JournalScan

The need for information to bridge organisational and clinical domains

Compiled by Tom Smith

It has been estimated by the Audit Commission that a quarter of hospital staff time is spent collecting data and using information. Information is a critical daily activity, and is a foundation of efforts to secure improvements in the quality of patient care and safety. But, despite its importance, information is not as well used as it could be in healthcare settings. The papers included in this review suggest we should be concerned at our current capacity to use information to underpin meaningful review and adaptation of practice.

In 2001 the US Institute of Medicine stated that IT "has barely touched patient care". It must "if a substantial improvement in quality is to be achieved". In the UK, Derek Wanless's review of future trends in health care called for an immediate doubling of expenditure on computing. These heavyweight views add force to existing strategies to promote better use of IT in health care, including a target that all clinicians should have access to electronic patient records by 2008.

Please visit the QSHC website (<http://www.qshc.com>) for links to these articles – many to full text.

The bumpy road to computerisation

Tim Benson's two-part discussion of "why general practitioners use computers and hospital doctors do not" is an informative history of the bumpy road to computerisation in the NHS. There are two main reasons for the difference, in Benson's view: "incentives" and "scalability".

During the 1970s there was a lot of experimentation with computing, but by the end of the decade the trend had passed: "Progress ground to a halt". We may even have gone backwards in some regards. "Today, few English hospitals have integrated patient administration and cumulative clinical laboratory reporting systems accessible from terminals on the wards and in outpatient clinics". Yet, as long ago as 1975, such facilities were operational in several English hospitals including Charing Cross, the Royal London, and the Queen Elizabeth Medical Centre, Birmingham.

One of the reasons for the differences between primary and secondary care are differing notions of the centrality of IT to practice. In primary care IT helped to establish and connect systems while improving organisational efficiency. In contrast, hospital consultants' initiatives have been "disparate and ineffective". Many saw IT based initiatives as management-led with the principal aim of standardising costing. These benefits were seen to offer no apparent benefits "for doctors or patients". Another reason Benson suggests for the slow development of IT in acute settings is political sensitivity about its cost. Since 1972 IT costs have been treated as a management cost.

The 1992 general election campaign led to a backwards step in IT development. The Labour Party "pointed out that between 1987 and 1991 NHS management costs had doubled. The attack hurt and [after unexpectedly winning the election], the Conservatives set out to prevent such an attack working again. They closed down the four large Department of Health initiatives and sold off 14 regional computer centres without ring fencing their budgets, saving about £400m per year."

Money has not been such a barrier in primary care. In the 1980s, for example, two general practice suppliers established initiatives that involved free computers for practices. Then, in 1989, the Department of Health "introduced a scheme for direct reimbursement on general practice computerisation".

There is another important incentive for primary care doctors to adopt IT over their colleagues in secondary care. As independent contractors paid according to a complex set of variables, "it is not practicable to maximise income without using a computer to monitor and control this activity". In contrast, "any time that a hospital doctor devotes to computing does not lead to increased income potential".

Incentives are responsible for differences between primary and secondary care in IT adoption. So are issues of scale. "It is much easier to computerise general practices than large complex hospitals, let alone provide integrated services across an organization as large as the NHS". "Hospital medicine has complex workflow, job specialisation, and division of labour, which create complex and diverse patterns of information use".

The author concludes that a positive step forward would be "to establish united stakeholder organisations for clinical users and information technology professionals in health care, covering all aspects of healthcare computing". This approach is needed because systems will only fit together if they are designed to do so and because there is a need to relate clinical and organizational uses for information. Although some suggest the way forward is to separate the two, Benson disagrees. An integrative approach is needed "that supports multiple patterns of use based on sophisticated indexing and multidimensional terminology structures". This kind of system requires "entries in a record to be classified and grouped in many different ways".

▲ **Benson T.** Why general practitioners use computers and hospital doctors do not – Part 1: incentives. *BMJ* 2002;**325**:1086-9

▲ **Benson T.** Why general practitioners use computers and hospital doctors do not – Part 2: scalability. *BMJ* 2002;**325**:1090-3

What are the things that limit and enable learning from data and information?

