An exploration of the factors that influence the implementation of evidence into practice

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An exploration of the factors that influence the implementation of evidence into practice

Background. The challenges of implementing evidence-based practice are complex and varied. Against this background a framework has been developed to represent the multiple factors that may influence the implementation of evidence into practice. It is proposed that successful implementation is dependent upon the nature of the evidence being used, the quality of context, and, the type of facilitation required to enable the change process. This study sets out to scrutinize the elements of the framework through empirical enquiry.

Aims and objectives. The aim of the study was to address the following questions:

- What factors do practitioners identify as the most important in enabling implementation of evidence into practice?
- What are the factors practitioners identify that mediate the implementation of evidence into practice?
- Do the concepts of *evidence*, *context* and *facilitation* constitute the key elements of a framework for getting evidence into practice?

Design and methods. The study was conducted in two phases. Phase 1: Exploratory focus groups ($n = 2$) were conducted to inform the development of an interview guide. This was used with individual key informants in case study sites. Phase 2:

Two sites with on-going or recent implementation projects were studied. Within sites semi-structured interviews were conducted ($n = 17$).

Results. A number of key issues in relation to the implementation of evidence into practice emerged including: the nature and role of evidence, relevance and fit with organizational and practice issues, multi-professional relationships and collaboration, role of the project lead and resources.

Conclusions. The results are discussed with reference to the wider literature and in relation to the on-going development of the framework. Crucially the growing body of evidence reveals that a focus on individual approaches to implementing evidence-based practice, such as skilling-up practitioners to appraise research evidence, will be ineffective by themselves.

Relevance to clinical practice. Key elements that require attention in implementing evidence into practice are presented and may provide a useful checklist for future implementation and evaluation projects.

Key words: evidence, evidence-based practice, facilitation, implementation, practitioner experiences

Introduction

Evidence-based practice has evolved as the dominant theme of practice, policy, management and education within health services across the developed world. Considerable investment has been made in an infrastructure to increase the likelihood of care being delivered based on evidence of what works. For example, in the United Kingdom (UK) the National Institute for Clinical Excellence has been established, in the United States (US), the Agency for Health Care Research and Quality and in Australia, The National Institute for Clinical Studies. However, there are considerable and complex challenges in delivering care based on the best possible evidence and often practice still lags behind what is known to be 'best practice'.

Against this background the Promoting Action on Research Implementation in Health Services (PARIHS) framework has been developed. This multi-dimensional framework represents the complexity of the factors involved in implementing evidence-based practice (see Kitson *et al.*, 1998; Rycroft-Malone *et al.*, 2002). Drawing on evidence derived from previous practice development, quality improvement and research projects, it attempts to make sense of the factors involved in implementing evidence-based practice (e.g. Lomas *et al.*, 1991; Dawson, 1997; Ferlie *et al.*, 1998, 1999; Dopson *et al.*, 1999; Grol & Grimshaw, 1999; National Health Service [NHS] Centre for Reviews and Dissemination, 1999). It is proposed within the framework that successful implementation is dependent upon the nature of the evidence being used, the quality of context, and, the type of facilitation required to enable a successful change process (Harvey *et al.*, 2002; McCormack *et al.*, 2002; Rycroft-Malone *et al.*, 2004). As part of the continuing development of the framework it was judged important to scrutinize the contents of it based on empirical enquiry. This paper presents the findings from a research study that was conducted to meet this identified need.

Key findings from evidence into practice research literature

There is a wealth of knowledge in others' work exploring the implementation of evidence into practice. The following sections outline some examples. The body of literature is vast, consequently the exemplars chosen here are those that demonstrate a range of methodologies and provide useful information within which to contextualize the findings of the study reported here.

Barriers to research utilization

One of the most widely studied aspects of evidence-based practice is research utilization. Most evident in the nursing literature is the study of nurses' attitudes to and perceptions of research utilization. Most of this work has been conducting using a survey approach (e.g. Rogers, 1994, 2000; Estabrooks, 1999a,b; Parahoo, 1999; McSherry, 1997; Funk *et al.*, 1991). For example Rogers (1994, 2000) and Parahoo (1999) used a survey to question nurses about research utilization. More specifically, Rogers (2000) surveyed registered nurses to ascertain their perceptions of use of research and presence of potential influencing factors. In comparison, Parahoo (1999) surveyed nurses to determine their use of

research following their education and preparation. Research studies such as these, building on the early work of Hunt (1981), usually identify a number of factors why nurses do not use research, and make links between their usage and education level (see Table 1 for a summary). However, a recent systematic review (Estabrooks *et al.*, 2003) that examined individual nurse characteristics and how they influence research utilization, found that apart from attitude to research, there was little to suggest that any potential individual determinants influence research use.

