



The woefully wired world of health service computing

Health services need state-of-the-art health information systems

One could be forgiven for expecting that a nation that cracked the Enigma code, and, more recently, assigned all of its citizens a unique health service number, would possess an enviable health information system that made the planning, delivery and evaluation of medical services a seamless and simultaneously sophisticated exercise. But the United Kingdom is a nation where trains are regularly stopped by snow, leaves and even clouds — the latter apparently because clouds interfere with the onboard geographical positioning systems “talking” to geostationary satellites.

While the travails of the UK transportation industry regularly provoke tantrums in the tabloids, the state of the National Health Service's computing systems is yet another test of the traditional grin-and-bear-it demeanour of the British public. In fairness, the NHS is not alone. But it is distinguished by the UK Government's plan to inject £5 billion to “wire up” the nation's health services properly.

There are three issues that stalk health industry computing: fear on the part of health professionals (arising from ignorance about computer systems); outdated “hardware”; and lack of interconnection and systems compatibility.

When faced with a computer for the first time, many otherwise confident, capable and experienced health professionals are genuinely afraid that a mistake on their part may damage the equipment. And their ignorance is profound — most medical students, for example, do not immediately grasp that entering an individual's date of birth into an appropriate program allows the system to derive the person's age. It is a fair bet that basic informatics, beyond searching databases of publications, is still missing from most undergraduate curricula for health professionals in Australia as well as in the UK.

In the case of the NHS, after failure to train the “wetware”, the second strand of the Gordian knot is the hardware — there is not enough of it; a good deal of what is available is old and slow; and incompatibility is widespread. In the UK, many non-medical staff members working in community health do not have access to a computer. Their lack of access to email is increasingly a poor economic choice in the face of pay-by-the-minute telephone calls, and the difficulty in locating and coordinating many busy individuals. Difficulties can only mount as continuing care of patients with complex chronic diseases shifts out of hospitals. Recently, there has been a large investment in infrastructure for networking computers, although there remains a need for staff to become more proficient at using the network and demonstrating its value.

The lack of interconnection and compatibility between health service computers is not unique to the UK. If one tries to compile a comprehensive register of patients with cancer managed by an Australian teaching hospital, it soon becomes evident that we too have the same informatics diseases. The common experience is that radiology, radiotherapy, histopathology, nuclear medicine, pharmacy and oncology all have different, mutually unintelligible systems, many of which cannot readily be searched for particular diagnoses or keywords. Furthermore, the medical record is still paperbound.

In the UK, the persistence of separation between health and social services frequently means not only duplication of records — computers are meant to save time! — but physical duplication of terminals

and keyboards. UK primary care, by contrast, is steadily converging on two dominant medical record packages, and an increasing proportion of practices are becoming “paper-frugal”. However, until very recently, the NHS insisted that a patient's lifelong medical record could only be passed on in hard-copy format when that individual registered with a new practice. The advent of the DICOM (Digital Imaging and Communications in Medicine) standard for medical imaging is slowly stimulating alignment of certain hospital computer systems, but patients transferred as emergencies from local hospitals to teaching hospitals are still likely to have all their investigations repeated at the teaching hospital, as the results obtained at the first hospital can not be accessed electronically from the second. Again, time and money are wasted.

Even if there were good, secure internet connections between the various parts of the NHS, finding the right record would still be a challenge, as most sites use their own numbering systems for patients and very few employ the NHS number. This is not a matter of overt,

or even covert, resistance, because National Insurance (pension) numbers have to be produced and used regularly in the course of employment and taxation. Rather, there is no structural incentive for either patient or doctor to know or use a long, clumsy number; patients are not denied access to health services if they do not know their

NHS number, and doctors do not suffer loss of income for failing to provide it.

Consequently, the scope for exploiting the unique cradle-to-grave records — individuals' NHS files — for planning and running health services better, or for epidemiological research, is surprisingly limited. Special projects in the Oxford region and in Dundee are two of the exceptions, but even the (now rather dated) Oxford Record Linkage Study omits information from primary care. However, collections such as the national General Practice Research Database are slowly becoming more user-friendly, even if they charge for access! Meanwhile, Accident and Emergency Departments, the scene of all the long trolley-waits beloved by the tabloids, remain a computing black hole. Most, but not all, have electronic systems, and what they collect and how they record it are institutionally idiosyncratic.

An NHS with state-of-the-art health information systems! Cynics will believe it when they see it — it has all been promised before. Perhaps they'll read about it while standing in their commuter trains, waiting for the clouds to clear.

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