The central implication of the papers by Benson is that, for information to be used effectively in healthcare settings, it must be a foundation of both organisational and clinical management. To act as a common currency, information must be meaningful for professionals and managers.

A paper in the *Journal of Health, Politics, Policy and Law* examines safety in US primary care (which accounts for almost a third of malpractice claims in the US) and examines procedures to promote safety in a number of large physician groups in the US. The paper sets out to ascertain reasons for different levels of "clinical governance".

The most common complaints of "medical misadventures" are in "fail to" or "delay in" categories. Many "outpatient errors derive from the nature of ambulatory care processes, which tend to consist of numerous, small, interrelated, and often sequential transactions that occur over time in multiple locations and organizations and can involve multiple people, including patients".

The paper says that information is central, but suggests its ability to lead to responsive behaviour depends on how central its uses are to daily practice. The health sector can benefit from information technology advances, but only in as much as individuals and groups are capable of engaging or responding to the information produced. "Many health care information systems offer only rudimentary information support to clinicians, which

increases the likelihood that something 'will fall between the cracks' causing potential harm".

The paper suggests that the major influence on an impetus to change is external pressure in three forms: "legal, market and professional". The way to increase quality and safety is for purchasers to increase demand for it. The capacity for organisations to respond depends on various factors such as "group size, scope and integration; leadership and governance; professional culture; information system assets; and financial and intellectual capital".

What are the main reasons processes for patient safety vary among different organisations? The most important indicator of whether an organisation can respond internally is its willingness and ability to adapt. An important factor is the extent to which it is a priority for competing resources. "The state of internal organization factors—such as the state of clinical information systems—can have an important influence on the marginal cost of supplying the safety change". The "capacity to learn and absorb change" is also important and linked to use of information.

In the authors' view, internal differences across physician organisations relate to the extent to which systemic approaches are in place to enhance safety. They group organisations into a spectrum of ability to improve patient safety.

- Traditional groups identify injuries in non-systematic reactive ways. Risk management is legalistic and separated from their clinical structure. Inpatient reporting is haphazard and incomplete.
- Advanced traditional organisations have systemic incident reporting and professional risk management staff. Managers trace and trend observations, and they have more relation to quality process groups.
- Beginning innovators take the additional steps of making systematic use of incident data, set more clinical and administrative guidelines, and use patient surveys. They also incorporate these data into performance appraisal of physicians.
- Advanced innovators go even further. They monitor clinical and administrative events more closely in order to achieve more complete incident reporting, and they implement process changes, including improved use of information technology.
- Cutting edge innovators . . . develop more direct measures or proxies for injury identification, comprehensively redesign and systematise work flow and other processes; and provide more patient information, reminders and evidence based decision support at the point of care and following a patient contact. "In the most advanced organizations, physicians have begun to see errors as ordinary shortcomings to be faced and managed rather than as unacceptable moral failings".

The way information is used is a key ingredient of where organisations can place themselves on this typology. "Organizations with computerized systems for documenting and tracking incidents and liability claims could better identify the magnitude of problems and support the case (made to clinicians) for a needed safety-related process change. Organizations that had stronger clinical information systems and that had the information systems staff that could increase the systems' usefulness to clinicians could better support implementing safety changes."

▲ **Miller R**, Bovbjerg R. Efforts to improve patient safety in large capitated medical groups: description and conceptual model. *J Health Politics Policy Law* 2002;27:401–38.

Will the right information change professional practice? A study published in the *BMJ* suggests the centrality of information to daily clinical practices is indeed a key indicator of its capacity to be used to improve quality and safety. The authors evaluated the use of a "computerised support system" "for the management of asthma and angina in adults in primary care".