In contrast to a survey approach, Thompson *et al.* (2001) conducted a large study using cross case analysis including interviews, observation, documentary audit and Q methodology modelling to examine the barriers acute care nurses felt prevented them from using research in decision-making (see also McCaughan *et al.*, 2002). The findings indicate that four perspectives about barriers can be isolated:

1 Problems in interpreting and using research products, which were viewed as too complex, academic and statistical.
2 Nurses who felt confident to use research-based information lacked the organization's support to do so.
3 Many nurses felt that researchers and research products lacked clinical credibility and failed to offer the desired level of clinical direction.
4 Some nurses lacked the skills and to a certain degree the motivation to use research themselves. They preferred the messages from research to be passed on to them from a third party, such as a clinical nurse specialist.

Thus, the authors conclude that it is the presentation and management of research knowledge in the workplace that is the significant challenge in getting research-based information into practice.

Table 1 Nurses' perceptions of research utilization

Attitudes to research seem to be more positive in degree educated nurses
Nurses' attitudes to research tend to be unchanged by a short-course on research
Nurses report that they use research in their practice (it is less clear from these studies however, how they use it)
Many nurses do not feel they have enough time (both on and off duty) to go to the library to read and study
Location of library appears to be critical in terms of its accessibility – on or off site
Articles in journals are criticized in the way that they report research
Nurses need to be able to see the clear link between findings and implications for practice
Research findings might be disbelieved or discounted if they are not congruent with their own beliefs
Nurses feel they lack authority to bring about change

The above studies serve to highlight that perceptions themselves can be very real barriers to research utilization. However, given the plethora of studies that substantiate each other's findings it could be argued that, beyond utility as a local information gathering exercise, research into these factors has been exhausted. Moreover these types of studies tend not to acknowledge the interaction of the individual with contextual factors, which may be an important factor in successful implementation (Stetler *et al.*, 1998; McCormack *et al.*, 2002).

Other factors that influence getting evidence into practice

Large scale, multi-site, multi-disciplinary projects highlight a number of factors that appear to be influential in the uptake of evidence into practice (e.g. Dunning *et al.*, 1998; Wood *et al.*, 1998; Dopson *et al.*, 1999; McLaren & Ross, 2000; Redfern *et al.*, 2000). These have also been substantiated in a meta-analysis of case study work conducted by Dopson *et al.* (2002). In summarizing the key messages for implementation across these, other research projects and systematic reviews, some broad factors emerge. Getting evidence into practice is complex, and does not follow a prescribed, logical and linear path. 'Pushing out' or disseminating evidence and information is unlikely on its own to be successful (NHS Centre for Reviews and Dissemination, 1999; Dobbins *et al.*, 2002; Dobbins *et al.*, 2002; Dopson *et al.*, 2002). Findings also indicate that evidence is socially and historically constructed (e.g. Wood *et al.*, 1998; Dopson *et al.*, 2002). Clearly, this has implications for the way in which individuals and groups will perceive evidence and for whether it is accepted or not. There is an increasing awareness evident in the literature that there are a number of factors that might make a context more conducive to change (e.g. Iles & Sutherland, 2001). In this sense, context has been found to be a potent mediator of the successful implementation of evidence into practice. Furthermore, organizations include a range and diversity of stakeholders. There is a need to acknowledge both the positive and negative role that individuals and teams can play in affecting change and implementing evidence into practice. Professional and social networks may play a role in the acceptance of change and/or particular pieces of evidence or new ways of working and in determining the characteristics of practice contexts (West *et al.*, 1999; Dopson *et al.*, 2002). Additionally, the role of change agents seems to be significant. Change agent roles appear in different guises and with different labels, making it difficult to distinguish what features of the role(s) are effective in affecting implementation. However, previous work indicates that having a dedicated facilitator, project

lead and/or opinion leader who works with individuals in the practice context may be enabling (Dopson *et al.*, 1999; Redfern *et al.*, 2000; Locock *et al.*, 2001).

