'Closing the loop': the role of health care leaders in integrating research and practice

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Abstract

The study reported here examines what health care leaders do to implement the routine integration of information into clinical practice decision making. Clinical leaders of a major Australian tertiary teaching hospital were interviewed. The study found that there is wide variation in the extent to which information is routinely used to inform practice. Those leaders who successfully integrated information used some common strategies. The ownership of information may be the single most powerful factor in clinical leaders' ability to encourage its use. A lack of trust, inappropriate systems and a fear of unfavourable consequences were identified as issues.

The findings have implications for policy makers, hospital administrators and clinical leaders and question the effectiveness of centralised approaches to driving clinical change.

The issue

Tension between policy makers, hospital administrators and clinicians in implementing health service reform is almost an accepted cost of such reform (Davies and Harrison 2003) . The professional culture of clinicians, which emphasises self-regulation and prioritising the needs of the individual patient, is often incompatible with the need for cost-effective use of resources, and performance and safety accountability. There is much discussion about overcoming clinical resistance and the inherent conflict between managerial and clinical agendas (for example see (Cochrane 1999) but relatively little about how clinical leaders have successfully bridged this gap. How have these leaders reconciled competing demands and improved clinical practice? It is not adequate to describe effective leaders in terms of personality traits; we need to know the strategies they adopt to inform how others might tackle the same issues.

A few studies have investigated the role of opinion leaders, or clinicians perceived as educationally influential but the findings are unclear (Thomson O'Brien et al. 2002, Locock et al. 2001). Locock and colleagues argue that previous studies based on quantitative research techniques may not have been sufficiently sensitive in uncovering the attributes of these leaders that impact on the use of evidence in collective decision-making and that the interaction between opinion leaders and collective change is poorly understood (Locock et al. 2001).

The project described here attempts to increase our understanding of this issue using qualitative techniques. It is a collaborative project of academics and a major tertiary hospital in Australia, funded by the National Institute of Clinical Studies, to explore the way by which clinical leaders encourage their units to routinely integrate information and practice, and the context in which this happens.

The definition of information is wide and includes both information about patient safety and quality performance within a unit and clinical research knowledge, representing findings from clinical trials relevant to that specialty. The primary objective of the study was to uncover strategies used by clinical leaders to promote the regular use of both forms of knowledge to inform clinical practice.

Method

The project employed an action research framework in evaluating, within real-world contexts, strategies for using information to drive change. A meta review of change management initiatives in the UK health system concluded that the action research framework was one of the most effective mechanisms for promoting changes in practice (Iles and Sutherland 2001).

Senior clinical staff at the Hospital were interviewed about their experiences in encouraging their staff to routinely seek and apply research evidence and other forms of information in clinical practice. The interviews were conducted by a senior member of the research team without a clinical role in any hospital to attempt to encourage full expression of the views of the participants.

Interviewees were selected using a snowballing technique, beginning with the heads of the clinical divisions of medicine, surgery and mental health, who then subsequently recommended others. The limitation of this approach is that the sample is not randomly selected, but we justify its use in that the research pertained to potentially sensitive issues involving an elite target population difficult to access (Grbich 1999). We interviewed 26 clinical leaders, two business managers and two health information managers.

Research involving elites similar to those in this study recommends using conversational interviews to elicit opinions and avoiding any type of questionnaire (Grbich 1999). Accordingly, we tape-recorded interviews which adopted a very loose, semi-structured technique.

Two of the investigators were also members of various committees at the hospital and as such were able to observe senior staff discussing issues in this context. In addition, a significant amount of information was obtained through observations made about work practices.

The recorded interviews were transcribed, thematically analysed by the team and re-analysed using NUD*IST software. As abbreviated in the acronym, the software facilitates qualitative analysis of non-numerical and unstructured data by coding data in an index system, searching text or searching patterns of coding and so assisting the investigator's theorising about the data (QSR 1997). The findings reported here are the major themes identified and so represent the views of several interviewees rather than individuals. The quotations are verbatim reports of individual views used as examples of the overall themes. The respondent's generic position is identified at the end of each quotation.

Findings

Collective versus individual responsibility

A central observation was the high level of variation in the extent to which different clinical units routinised the use of information. Some clinical leaders saw that it was the individual clinician's own responsibility to keep abreast of new findings in the field, monitor their own performance and generally act "professionally" in the unit. These leaders did not perceive that they had any role in this area and assumed that everyone behaved in this professional manner.

