigh abstract notions of being an image on a screen. For others, the depth and reassurance of a face-to-face consultation will consistently draw them to direct access to clinicians wherever this is available. The current reliance of the health service on face-to-face interactions should be recognised as an indiscriminate approach. An increasing number of patients are not only capable but also keen to use digital channels to manage their health. This presents an opportunity for the NHS to offer a far more

participatory experience, as well as protecting face-to-face capacity for those people for whom it has value.

An NHS that achieves both of these things is by no means assured. The system may continue to deliver the best of neither, or may pursue one end at the expense of the other. Three of the main issues to be addressed in building equal and effective multi-channel healthcare are presented in the following chapters, along with starting points for further discussion. First, we ask **who** digital technology is meant to serve, and how should conflicting interests between patients and practitioners be resolved? Secondly, **what** are the goals of digital health tools and to what extent should these differ from how technology is used in commercial environments? And thirdly, **how** can the NHS create an economy for digital health services that overcomes the barriers and inertia encountered in the past?

"The current reliance of the health service on face-to-face interactions should be recognised as an indiscriminate approach."

Who should the multi-channel NHS be for?

Technology developers often observe that it is difficult to define who their customer is when designing a new e-health product. Are they trying to appeal to commissioners, who buy it; clinicians, who work with it; or patients, whose benefit is the ultimate aim? The motivations of these different groups sometimes align neatly, but often they do not. Where tensions arise, it is important that a coherent theory exists on which to weigh the interests of different parties.

Historically, the clinician's role has been one of the most dysfunctional in the implementation of new digital health channels. Numerous attempts to introduce information technologies into mainstream practice after successful pilots have met with active and passive resistance from clinicians – both on an individual and collective basis. One approach to managing this problem has been to bypass mainstream clinical practice altogether by creating tools that function independently of traditional pathways, such as NHS Direct. However, the greatest value of multi-channel healthcare lies in its ability to change the current system, not duplicate it.

It would be wrong to attribute this problem to clinicians being in any way technophobic. During the last decade medical practitioners have continued to use ever more advanced technologies to support diagnosis and treatment. Why is it that no such trend is evident in the

patient-facing aspects of their practice?

Although there are often valid reasons for resisting the introduction of certain tools, such as a lack of consultation in their design or concerns about quality of care, much of the lack of progress goes against the interests of patients. Where this is the case, the motivations for inaction are highly complex.

Large-scale telemedicine and IT programmes have often been developed in parallel to, and been associated with, attempts to standardise and better control clinical behaviours.³⁷ When compared to face-to-face care, digital channels by their nature tend to leave a clearer audit trail of information given and decisions made. They often require greater adherence to protocols and give patients greater means by which to challenge clinical authority. The shift in professional identity this requires is welcomed by some clinicians as part of continuing progress away from a paternalistic style. However, others find adapting to medicine in a multi-channel world harder to accept.

New approaches are needed to bring clinicians to the forefront of driving digital healthcare, rather than asking them to acquiesce to it. This is particularly important as the locus of innovation shifts from centrally driven programmes to local, smaller scale initiatives.

Starting points for future development

1. Power is not zero sum. Enhancing the role of patients need not diminish that of clinicians, quite the reverse. The goal of shared decision-making is a win-win: better quality care through richer relationships. For the vast majority of clinicians this means more time doing 'what I came into the job for'. Where individuals seek to preserve clinical authority for its own sake this should not be condoned. Power is healthy, dominion is not.
2. Some of the reticence of clinicians to use certain technologies rests on misconceptions about their effects, which can be addressed. For example:
 - Untested assumptions about 'what patients want' – studies into various health technologies have found that clinicians consistently underestimate how many of their patients want to and would benefit from interacting electronically.^{32, 38}
 - Beliefs that allowing direct access to clinicians through digital channels, such as email, will result in patient overuse and a bombardment of demands for advice – international studies into physician email have in fact shown manageable rates of use by those who are given access, mostly replacing rather than supplementing other interactions.^{24,25}
3. The pervasive uncertainty about how to undertake digital interactions in a safe and legal manner is a major driver of inaction, but one that can be overcome. Few clinicians participating in this study had an understanding of what relevant guidance exists, or how legislation governing the use of digital channels affects them. Our research revealed some highly inconsistent practices. In one case a clinician refused to use secure email with patients because they could not guarantee it was really that person they were communicating with, but was happy that those same patients could obtain test results over the phone by simply giving their name and date of birth. In another example a health practitioner was using social media sites to publicly discuss personal health issues with their patients. If an information revolution is to take place in the NHS, clinicians need to be guided as to what the limitations of digital medicine are and what innovations are possible in their specialty.
4. Financial incentives have the potential to encourage the use of digital healthcare, or at least to lessen the obstacles. Currently there are significant disincentives to move away from traditional care, such as lower tariffs for telephone compared to face-to-face follow-up. While using economic levers to actively encourage clinicians to use remote health tools may be questionable, current monetary incentives should at least be re-examined to ensure that digital medicine remunerates at the same level as face-to-face.