As the above indicates, the factors that may influence getting evidence into practice are many and varied. Broadly, the purpose of this study was to establish whether practitioners' (and other key stakeholders') experiences of implementing evidence into practice are included in the PARIHS framework. That is, whether evidence, context and facilitation are key issues in implementing evidence-based practice. More specifically, it aimed to address the following research questions:

- What factors do practitioners identify as the most important in enabling implementation of evidence into practice?
- What are the factors practitioners identify that mediate the implementation of evidence into practice?
- Do the concepts of *evidence*, *context* and *facilitation* constitute the key elements of a framework for getting evidence into practice?

Design and methods

The study was conducted in two phases:

Phase 1

To inform the development of an interview schedule and triangulate Phase 2 data, two focus groups were conducted. These explored the experience of 'experts' in getting evidence into practice and involved a convenience sample of practice development nurses. These preliminary focus groups were conducted to provide a broad perspective of the factors that might be influential in getting evidence into practice. This perspective was then used to explore case specific factors with interview participants in Phase 2. All practice development nurses who had attended a Practice Development Summer School were invited to participate via letter in one of two focus groups, thus all participants were volunteers (see Table 2 for information about data collection activity and study participants).

The focus group discussions were moderated by the research lead, lasted 60–90 minutes, were tape-recorded and later transcribed verbatim. Focus group findings, the PARIHS framework and published literature informed the development of a semi-structured interview guide. This was used with individual key informants in case study sites.

Phase 2

As the aims of the project were exploratory and it was also important to consider the underlying context as part of the study, a case study approach was the strategy of choice (after Yin, 1993, 1994). The unit of analysis or 'case' in this study was a specific clinical context, which could be a ward or service or hospital, in which a group of nurses (and colleagues) work with patients. The evidence based change project that was being implemented within the case then becomes a sub-or embedded unit of the case (Yin, 1994).

Case selection was based on the following criteria:

1 The on-going or recent implementation of a project that involved change and the implementation of evidence into practice
2 Clinical speciality – to allow the study of practice related to groups of clients with differing conditions
3 Maximal opportunity to explore nurses' and stakeholders' perceptions about getting evidence into practice
4 Geographical area – practicalities dictated that the sites selected were within 2 hours driving distance of the researcher's place of work

To this end two sites were selected (see Table 3 for more information about each site):

Site 1 A transplant unit (TU), implementing haemofiltration into a ward environment from Intensive Therapy Unit (ITU)

Table 2 Data collection and participant information

Focus groups	Site 1 ($n = 10$)	Site 2 ($n = 7$)
Focus group 1: $n = 7$. Practice development nurses, working in practice development roles for 1–5 years	01 – Practice Development Nurse (H grade) 02 – Transplant Unit Nurse Manager 03 – Senior Sister (G grade) 04 – Sister (F grade)	01 – Collaborative Improvement Lead (CIL) – G-grade Sister 02 – Orthopaedic Assistant General Manager 03 – A & E Nurse Manager 04 – Modernization Agency representative 05 – Modernization Agency representative
Focus group 2: $n = 5$. Practice development nurses, working in practice development roles for 2–7 years	05 – Staff Nurse (D grade) 06 – Sister (F grade) 07 – Senior Sister (G grade) 08 – Staff Nurse (E grade) 09 – Nurse Practitioner 10 – Sister (F grade)	06 – Occupational Therapist 07 – Staff Nurse – (E grade)

Table 3 Site characteristics

Site 1
Site 1 is a specialist cardio-thoracic hospital including a large transplant centre. The Transplant Unit (TU) within the hospital cares for patients pre-transplant and during their recovery post-transplant. Renal impairment is reportedly one of the most common complications associated with transplants and when patients experience this they require haemofiltration; described as a 'stronger more targeted' form of dialysis. Typically, haemofiltration is undertaken (by nurses) in the Intensive Therapy Unit (ITU), however for a number of reasons (that will come to light in the text) the TU began to implement the practice in the ward environment.
Originally, the implementation of haemofiltration into the ward environment was initiated by the previous unit manager. On coming into post (approximately 18 months before data collection) the current nurse manager had reviewed the situation and decided to re-think its implementation and start the process again. Therefore, generally the experiences that interviewees are reflecting on tended to be those of the last 18 months, although some also recall the initial attempt. Implementation of the initiative had been patchy with some patients being able to receive haemofiltration on the ward and others having to remain in ITU.
At the time of data collection the unit had 38 beds and 38 whole-time equivalent qualified nursing staff. Ten nurses were interviewed in this site.
Site 2
Site 2 is an orthopaedic unit in a 340 bedded hospital in a UK NHS Trust. Part of the hospital's commitment to improving the care of patients is through engagement in Collaboratives (see literature review for more details of quality improvement collaboratives). The Orthopaedic Service Collaborative provided the focus for this site's data collection, which consisted of three national programmes of work: Joint replacement Fractured neck of femur Back care
This site were working on an 'opportunity' concerning control of pain in patients with fractured neck of femur. This site was part way through the collaborative processes, they had identified issues, assigned roles and leads, had collected some data (not all opportunities had been initiated), and had began some implementation work. Interview data reflects the fact that they were in the early stages of the project.
Unlike Site 1 interviewees were drawn from a number of different teams across the orthopaedic unit. Those that were interviewed were the team involved in the Collaborative at Site 2 (and associated Modernization Agency links) ($n = 7$). Two other people that had originally been identified as possible interviewees were not interviewed because one left the hospital on study secondment and the other did not respond to the request.