At the other end of this spectrum were units who regularly reviewed current findings in their area of specialty with frequent journal clubs. Clinicians presented reviews of their relevant journal reading and discussed the implications of this for their practice within the unit at these 'club' meetings. They also discussed performance information about the unit and the treatment of individual patients at least weekly, and contributed substantially to knowledge development within the specialty through research and publication. For example, the intensive care unit staff was conducting a longitudinal evaluation of quality initiatives in terms of reduced patient mortality, planning to publish their results.

Opportunistic change

Some clinical leaders who had implemented change were responding to what they saw as pressing external forces at the time. In other words, a concrete difficulty they encountered (rather than any organisational policy or professional initiative) prompted them to act. For example, the need to address staff shortages motivated one leader to develop a shared care model between all medical staff on the team. This facilitated the sharing of information about individual patients between all medical and nursing staff and the decision to collect and analyse unit performance information:

"We work as a team so that we rotate on to the wards for a period... and so when patients are inpatients they belong to the person on the ward; they don't belong to the doctor who normally looks after them... It makes people conform to certain prescriptive approaches to patients... So we do tend to practice along similar lines, along the lines of the protocol," (Clinical leader).

The need for an accurate patient tracking system motivated one leader and another leader sought to establish credibility for a new field of practice by collecting and using data. Another wanted to attract a better quality of registrar by improving the unit's reputation. In another case, several key staff left at the same time and the leader perceived an opportunity to re-examine and reform the way that things were done.

In all these examples, it did not appear that a conscious decision had been made to implement any change program or explicit project aimed at improving information usage. Leaders saw themselves as responding to an external threat (or opportunity) in the best interests of their patients. Indeed, projects specifically designed to change clinical practice were often regarded with deep suspicion:

"We will often be told by people that there is evidence for this practice or that practice but it is actually the convenient evidence that is fulfilling someone else's agenda: a managerial agenda... They actually don't want me to get more efficient in the operating theatre because then they'll actually have to treat more patients," (Clinical leader).

Many clinical leaders saw themselves as protecting their patients from 'the system' or from former medical colleagues who had 'gone over to the other side'. According to many interviewees, being seen as someone who has 'gone over' (to management) was a powerful disincentive to leadership responsibilities:

"I dread the thought of losing all. I think my credibility is that I've been quite a good practitioner for 12 years and I do have that insight," (Clinical leader).

"If I am an opinion leader it is because I am a very good cynic," (Clinical leader).

Multidisciplinary approach

Clinical directors who had nurtured the formation of multi-disciplinary teams felt that they had increased their chances of success in encouraging staff to use information. They demonstrated through the narrative that they had automatically involved everyone, sought to market the initiative (though this word was never used) and to share information with other areas about what could be achieved:

"It's not me doing everything - that's the thing. It's not me doing it all," (Clinical leader).

They were also very visible in their areas of practice, had credibility with the staff and were aware of the need to establish and maintain this:

"I go up on the wards every day, every day. I see patients every day of the week. Hospitals are hierarchical institutions and ... you've got to go through initiation processes which usually, in anthropological terms, involve the spilling of blood, either literally or metaphorically. And these are known as higher exams... that's how you judge people of similar qualities to yourself, they've shed the blood," (Clinical leader).

All members of the care team were involved in sharing information and, in particular, nurses and allied health professionals were actively encouraged to contribute within a team context:

"The nurses here are really part of the unit, they're not really part of nursing... the barriers of the professions are not too strong here. And we've also got a strong link with dietetics and social work particularly, and pharmacy. We all live in the same building. It's good, we like it," (Clinical leader).

At the other extreme were units in which a high proportion of medical staff comprised Visiting Medical Officers (VMO). The leaders thought that it was more difficult to get a team to work together and gain familiarity with performance information when the VMOs were not present on a regular basis and tended not to see themselves as part of a team or the organisation in general.

Unit-specific information systems

The ownership of information may be the single most powerful factor in clinical leaders' ability to encourage its use, with issues of trust, systems and consequences.

There was an immense lack of trust by clinicians in data provided to them from administrative or other nonclinical sources in the organisation. The leaders cited numerous examples of so-called 'trends' for their areas that had been reported to them and found to be based on inaccurate diagnostic coding or lack of clinical expertise in the analysis of the data.