What should the goals of health technology be?

Part of the reason that digital health channels have variable effects on relationships is that there are competing views of what health technology is for. If these tensions continue unresolved, or at least unacknowledged, there is a risk that significant time and investment could be used creating a system where many people feel worse off.

Perhaps the most important difference in what proponents of health technology see their goal being is whether convenience is an important priority or not. In many commercial sectors the primary value of digital channels is to make transactions more user-friendly and time-saving for customers, so that they are more likely to buy. ATM machines, for example, were introduced to offer people the same services with less queuing, as well as a benefit for the bank by reducing the number of branch staff. But how important is convenience in healthcare?

The tasks for which digital health channels have been developed suggest there are two implicit

theories of what patients want. Some think that health is similar to other service industries in that its 'customers' are primarily looking for convenience; poor health is something that gets in the way of their normal life, and managing illness should consume as little time and effort as possible. Others have a very different view of patients, seeing them as self-managers who want to take as active a role in their health as they are able.

There are many areas of agreement between the consumerist and co-production theories of healthcare. Both see a value in shifting certain tasks onto self-service platforms, although one seeks this more for ease of access, the other for greater involvement. However, in many cases there is conflict and finding a resolution can be particularly difficult because both models are probably true in some sense. The challenge is therefore to find out where the trade-offs are likely to lie and find a balance between the preferences of different groups. The points in the box below give some ideas for how this might begin.

Starting points for future development

1. It is important to remember that patients and the public are not identical. The 'customer base' of the NHS is unlikely to have exactly the same preferences as the population taken as a whole does. While there are a great many lessons that can be learnt from the commercial sector in how to implement multi-channel delivery, the goal for the NHS is likely to be different in some important ways to that of other service industries.
2. The goal of health technology is determined just as much by how it is used as by what it is. In the same way that a medicine causes different results depending on a patient's condition, so the same technology will have different effects depending on the context in which it is applied. May et al, for example, have observed that some of the most effective telecare systems have been developed in remote communities to enable closer relationships between patient and clinician, but that these are often adapted uncritically into urban contexts, where the aim is to reduce direct communication so as to manage demand.³⁷
3. Serving the diversity of patients' preferences cannot result in simply 'doing more of everything'. While offering a greater choice of channels is one of the defining characteristics of a multi-channel strategy, this does not necessarily entail increasing capacity or pressure on the health service. Developing digital tools in parallel to traditional services would not only duplicate resources but would undermine much of their benefit by allowing longstanding inefficiencies in the system to remain unchallenged. The value of digital channels in other industries has been their ability to fundamentally alter their ways of working, rather than increasing capacity, while leaving the 'core business' unchanged.

How should the multi-channel NHS be realised?

No discussion on digital healthcare can be complete without taking note of the considerable organisational barriers that have been encountered by those attempting to develop it in the past. While NHS IT development during the last decade was characterised by immense ambition, so too was it marked by continual failure. Vast resources were committed to realising the visions of successive Department of Health IT strategies.^{39,40,41} Yet the principles governing these plans rested on questionable assumptions about technology and about large-scale organisational change that are, in part, responsible for the slow progress made today. Understanding these failures is vital and the first step towards reinvigorating the digital economy in the NHS, which many developers now see as 'stuck'.

Many of the problems with the approach of the NHS to technology development arise from its size as a purchaser, which is simultaneously very large and very small. Small and medium-sized developers spoken to during this study showed frustration at the vast scale of the organisation, which has centralised much of its IT development to a very few large contracts. Multinational technology companies, on the other hand, explained how difficult they found it to find primary care trusts with sufficient scale to invest in their products and achieve a return.

The problems associated with the large scale of the NHS for technology development are the most widely recognised. The desire to create a standardised, comprehensive and centrally owned IT infrastructure led to the creation of the National Programme for IT (NPFIT), which has the dubious accolade of being the largest civil IT programme in the world. The programme has achieved major successes in creating digital infrastructure across the NHS, such as the N3 network, Spine and Picture Archiving and Communications System.