Site 2 An orthopaedic unit implementing one of the Modernization Agency's collaborative opportunities

Access was negotiated through discussion with key gatekeepers who were made familiar with the aims of the study and criteria for selection outlined above. Once verbal consent to proceed was given, ethical clearance was sought. Written applications were made to the local research ethics committees. Access to each site took between 3 and 6 months. Nurses from the sites were invited to take part in semi-structured interviews and written consent to participate obtained.

Interview question areas included:

- The evidence base of the initiative.
- The process of implementation.
- The nature of the context in which implementation was occurring.
- Key success and barrier factors.

The interviews took approximately 1 hour, were audio-recorded and later transcribed verbatim. Relevant documentary information about the site or initiative was also collected. Data collection was completed when it was believed a comprehensive picture of the implementation process and influencing factors had been gained.

As the data collected were qualitative, content analysis, whereby data were broken down and subsequently built up into themes, was employed (after Krippendorf, 1982; Yin, 1993, 1994; Huberman & Miles, 1998). This process was assisted by the use of the package QSR Nudist. Analysis was performed within the data sets and then findings compared across data sets and sites to draw out similarities and differences. As a result, a number of overarching themes emerged.

Findings

This section integrates the main findings from across the data sets and sites by presenting the overarching themes. Themes are outlined below with illustrations from data within and across sites. Similarities and differences are highlighted where appropriate.

Nature and role of evidence

Participants from both focus groups considered that nurses in general tend to view evidence as equivalent to research. However, they themselves acknowledged that the nature of evidence was broader than research, and in the participants' view also incorporated clinical experience, expertise and other data sources such as audit information:

I think people still so see it very much as being research based, oh this is a reference, therefore it's evidence based and although they accepted the validity of small scale projects that were local to their areas and found that useful, and found they could apply it, they may not have grasped that as being evidence … in the traditional sense (P1 fg2).

Interestingly, in case sites although one of the criteria for selection of cases was on-going or recent implementation of a project that involved change and the implementation of evidence, neither site reported explicitly implementing *research* into practice. In Site 1, although there had been a search for research about giving haemofiltration in a ward environment (as opposed to ITU) at the beginning of the project, none was found. In Site 2, the role of research, although not precluded from the Plan Do Study Act (PDSA) cycle that the UK's Modernization Agency Collaboratives implement (Langley *et al.*, 1997), its use was not explicit in this particular project. In fact, both projects relied on different sources of evidence to inform practice change and development. In Site 1 this had been patient experience, for example:

S104: …we had one patient who had actually been treated with haemofiltration for quite a long time in ITU. It was actually one of his ideas that brought it into fruition…
Researcher: Was it a particularly good or bad experience that he'd had that made him suggest it?
S104: He just really didn't want to be around in ITU and awake because our ITU is so big and you see so many things. He thought it would be better to be treated around here…

However, whilst all interviewees identified that patients' experience had not only been the driving force for implementation, but also facilitated its continuation, no formal evaluation of patients' experience had been conducted.

