Analysis and comment

Information technology

Will Connecting for Health deliver its promises?

Michael Cross

Enabling healthcare providers to access one set of patient records, wherever they are, should improve care—but can it work?

This is the first of two articles examining the NHS strategy on information technology

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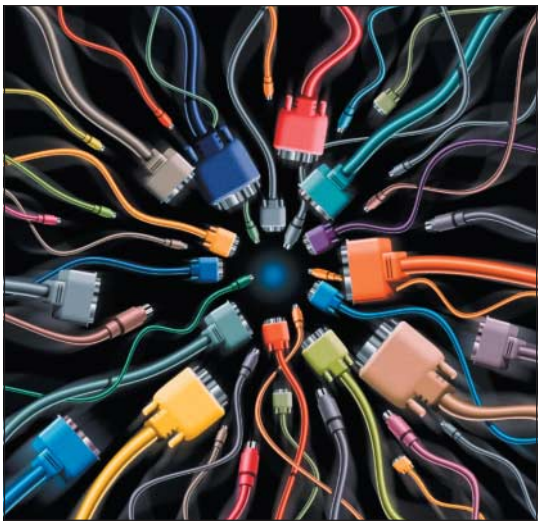
In February 2002, the UK government decided that an unprecedented investment in information technology was essential to achieve its plans for the NHS in England. The decision bore fruit in an information technology programme that is the world's largest both in cost—some £18bn (€26bn; $32bn) over 10 years[1]—and, more importantly, in ambition. The NHS national programme for information technology is attempting to create the most comprehensive electronic health records infrastructure of any healthcare system, in which multimedia records compiled at the point of care are made available to authorised users in primary, secondary, tertiary, and community care.

Ministers say the programme will connect 30 000 general practitioners and 270 acute, community, and mental health trusts to a single, secure, national system to make information available when and where it is needed, including to patients themselves.[2] Four years on, this ambition is still far off. NHS Connecting for Health, the agency created last year to run the programme, admits that to date the programme has made little noticeable difference to clinicians and patients. However, it says that essential building blocks have been designed and procured, on unprecedented terms for the taxpayer, and that new systems are now being installed which will greatly improve healthcare practice.



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Criticism

This assessment is controversial. Informed criticism of the programme—leaving aside the populist view that any NHS investment in information technology is bound to be a disaster—falls into two strands. One, made most often inside the healthcare informatics community, is that the programme's central direction and political impetus has hindered rather than advanced progress. The second, made by some professional organisations and activist groups, says that the scale and proposed content of the electronic health record threatens medical privacy and, potentially, other human rights.

Although the two strands of criticism are to some extent contradictory (if the national programme is setting back progress in electronic health records, the privacy lobby should have little to fear), they have a common origin. This is a perception that the national programme was a technologically determinist vision foisted on the NHS by outsiders with little understanding of the service, or even of health care in general.

With several key components already behind schedule, the programme is under pressure to prove the first group of critics wrong and that the second group's fears have been adequately addressed. Another challenge is financial: the programme is requiring individual trusts and other organisations to devote resources to new information technology systems in a year of financial squeeze.

Origins

Most accounts of the programme's history trace its birth to the Wanless review of NHS finance, *Securing our Future Health*, published in April 2002.[3] Wanless recommended that the NHS double to 4% the proportion of its budget invested in information technology, to bring it closer into lines with US health systems (6%). However, Sir John Pattison, who as head of

research and development at the Department of Health was charged with putting the Wanless recommendation into action, told a parliamentary committee that the programme originated at a seminar in Downing Street in February 2002.[4] Attendees included representatives of two major information technology suppliers, he said, "to give us technical advice and specialist advice."

The Labour government in 1997 inherited an NHS information technology strategy dating from 1992. The strategy took several fundamental steps, including creating an NHS-wide data network and issuing a unique identity number in a standard format to every patient. However, thanks partly to some hugely publicised scandals involving information technology and the NHS, the strategy never enjoyed senior support. By the mid-1990s, progress in modernising information technology in secondary care had largely come to a halt. Global companies either disposed of their UK healthcare operations or stopped bidding for contracts.

In primary care, the position was brighter. Thanks to subsidies for computers to support general practice fundholding, almost all practices were computerised by the mid-1990s and a large number of practices were unofficially creating electronic records for their patients. However, these systems, procured piecemeal by individual practices from small suppliers, were incompatible with each other and fell out of step with developments elsewhere.

In 1998, a white paper, Information for Health, sought to create new momentum for NHS information technology and to shift its focus from administrative to clinical processes.[5] It set deadlines for connecting general practices to the NHS network and creating electronic patient records in secondary care by April 2005. The strategy also had to deal with ensuring that NHS systems could cope with the "millennium bug" and reorganising the NHS's central information technology agencies—the beginning of a period of upheaval that is still under way.

Apart from some changes to priorities, Information for Health's model of electronic patient records is valid today. In particular, the strategy set out a vision of lifelong electronic health records for each patient, consisting of demographic information and summaries of information about episodes of care, drawn from electronic patient records.

Although the principles of Information for Health were widely accepted as sound, most of its targets were missed. Few trusts had the money or the will to invest in new systems, which often required a two year public procurement process. Between 1999 and 2001 some £214m in central funding was allocated to modernising information technology, but health ministers admitted that much was diverted to meet more urgent needs.[6]

Genesis

Although there were islands of excellence in 2002, the Wanless review's verdict that the NHS's implementations of information technology were "piecemeal and poorly integrated" was accurate.[3] The consequences were difficulties in exchanging information and poor value for money. Wanless called for the NHS to buy information technology on a national scale.