This lack of trust was further reinforced by the clinicians' own behaviour. Because they doubted the ability of centralised databases to produce accurate information, they were ambivalent about providing primary data for inputting into such systems and varied in the quality of the data they did provide. In this way, a vicious cycle was perpetrated which simply magnified pre-existing distrust in the results obtained from centralised systems.

One example of the information divide between clinicians and administrators centres on the different definitions used by both groups in analysing a given problem:

"Because I'm from a clinical background and I remember coming across just little things... like what I thought was acute and what the [government health department] definitions of what is acute are completely different. You know the concepts of emergency versus elective versus acute versus non-acute, they're completely separate sorts of entities in the [information] world but in the clinical world they're not," (Management leader).

The data requested by central hospital information management services and also that requested by the State health department seemed not to be the sort of information in which clinicians were interested. As a consequence, many leaders developed or purchased their own information systems and assiduously managed these so that they had data they could rely upon. These systems were customised to answer the questions that the clinicians wanted answered and were used as the basis for team review and problem solving.

The health information managers were attempting, through numerous projects, to bridge the gap between what they were required to collect and what information clinicians were interested in, so that more reliable data could be produced. But the managers were finding that clinicians needed help in asking the right question to retrieve the information they needed and a key difficulty in asking the right question was a lack of knowledge on the part of clinicians about what was available.

"We overestimated the level of knowledge out there... we didn't realise that we would have to teach them," (Management leader).

In contrast, there was less, but still some, distrust in using research findings obtained from clinical journals on the effectiveness of treatments and procedures:

"Oh yes, well that's people in trials, these are real patients... the people in the study aren't the people in the bed," (Clinical leader).

Evidence was more likely to find its way into practice through a team decision to review practice in light of what a health professional had found in their journal reading or attendance at a conference. But acting upon new evidence did not necessarily result in evidence-based clinical guidelines being adopted which challenged or usurped established practice. More often than not, the evidence was incorporated into current practice in a manner that was customised for particular types or subgroups of patients.

There appeared to be significant resistance to using either central hospital or state data and national clinical guidelines as a recipe for changing practice. Leaders felt that the only way that clinicians changed their behaviour was through interpretation of findings and consensus building within the team. Again, those units that did not function as a multidisciplinary team tended not to follow any standardised procedures. Nurses often struggled to cope with several different ways of treating similar patients with the same condition in the same ward but who were under the care of different specialists. Such variation in practice was not questioned as the nurses felt that no appropriately constituted forum existed for them to do so.

These observations have significant implications for health policy-makers. In common with most other health authorities, the State health department has invested heavily in health information systems. Within this organisation there were systems which measured clinical activity using a casemix-based classification system linked to automated scheduling systems and universal discharge coding. However, in common with other industries, the managerial and financing information required by the health department responsible for funding the systems were afforded priority over the clinical and patient information needs of the end users. The inevitable result was that the health department did not have reliable data because the systems in place had no 'buy in' from the end-users upon whom it relied to provide accurate, meaningful data:

"We told them we wouldn't co-operate in working on the user groups for [name of system] because it was a dog. We refused to go to the meetings. That's what I did anyway. In all conscience I can't go to a meeting in 2002 and upgrade a DOS program. It's stupid. So because of that [staff] don't bother, so about 60% of our data's absolute rubbish. They'll put in whatever they can think of to get... you can't get rid of a patient [entry] until you put in all this gumption at the end," (Clinical leader).

This leader had implemented another system for the unit's own use and "encouraged" its use by the clinicians of the unit in a reasonably vigorous manner. In addition, centralised systems did not link with clinicians' own systems nor did they allow for information relevant to central authorities to co-exist with information thought more relevant by clinicians. Access to the internet was limited except through the library. This was reported as acceptable if one were researching a specific issue over a long time frame but was not conducive to accessing current research findings if a quick clinical decision needed to be made.

The perceived negative consequences of clinicians reporting accurate data was another issue. A fear of patient litigation was cited by some as underpinning the unwillingness of clinicians to provide central systems with information and to prefer their own 'in house' system which guaranteed restricted and authorised use of the information.