In Site 2, audit data, including patient satisfaction information, was used to inform practice change. Such data are collected as part of the PDSA cycle and used for learning and adjusting practice and services (e.g. Wilcock *et al.*, 2003). Interviewees acknowledged the utility of information gathering or auditing in order to support local changes:

S202: I think it might be relatively easy to change things because you have got hard data, we will have hard data to support the change and we can say that this is how we have or haven't controlled pain, we've got the information and we know exactly which people have received pain relief…so we should be getting evidence to support any change that is influential…

Relevance to, and fit with, practice and organizational issues

Focus group participants highlighted the importance of focusing any change or development initiatives on emerging key practice issues. Additionally, the fit with micro and macro policy and organizational agenda seemed to be important. Projects in Sites 1 and 2 were driven by a political agenda, which ensured they were integrated with local and national policy demands.

In Site 1, it was reported, with some scepticism, that the primary driver may, however, have been more managerially focused in relation to the shortage of ITU beds. As one of the senior nurses stated:

S101: It is in line with what was happening in the wider context, so we all know there is a national shortage of ITU beds and people not getting their surgery, especially things like coronary bypass, the list was getting larger, they (the hospital's managers) have to look at waiting list initiatives and one of the reasons that they can't get the surgery, …is because transplant patients were blocking beds having haemofiltration. So it was those sorts of things that it was driven by I think.

As well as vacating ITU beds, some interviewees expressed that moving this practice from ITU could save the Trust money:

S110: I think from their perspective…if we can carry this through on the ward it's going to reduce the number of ITU nurses, the pressure on beds, and obviously money because it's more expensive to keep a patient on ITU than on the ward…I'm sure there were a lot of reasons, money being one of the main ones.

Site 2's involvement in the collaborative initiative was significant, not only were they running this project, but also a number of different projects across the Trust consecutively. This investment is congruent with the wider policy of modernizing UK Health Services and appeared to be sustaining the motivation of those involved.

Multi-professional relationships and collaboration

A particularly strong theme to emerge from focus group 2 was the need for any change or initiative to have a multi-disciplinary focus if it was to have an increased chance of success. As the following excerpt indicates, this involvement meant that parties had a sense of ownership in the change but it also gave them an opportunity to consider the evidence involved:

Researcher: …and why do you think it did get into practice?
P2 fg2: I think it was multi-disciplinary in nature, so that the evidence

that was brought forward to develop the framework was good and it was sound from a multi-disciplinary point of view
Researcher: so there were people from different professions?
P2 fg2: Yes. There were pharmacists as well as practice development nurses, professional development nurses, nurses in clinical practice, actual practitioners and other professionals allied to medicine…we did involve medical staff as well and anaesthetic staff. So presumably its strength was that is was multi-disciplinary in nature…

The need for multi-disciplinary involvement was echoed in the findings from site data. In Site 1 the practice of haemofiltration is traditionally carried out by nurses and does not require direct practical input from doctors, however it does require reciprocity because patients' results are needed in order to calculate fluid amounts. This, and the fact that in the early stages of the project there was resistance from some medical colleagues, highlighted to those interviewed that it is key to have effective and supportive relationships between individuals and teams for change to be facilitated more easily.

The clear expectation from the UK's Modernization Agency is that the collaboratives should be run by local multi-disciplinary teams and this was seen as 'crucial' for successful local improvement (05). The emphasis on multi-disciplinary working was re-iterated by those interviewed:

S203: When you're talking about the Collaborative as a whole it's very much a multi-disciplinary focus
S207: It is very multi-disciplinary. You had consultants, managers, OT's, physios, trauma liaison nurses…It was very team orientated and not just doctors and nurses.

However, the emphasis on working across disciplines had also brought tension; particularly in relation to working with some medical colleagues. Not all participants expressed this view, but there appeared to be a feeling that it was most important to have the support of the consultants for ideas to be accepted and changes to be made. It seemed particularly important to have a medical lead on board to support the collaborative – in the case of Site 2, it was a supportive orthopaedic consultant:

S202: …He has new ideas and he's very willing to work as part of a multi-disciplinary team, with that just compare the last collaborative, there was no consultant prepared to lead that, they couldn't get a consultant…and that had an adverse effect.

Role of project lead

Various labels were used to describe the person who leads and drives implementation. Focus group participants referred to facilitators, champions and change agents. Importantly they felt that this person needed to have drive, enthusiasm and credibility rather than superiority. For the haemofiltration project in Site 1, whilst the ward leader took on the role of initiating the project, a small number of the senior nurses contributed to its implementation on the ward. It was reported that there was a lack of any clearly defined project leadership or facilitation. Arguably this may have contributed to the patchy implementation of haemofiltration into the ward environment.