This chimed with opinion in the information technology industry, where companies such as Accenture, BT, and Microsoft saw opportunities for information technology to transform health care as it had the finance and other industries. The integrated NHS was seen as an ideal test bed. Microsoft was a particular evangelist. Its founder and chairman, Bill Gates, is understood to have discussed the topic at a 2001 meeting with Tony Blair. Prime ministerial enthusiasm for information technology may also have been buoyed by the successful launch of NHS Direct, the telephone health helpline in England.

Details of the national programme's scope and methods emerged in early summer 2002.[7] A programme architecture depicted three pillars: a prescription service, a bookings service, and a lifelong health records service, based on "national direction and performance management" and "standard system specification." These were to be in place by the end of the programme's second phase, in December 2007. Systems would be run by private firms appointed as "prime service providers" by strategic health authorities rather than trusts.[7]

The government created a new post of "national information technology programme director" to implement the programme. The director would work with the two central information technology agencies created under the 1998 strategy. In October 2002, Richard Granger, a management consultant, took up the post. The following month, the spending review announced that the national programme for information technology would receive £2.3bn in central funding over the next three years.[8]

Procurement

Granger's personal style and approach to the job immediately set the national programme apart from its predecessors. Aided by a small team almost entirely from outside the NHS, including a team from consultants Kellogg, Brown and Root, Granger set in place a set of procurements under principles that stressed speed, competition, and payment by results: the contracts contain provisions for penalising and ultimately removing companies failing to perform.

By accumulating health authorities into five "clusters" and specifying two national systems, for an electronic booking service and the central health records "spine," Granger created contracts large enough to meet one of the programme's central goals—the return of major information technology companies to the NHS. All seven contracts were let within a year in a process which kept at least two bidders in every race until the last moment, rather than negotiating with a preferred bidder. The contract values added up to £6bn. Granger said that this represented a fraction of the price of systems procured through previous methods.[9] The National Audit Office was due to report last year on whether it agreed; its assessment is now expected this summer.

The procurement race had two negative consequences. One was that bidders were aware that this was a one-off chance to win business in the NHS and

may have been encouraged to offer loss-making terms. One heavyweight bidder, Lockheed Martin, withdrew from the process citing such fears.[10] The second was the creation of a sense of secrecy—the programme even tried to keep secret the outline specification of the care records service that suppliers were supposed to create. Although the programme has made efforts to show that its style has changed, its reputation for secrecy and news management has stuck within the industry.

Implementation

One of Granger's early principles, born from experience with other government information technology programmes, was to avoid "scope creep" (speech to Association of ICT professionals in health and social care, 2003). This is the tendency of information technology projects to take on new functions, typically in response to changes in policy or legislation. During the programme's implementation phase, he has not entirely succeeded. Early additional challenges included the need to procure new broadband network capacity, a new NHS-wide email system to replace one run by an underperforming contractor, and a system to support the new general practitioners' contract. In 2004, the programme also negotiated contracts with suppliers of picture archiving and communications systems to encourage the early adoption of electronic viewing of diagnostic images in secondary care. The 1998 strategy had given a low priority to picture archiving, partly because at the time the technology had been expensive. By 2004, policy makers saw it as attractive both to patients and doctors (though some radiologists had concerns about image quality). Picture archiving also has a particularly strong cash-releasing business case, in that electronic imaging removes the need for expensive x ray film. Importantly, the cash savings fall to the institution making the investment, which is not always the case with information technology spending in healthcare.

More serious scope creeps arose in the metamorphosis of the programme's original electronic referral to electronic booking and then the Choose and Book system that is supposed to underpin the government's healthcare reforms. In a notable achievement, the booking software, procured from SchlumbergerSema (now Atos Origin) was delivered on time. However, the care records spine, upon which Choose and Book relies for patient demographic information, ran late and the policy and management changes required to implement Choose and Book had not been put in place. Although a handful of general practice surgeries did begin booking electronically through interim systems in summer 2004, the programme massively and publicly missed its target of universal electronic booking by the end of 2005. Although the failure could be blamed on reasons other than information technology, it did not bode well for a programme that had set such stock on meeting deadlines.

Electronic prescribing similarly has turned out to be a more complex policy issue than originally expected. Electronic transmission of prescriptions from doctor to pharmacy to prescription pricing authority was seen as another early win for the programme, because of the obvious waste and risk involved in twice retyping 350 million prescriptions a year. However, the project had to be put on ice while policy was decided on the future of the retail pharmacy industry. Although the system is now being implemented, unresolved complications include confidentiality issues arising from giving pharmacists access to electronic health records, and the question of how to deal with controlled drugs.

Summary points

The government has undertaken to provide a single information system for the whole NHS

Previous attempts at introducing information technology have been small and poorly integrated

The national programme has awarded seven contracts to create a comprehensive integrated system

Choose and Book, the first part to be implemented, missed its target despite the software being provided on time

Implementing the rest of the programme provides even greater challenges

Bigger challenges

By far the most difficult implementation issues facing the programme at the moment, however, relate to the design and function of the care records spine and the practicalities of connecting it to information technology systems used in frontline healthcare. These are the areas in which the unique features of the programme—its national, mandatory character and ruthless commercial terms—are causing the biggest upheaval to the status quo, provoking the criticisms referred to at the beginning of this article. I will consider these issues in the next article.

Contributors and sources: MC has written on healthcare informatics issues for journals, newspapers, and books for more than 15 years.

Competing interests: MC has worked as a freelance for the national programme for IT and British Telecom. He has also done public speaking for Microsoft.

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