On the other hand, the positive consequences of chasing opportunities for increased funding by being able to report favourable patient outcomes as a result of high-quality clinical performance was a powerful motivating factor for those specialties such as Mental Health tied to national outcome measures. When clinicians saw that their budget allocations were directly linked to their outcome reporting, the required performance measures and reporting systems were developed and implemented with much more enthusiasm.

Creating a learning environment

There are numerous studies from outside healthcare which have attempted to develop and evaluate tools for creating an organisational environment which encourages critical reflection and reformative action (Argyris 1999; Senge 1990). Case studies of successful interventions are fairly rare (Argyris 1999). The existence of long-standing professional cultures and the highly politicised environment of healthcare adds further layers of complexity to the difficulty of nurturing a learning environment.

Some leaders were taking steps towards a learning organisation. They sensed that it was necessary to encourage staff to reflect on how they were managing different patients by asking questions and exploring issues:

"Surgeon, gastroenterologist, nurse, social worker, they are all there, and then at the end of it we go up to a conference room, there's about 20 of us and we project it [the data] onto the wall, each patient's chart on the wall. So it's a multidisciplinary thing... it's a non-threatening environment where everybody... gets their turn. And so the Registrar will say so and so and I've made these changes. And I would say why did you make these changes? ... and so it's actually a non-threatening, learning type environment," (Clinical leader).

Active role modelling was another technique employed by leaders who wanted to develop a learning environment in their units:

"We've been ... moderately successful in imparting some skills in evidence based practice by journal club, by just role modelling on ward rounds... You come across a patient and someone asks a question, and you say 'Well we're not too sure about the answer to that, why don't you look it up and report back at the next ward round?' Or I might say 'Yes, well there was a recent trial... in the journal three issues ago which looked at this and this is what it showed'. ... We just try and keep the evidence there in front of people so that they know that you're using the science rather than just being the wise old consultant sort of thing," (Clinical leader).

Importantly, no-one interviewed so far reported any explicit attempts to engage staff in critical reflection on how the organisation and they as individuals went about the process of critical reflection itself, which is part of the "double loop" thinking regarded as central by Argyris and others (Argyris 1999).

Organisational support

The absence of an organisationally driven individual performance appraisal system for use within a team context was cited by leaders as a barrier to promoting routine use of performance information. Some found discussing individual performance with their staff very uncomfortable and would have liked a formalised system which mandated that everyone had to undergo an appraisal and no-one felt singled out. Others were less wary about dealing with performance issues:

"One of the first things I did was to have a regular quarterly feedback to every consultant about certain characteristics of their unit, such as what their average length of stay was, what their top clinic DRG's were and how they compare against the state average, their mortality rates and their re-admission rates... I think that they questioned sometimes the accuracy of the data that they were being given and that's not unreasonable... I think at the time on the part of a couple of them there was, shall we say, disinterest, where they looked at it and said 'Well, so what'... They were also the people who often would not come to meetings as well. So I think that the ones that we needed to lean on declared themselves pretty early on... and therefore they were given some options... They either had to accept the new agenda or be asked to leave," (Clinical leader).

The management of resources was perceived in a fairly negative light, perhaps not unexpectedly, by several leaders:

"Five million bucks for quality projects... but then they move the goal posts all around and they spend half a million of the five million appointing project officers to work out how to spend the other four and a half million. I didn't go to many meetings after that," (Clinical leader).

"One of the difficulties about the bottom up approach I find is that it's much harder to find funding for what you are doing than if you are coming down from the top because big systems like [State government department] find it a lot easier to commit big funds to something which is global in its perspective, elaborately enunciated, and it's a lot of paper.... Whereas, I'm running this thing [to improve quality] and I'm looking for funding for that. Would you believe it's going to cost \$200? It's hard to find where to access \$200 because everything is so elaborate... the piddling little bit of money that's required to run this which is [to pay] the overtime for the man to run the audio-visual [equipment]," (Clinical leader).

Discussion

Clearly this study is limited by its small sample size in its ability to generalise our results, as is the case with most qualitative research. Another limitation relates to the sampling process, in that most of the people who consented to being interviewed were those who had some success in integrating the use of information into clinical practice in their units. The response of the wider body of clinicians in the Hospital to the findings will be a test of how the views expressed by our interviewees agree with those of unselected clinicians.