In contrast, Site 2 had a designated Collaborative Improvement Lead (CIL). The CIL is core to the collaborative method and their role, as the title suggests, is to manage the local projects. Interviewees identified a variety of responsibilities for this person including planning and co-ordinating the audits of practice, writing reports, keeping the collaborative team together, leading meetings, troubleshooting and communicating progress. Despite the central and demanding role the CIL was expected to play, she was taking on these responsibilities in addition to her established duties as a G grade ward manager. When interviewed, the CIL highlighted that she could take time away from her ward manager role to fulfil the commitments as project leader; however in reality this was often impractical.

A number of different qualities, skills and knowledge were identified by interviewees, which it was felt the CIL needed to fulfil the role, these included:

- Knowledge of the collaborative project.
- Status – that the person leading the project did not necessarily *'have to have a lot of experience, but a certain level in the hierarchy is necessary'*. It was felt that this gave the person credibility particularly in the eyes of senior medical staff.
- Manager – this person was needed to be able to manage others and co-ordinate the project.
- Positive, enthusiastic approach.
- Good communication skills.

Resources

Resources was raised as an issue that mediated the progress of implementation work. However, whilst the issues of time, finances and lack of equipment and skills were highlighted, the relationship between them and their role as barriers was more complex. For example, in Site 2, as in Site 1, lack of time was highlighted as a potential barrier, however, this was linked to staff shortages and staff expectations:

S102: …we've certainly gone through a phase when there's been a lot of vacancies…we're now improving a great deal…it quite interesting that people get stuck in the culture of we're really short staffed, when actually you're not short staffed…

However, there were very real issues for staff in relation to, for example, the provision of adequate equipment. In Site 1, there was an expectation that nurses would commence haemofiltration on the TU, without a dedicated machine of their own:

S202: I asked them (the directorate management) what happens when all seven machines are in use in ITU and my patients have to wait? Sometimes they've had to take patients off machines in ITU because they need one just for that 8 hours…

Arguably, resource issues are part of the planning process for implementation projects. In the case of Sites 1 and 2, some of these issues did not appear to have been taken into account in the early stages.

Study limitations

This study was small scale and it was reliant on self-report data, which potentially limits the credibility of the findings. Additionally, participants in the study could have been evidence-based practice enthusiasts and therefore represented a particular perspective. However findings would suggest that participants were able to reflect and report their experiences in a considered and balanced way. Finally, the implications drawn from the findings need to be mediated against the fact that successful implementation was defined largely by its absence than its presence. That is, while sites reported they were implementing evidence into practice, there had been limited success in achieving this aim.

Discussion

Findings indicate that implementing evidence and developing practice is far from straightforward, involves many influencing factors and is often challenging (e.g. Dopson *et al.*, 1999; Redfern *et al.*, 2000; Iles & Sutherland, 2001). Success of the projects could be described as variable. In Site 1 it was reported that the adoption and implementation of haemofiltration in the ward setting had been patchy. In Site 2 the early phases of service improvement had not been fully evaluated. Focus group data represents a more general reflection on previous experiences of implementing evidence-based practice, but as such enabled a more detailed picture of the potential key factors that might influence implementation outcomes to emerge.

Data described in this study illustrate the potential diversity of implementation initiatives occurring in the reality of clinical practice. Whilst different in their focus, processes and outcomes, descriptions from participants indicate that there are a number of common issues and challenges mediating implementation efforts.

A broader evidence base

Arguably what this study contributes, over and above other research that has examined the factors that mediate the implementation of evidence-based practice, is in highlighting the significance of access to, and use of, a broad evidence base. Findings from the focus groups indicate that nurses' views about evidence are conventional, whereby evidence equals research. While focus group participants themselves acknowledged a definition of evidence that includes clinical experience, they did not articulate how in practice this might be utilized. LeMay (2001) makes the point that for many people, finding evidence centres on a search for both published and unpublished literature. Indeed arguably this is the aspect of evidence based practice that has been most emphasized, and perhaps it is therefore unsurprising that nurses' focus and attention is on research evidence. This provides an illustration for Wood *et al.*'s (1998) point concerning the construction of evidence. In this case, nurses' views have been historically and socially constructed by their education and work context, which emphasizes the importance of research evidence. It is therefore likely that their views will have been influenced by this discourse. If it is acknowledged that evidence-based practice encompasses more than research evidence, nurses will need to enlarge their repertoire for finding, appraising and applying evidence in its broadest sense. However, initially this will have to be underpinned by nurses re-evaluating what is meant by evidence in order to recognize the value of the breadth of evidence that can underpin practice.