Despite the system being optimised as far as was technically possible, the authors found no effect on practice, "probably due to the low levels of use of the software". Their conclusion is that "even if the technical problems of producing a system that fully supports the management of chronic disease were solved, there remains the challenge of integrating the systems into clinical encounters where busy practitioners manage patients with complex, multiple conditions".

It chimes with the previous paper which, amongst its conclusions, notes "seldom much formal dialogue between physician groups and hospitals" in relating organisational management and clinical practice. It seems one of the critical issues about information is the extent to which it is common to clinical and managerial uses. "The lack of formal coordination created a major barrier to efforts to reduce medical injury".

In the UK study people tended to override the decision support system. Why didn't they use it? Training was limited, so people didn't know how to use the system. Another factor was a lack of flexibility. It assumed a full review was required when many patients consulted regularly enough not to go through this process on each visit, particularly if patients flagged on the system as having asthma or angina are consulting for a different reason. When the guideline was appropriate, there were problems in using it. The guideline was set up as "a separate path within the clinical system, and it was not possible to access all other parts of the clinical system from within the guideline. If the guideline was exited, it was only possible to return to it at the beginning of the pathway."

The authors conclude: "To be widely accepted by practising clinicians, computerised support systems for decision making must be integrated into the clinical workflow. They must present the right information, in the right format, at the right time, without requiring special effort."

▲ **Eccles M**, McColl E, Steen N, *et al*. Effect of computerized evidence based guidelines on management of asthma and angina in adults in primary care: cluster randomized controlled trial. *BMJ* 2002;325:941–7

Clinical groups need collective capacity to review and adapt practice

Another paper in the *BMJ* also looks at chronic disease management, this time at depression, which is more common than asthma and diabetes "and, by 2020, will rank second only to ischaemic heart disease as a worldwide disease burden". It contrasts the experience of two different practices in the north east of England attempting to introduce a disease management approach.

In tune with the conclusions of Eccles *et al*, the authors saw the challenge as "how to implement effective methods of identifying and managing adult depression in general practice without distorting normal working patterns". Both practices underwent training in "identifying and diagnosing depression".

Measured against five measures of improvement (register of cases, prescribing, call and recall system, and clear referral), one practice was more successful than the other. The reason, say the authors, was greater familiarity "with the philosophy of chronic disease management", greater "capacity to commit to the programme", and more "team members being open to change".

One of the handicaps at practice B "was the more primitive technology system and the greater reliance on handwritten information". It was difficult to sustain the involvement of core staff in practice B. So much so, in fact, "it proved impossible for everyone to meet to agree the in-house treatment guideline".

The authors say the project suggests that it may not be feasible to introduce this model unless a practice has prior experience of chronic disease management and computerised records are used routinely. And even if these two components are in place, "two basic challenges remain—namely, active leadership from within the primary care team and sufficient resources for a critical mass of team members to engage in the process".

▲ **Scott J**, Thorne A, Horn P. Effect of a multifaceted approach to detecting and managing depression in primary care. *BMJ* 2002;325:951–4

Clinical groups need the power to act on information

The need for team members to engage in the improvement process is the key theme of a paper from the *Journal for Quality and Participation*. It is the lack of frontline participation that means most organisational approaches to improve quality in health care are "flawed". The problem is a dislocation between management and "doers".

The core elements quality programmes—planning, design, measurement, assessment and improvement—are not necessarily flawed. “The problem is not with the steps themselves ... the problem is with the philosophy of the overall improvement effort”. It is too management led. The key issue for the authors in harnessing information to improve practice is the need for managers to delegate authority.

“The management vehicle put into place . . . does not encourage employee empowerment. It works through the traditional hierarchy, which often comprises “up to four levels of management created to oversee the activities of one level of ‘doers’.” While ‘doers’ are “allowed to identify potential projects”, they are “not allowed to act on them directly”. All projects typically require some kind of centralised approval. This means “more committee time” and “more frustration for the ‘doers’ who have to watch their priorities being excluded from or put at the bottom of the list by somebody usually without an explanation”.