The issues which have emerged raise three broad themes worthy of further study. The first concerns the existence of both reactive and proactive approaches to change by clinicians. The second and third concern the conditions for enabling technologies and organisational forms and processes that facilitate or increase the use of medical evidence. These themes cause us to reflect on current strategies aimed at encouraging clinicians to use information consistently.

The push to implement evidence based medicine, patient safety and quality initiatives and performance reporting consist of, by and large, top down approaches. This study along with several others (Blandford and Smyth 2002, Weiner et al. 1997, Wright et al. 2001) suggests that clinicians strongly resist this approach. Instead, clinicians have created their own systems and methods at a local level in an attempt to achieve what the centrally generated strategies also want them to achieve. The leaders in this study often referred to their role in this regard as 'closing the loop':

"You measure, you identify issues, you identify solutions, and ... you come up with solutions and then you re-evaluate. I mean that's the loop. And there are lots of little loops because there is not just one solution," (Clinical leader).

In other words, the aims of health service reform and that of clinicians in managing patients are not totally dissimilar but clinicians often see themselves as protecting patients (and themselves) from the flaws and adverse consequences of the strategies employed by central agencies to achieve stated reforms.

It is important to clinicians that they are regarded by their peers as clinically competent, as not uncritically subscribing to a management agenda and that the information they use is accurate in their eyes. It is important that clinicians who take steps to integrate information into practice are supported by their organisations. Our study suggests that these clinicians should not be penalised for ignoring central strategies or central information sources, or not using methods of large scale top down projects, and possibly for not using national guidelines.

However, the largest threat that clinicians may face is that using their own systems renders them vulnerable to a lack of knowledge about overall trends at the macro-level within their specialties, which can only come from centralised data collection, whether this be through government or the colleges or professional institutions (Scott 2002).

Preliminary recommendations

The study is based on an action research framework and so the recommendations will be a joint effort between the interested clinicians and the research team. Three key recommendations, however, are emerging at this point.

Arguably the most important one is, at some point, to re-allocate a proportion of available funding for quality and evidence based medicine initiatives to support those clinicians already achieving in this area, even if their objectives and/or methods are not perfectly aligned to those of centrally generated plans and projects. Longer term means of support may be required to renegotiate the terms of joint-appointments with universities so that more time is available to pursue and disseminate the results of a research agenda in quality improvement, and for the professional colleges to examine the feasibility of expanding professional support to include the development of databases of practice improvement studies and large pragmatic clinical trials relevant to specialty practice. In this way the overwhelming volume of information currently available from a diverse array of sources might become more manageable for individual practitioners.

It is evident that the content and mode of operation of information systems currently in use need to be critically appraised and, if necessary, altered with the involvement of clinical users on a paid, contractual basis. The objective might be to mesh a core minimum dataset applicable to all areas of clinical practice with localised systems that provide unique information specific to the needs of the institution or specialty. Quick access to appropriate databases at the point of need should also be addressed.

Finally, it appears critical that if clinical leaders are to create teams and a learning environment, they must overcome the reticence of many non-medical staff to question decisions and reflect on process and outcomes of current practice. There are a number of development programs in the study organisation and others which are attempting to impart team formation skills to clinical leaders, but in the opinion of several interviewees, translating the learning into action in the real world environment was proving to be a challenge. Their solution was to focus team building on all members of the team rather than solely on the skill levels of the leader. They wanted the whole team to learn about the dynamics and skills required to build a well functioning team rather than a number of leaders from different teams engaging in group learning and sharing of experiences. This would operationalise the concept, articulated by Argyris, of the organisation (in this case the team) needing to think, decide and act in a collective and adaptive sense if it is to move forward (Argyris 1999).

Our findings support the notion that change in healthcare goes beyond an individual approach to developing leadership skills of senior clinicians (Shortell 2002) in team building and clinical competence. Instead, the organisation's leadership capacity may be the issue, that is, the extent to which the organisation supports the formation of multidisciplinary teams, helps foster a learning environment, and provides the tools of appropriate information systems, access to information and performance management. Rewarding with organisational support those leaders who are taking steps in the right direction, even if they appear, at first glance, to be at odds with official policy, may yield considerable dividends, despite the discomfort that such an approach may pose for policy makers and healthcare administrators alike. We contend that it deserves deliberate consideration if 'closing the loop' - integrating research into practice - is to be substantively realised.

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