The difficulties of using research evidence in evidence-based practice were highlighted in both sites. In Site 1 the influence of research evidence was minimal because early attempts to locate research had resulted in finding a gap in the literature about this very specific topic. Site 2 interviewees reflecting on their experience of the local projects, did not identify an explicit role for research evidence. Rather, they highlighted the utility of information gathering and auditing to catalyze and support local changes.

This raises a question about whether the constituents of 'evidence' should encompass other forms of information that is derived from evaluating practice. This seems a particularly pertinent concern given the vast amount of practice issues that nurses (and other health care practitioners) face on a day-to-day basis, which do not have a sound research evidence base. This view is also reflective of what is happening in the reality of clinical decision-making. Thus 'what works' would include broader types of evidence, including research, clinical, patient experience and evidence in the form of local information or data. What remains of

importance, and also requires greater understanding, is how these different forms of knowledge are integrated into everyday clinical decision-making and practice.

Organizational context

The findings demonstrate that getting evidence into practice involves more than identifying high quality research evidence. The idea of relevance, organizational 'fit' and adequate resources highlight a dependence on an organization's political and contextual agenda and investment. This is substantiated by the work of others. For example, innovation research indicates that if an innovation is perceived to fit into organizational structures and procedures, it may be more readily adopted (Rogers, 1995; Iles & Sutherland, 2001). Additionally, Stocking (1985) identified appeal to local power holders as a possible influencing factor on rate of adoption. It is likely that initiatives, which address policy agendas, will hold more appeal to local power holders than those that do not. Experience from projects such as the PACE programme also identify the importance of organizational integration, whereby projects tended to be more successful if they were integrated into existing strategies (Dopson *et al.*, 1999). Dopson *et al.* (1999) also suggest that sustainable and organization wide change might be dependent upon organizational fit.

The resource issues that were highlighted in this study, and in other work, consistently attribute *lack* of resources (in whatever guise) as a barrier to implementation. However, the relationship between resource issues and their influence on the implementation of evidence-based practice is not straightforward. It would be naïve to suggest that, for example, providing more funding and increased human resources would necessarily enhance the success of getting evidence into practice. Clearly these resources have to be appropriately allocated, targeted and managed. There are likely to be more complex interactions occurring at strategic and management levels that determine likely spending priorities, for example, high organizational priorities are more likely to be granted financial and human resources (Dopson *et al.*, 2002). Whilst these complexities exist, and the answers are not straightforward, these logistical challenges (Halliday & Bero, 2000) are significant to those in the front line trying to implement change and develop practice.

Multi-disciplinary focus

The findings indicate that having a multi-disciplinary focus was perceived to increase the chances of successful implementation. This is a distinguishing and potentially powerful feature of the collaborative model of improvement (Overtveit *et al.*, 2002). The potential influence and importance of professional networks was highlighted earlier (e.g. Pettigrew *et al.*, 1992; Wood *et al.*, 1998). More specifically, Wood *et al.* indicate that the nature of local relationships is key to the change process, whereby for example if there are good relationships, common ways forward are more easily developed. Additionally, the flow of information and knowledge can be inhibited by professional boundaries (Dopson *et al.*, 2002). Professional groups are socialized in part by their education and as such may hold differing views about, for example, what makes evidence credible. While good multi-disciplinary working can be a challenge, it would appear it might be an important factor in the successful implementation of evidence-based practice.

Project lead and facilitation

The role of a dedicated project lead appears to be critical to the success of implementation projects (e.g. Dopson *et al.*, 1999; Redfern *et al.*, 2000). The findings here demonstrate the perceived importance of having a lead to direct project business. However, the language that interviewees used to describe such a person varied and mirrors the lack of conceptual clarity in the literature more generally (Harvey *et al.*, 2002). For example, focus group participants described such a person as a champion, change agent and facilitator. Both sites described this person as someone who primarily provided the energy and motivation to initiate and run the projects, and taking on the day-to-day tasks required to achieve goals.

The role of project lead or facilitator is likely to be significant to the successful conduct and outcome of evidence into practice projects. For example, previous sections have highlighted that not only is evidence socially and historically constructed, its implementation will also be effected by an interaction with contextual, and other variables. Facilitators have the potential to work with individuals and teams to articulate these issues, and enable the development and implementation of strategies that acknowledge and incorporate these factors. As such, the potential of the role is significant, yet has only just begun to be understood (see Harvey *et al.*, 2002 for a fuller discussion).