However, its extensive scope and scale have proved almost unmanageable for the public and private organisations involved. Running at least £10 billion over budget and years behind schedule,⁴² the Department of Health announced its scaling back in September 2010.⁴³

The barriers that exist at the trust level have a less high profile. Local NHS organisations are perceived to have great difficulty making even relatively small investments into digital health tools. This mainly arises from size constraints – their geographic boundaries and budget limitations – as well as limited expertise in digital technology. It is also a result of the shadow of NPFIT, whose wide-ranging, centralised approach has meant local organisations have been reticent to experiment and invest in technology in case it later turns out to be incompatible with some part of the nationally-designed model. This has deterred much-needed leadership from arising outside of centrally funded programmes, and has reduced the incentives for local innovation.

The coalition Government's strategy for NHS IT development seems to be shifting away from the centralised model, which may allow for a greater degree of innovation to arise locally.

"NHS IT development during the last decade was characterised by immense ambition, so too was it marked by continual failure. Understanding these failures is vital and the first step towards reinvigorating the digital economy in the NHS, which many developers now see as 'stuck'."

But its vision for a more evolutionary, locally varied trajectory must still contend with how smaller commissioning units are to achieve the sufficient scale and skill with which to make reasoned, long-term investments into developing digital services, particularly without

any regional structure. The questions therefore remain: at what levels should the development and commissioning of digital healthcare take place; who are the key decision-makers who will make this happen; and do they have the right resources to realise this?

Starting points for future development

1. Compatibility should be a guiding principle of future digital development. Strategies that have the potential for modularity allow for innovations not envisioned by the project's commissioners and designers. NPfIT's development of key infrastructure on which to base this is an important foundation from which new programs can benefit from a degree of standardisation across the country. Perhaps even more potential lies in the release of electronic patient records in a standard, internationally recognised, machine-readable format that external developers can use to create custom-built tools for patients to use in managing their health.
2. National accreditation schemes such as the proposed 'information standard'² may help to give health leaders a basic level of confidence, but a long-term, concerted effort towards skills development, showcasing best practice and making some small, early-stage investment in products, is more likely to achieve results.
3. While there is value to be sought in innovation from large, medium and small-scale developers, the potential for the public to engage with continuous improvement of the NHS through technology must not be forgotten. Digital voice and the release of public data can enable the NHS to make better use of this untapped patient resource, as well as its expert staff, to drive improvement.

Conclusion

Healthcare fitted poorly into the 20th Century paradigm of 'industrialised' production. The evidence presented in this paper suggests that the 21st Century post-industrial model may have much more to offer.

The digital communications that have become commonplace in society tend to encourage users to take a more active, self-managing role in the services they receive. Importing these ideas into the NHS could create a system with far more scope for patients to share in the decision-making and management of their care.

Considered as a whole, health technology appears to be value neutral. Its effects can both challenge and reinforce traditional power structures depending on which tasks are being replaced and who is given control. As a tool, it can distribute information and power more equally to patients as never before or exclude them from the process entirely.

The importance of digital healthcare's impact on relationships has generally been of secondary concern to developers and commissioners, with cost-efficiency or 'the next model up' often much higher priorities. The tendency towards 'advanced' systems can be counterproductive – automating tasks that patients felt kept them involved, or installing into homes and clinics custom-built

equipment less powerful than the telephones and computers already there.

The primary strength shared by both the co-production and multi-channel visions for the NHS is, therefore, the principle of making the most of patients' existing strengths and abilities. Together, the two provide a basis on which to factor in the psychological and social assets of a person, as well as how the ways they communicate can be harnessed to get the most from the interaction.

The health service has some catching up to do. For too long the development of digital health tools has been stifled by assumptions about what patients want. The evidence presented in this paper suggests that many of these assumptions may be incorrect. There are doubtless many patients for whom remote services have little appeal or value. However, the current approach is an indiscriminate one – predominantly offering only a face-to-face service regardless of what patients themselves prefer. Not only does this focus almost all demand onto the most resource-intensive channel of care, it alienates a growing section of the population for whom digital communication is the default expectation of how to access services.

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Remote control

Many local health systems see new technology as an integral part of their service redesign in the coming years. While the cost and quality aspects of telehealth continue to be keenly debated, what is less often considered is what effects digital healthcare can have on the fundamental relationships between patients and practitioners. This report is designed to challenge and stimulate your thinking about how powerful 'multi-channel' healthcare can be at disrupting established roles and ways of working in the NHS.

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