“This is not empowerment.” “This approach is encouraging management to say once again: ‘yes, we want your ideas. We also want your expertise. But remember, we’re still running the show. We still make the decisions’.”

The approach defeats itself. “It is top-down, piling even more responsibility onto management when it is supposed to lighten that load. It does not make effective use of lower level employee expertise.”

Management can aid quality by supporting teams formed around critical tasks. What is missing, say the authors, is “a systemic perspective” in which notions of hierarchy are removed and each component part of the organisation is equal to another. “The teams themselves identify the projects on which they want to work”. Teams will implement a systems perspective by focusing on “border” issues, key relationships with other hospital functions”.

The paper suggests that change will occur only if teams have the ability within the organisational structure to review and adapt practice. “Individual teams in this model are responsible not only for measurement, but for assessment, redesign and implementation”.

The authors say: “the question, of course, that immediately comes to mind is, ‘if no overseeing body exists in the systems approach to participatory improvement, how do we control the effort?’.” The answer they say comes from the systems approach and the need for teams to integrate their efforts with others.

There are two “important ground rules” in such an approach. “Teams should have access to anyone they need”. “Anyone who is going to be affected by a proposed change must . . . be informed of what is planned, asked for input, and agree to the change”.

“In essence, management must be willing to trust the workforce. The systems approach shows us how to transform this trust into a powerful vehicle for positive change.”

▲ Roth W, Taleff P. Health care standards: the good, bad and the ugly in our future. *J Qual Participation* 2002;27:401–38

What is needed to bridge clinical and organisational processes?

A team of researchers from Berekley’s School of Public Health assessed the extent to which chronic care management processes and computer based clinical information systems were used to care for patients with asthma, congestive heart failure, depression and diabetes in nine large, multispecialty practices (in the US). “We

also identified the barriers and facilitators in these organizations that affected their ability to implement care management processes and clinical information systems”.

The research team “collected information on each medical group’s use of seven selected functions of a clinical information system: electronic medical record, electronic recording of health history, recording of tests and procedures, recording of diagnosis and treatment, computerised entry of drug prescriptions, automated reminders, and electronic exchange of information with patients.

The use of clinical information system functions varied greatly. “One group did not use any . . . and no group used all seven”. “Surprisingly, there was no relation between level of sophistication of groups’ clinical information systems and their degree of implementation of care management processes”.

Information capacity is not isolated from other elements of quality because it is the way information is used rather than its existence that determines its influence on clinical quality.

“Frequently mentioned barriers were lack of financial and staff resources, inadequate clinical information systems, doctor’s heavy workload, compensation not being related to quality of care, and doctors resistance to change”. “Doctors’ resistance to change and heavy workload are related since overworked doctors fear that change may make things even more difficult.” One medical director said, “We have a major problem with overwork in primary care, and it’s getting worse. It is impossible to launch any programme that gives physicians more work.”

Not surprisingly, “the medical groups that were profitable and had a clinical information system, supportive clinical and administrative leadership, a group culture that promoted quality improvement from health plans and other external organisations to improve quality were more likely to implement chronic disease management processes”.

The authors conclude that “the future agenda for restructuring practices should include a redesign of work processes to address doctors’ concerns about workload, promotion of a culture that supports quality improvement, diffusion of clinical information systems, and a change in the design of providers’ financial incentives”.

▲ Rundall T, Shortell S, Wang M, et al. As good as it gets? Chronic care management in nine leading US physician organizations. *BMJ* 2002;325:958–61

Key themes from the papers There is agreement that information can improve patient safety and the quality of clinical care. But it is not seen as a discrete solution. Three key themes emerge from the different papers:

- Organisational and clinical uses of information need to be integrated;
- Data need to be “multidimensional” in order to act as a common currency between different perspectives and parts of the health system.
- There is an urgent need to review the capacity and autonomy of clinical groups to evaluate information and adapt practice accordingly.

T Smith

Judge Institute of Management Studies,
Cambridge University,
Cambridge CB2 1AG, UK
ts271@cam.ac.uk