Conclusion

Broadly, the findings from this study indicate that *evidence, context* and *facilitation* are key elements in getting evidence into practice (Kitson *et al.*, 1998). However, findings also indicate that the content, purpose and dynamics of this framework require further consideration to ensure its appropriateness, comprehensiveness and accuracy.

Table 4 Key elements for implementing evidence into practice

Elements		Criteria
Evidence	Research	Well conceived, designed and executed research
		Seen as one part of a decision
		Valued as evidence
		Lack of certainty acknowledged
		Social construction acknowledged
		Judged as relevant
		Importance weighted
		Conclusions drawn
	Clinical experience	Clinical experience and expertise reflected upon, tested by individuals and groups
		Consensus within similar groups
		Valued as evidence
		Seen as one part of the decision
		Judged as relevant
		Importance weighted
		Conclusions drawn
	Patient experience	Valued as evidence
		Multiple biographies used
		Partnerships with health care professionals
		Seen as one part of a decision
		Judged as relevant
		Importance weighted
		Conclusions drawn
	Information from the local context	Valued as evidence
		Collected and analyzed systematically and rigorously
		Evaluated and reflected upon
		Conclusions drawn
Context	Receptive context	Physical, Social, Cultural, Structural, System, Professional/social networks — boundaries clearly defined and acknowledged
		Appropriate & transparent decision making processes
		Power and authority processes
		Resources – human, financial, equipment – allocated and Information and feedback
		Initiative fits with strategic goals and is a key practice/patient issue
		Receptiveness to change
	Culture	Able to define culture(s) in terms of prevailing values/beliefs
		Values individual staff and clients
		Promotes leaning organization
		Consistency of individuals role/experience to value:
		– relationship with others
		– teamwork
		– power and authority
		– rewards/recognition
	Leadership	Transformational leadership
		Role clarity
		Effective teamwork
		Effective organizational structures
		Democratic inclusive decision making processes
		Enabling/empowering approach to teaching/learning/managing

Table 4 (Continued)

Elements		Criteria	
	Evaluation	Feedback on: – individual – team – system } Performance Use of multiple sources of information on performance Use of multiple methods: – Clinical – Performance – Economic – Experience } Evaluations	
Facilitation	Purpose	Task	Holistic
	Role	Doing for others – Episodic contact – Practical/technical help – Didactic, traditional approach to teaching – External agents – Low intensity – extensive coverage	Enabling others – Sustained partnership – Developmental – Adult learning approach to teaching – Internal/external agents – High intensity – limited coverage
	Skills and attributes	Task/doing for others – Project management skills – Technical skills – Marketing skills – Subject/technical/clinical credibility	Holistic/enabling – Co-counselling – Critical reflection – Giving meaning – Flexibility of role – Realness/authenticity

Sources: Harvey *et al.* (2002); McCormack *et al.* (2002); Rycroft-Malone *et al.*, 2004.

This exploratory study suggests that to deliver patient centered care that is evidence based, practitioners meld a broad evidence base. This includes research, clinical experience, patient experience and information from the local context (Rycroft-Malone *et al.*, 2004). The challenge is to ensure that each is as robust as possible, and that they are integrated coherently and sensibly in the real time of practice. The character of, and fit with, the local context is also important for successful implementation (McCormack *et al.*, 2002). Getting evidence into practice is dependent upon more than an individual practitioner's motivation; there are also factors at organizational and multidisciplinary team levels that are likely to be influential. Finally, the project leaders in facilitator roles have a key function in enabling the translation and particularization of evidence into practice by working with individuals and teams to develop their practice and shape their local contexts (Harvey *et al.*, 2002).

The growing body of evidence about implementation reveals that a focus on individual approaches to implementing evidence-based practice, such as skilling-up practitioners to appraise research evidence, will be ineffective by themselves. Key elements that require attention are itemized in Table 4 and have been arrived at through inductive experience, theoretical inquiry and the findings from this study. These may provide a useful checklist for those embarking on, or evaluating implementation projects. These ideas now need further testing through larger scale empirical inquiry.

Contributions

Study design: JRM, GH, KS, ALK, AT, BM; data analysis: JRM, GH; manuscript preparation: JRM, GH, KS, ALK, AT, BM.

References

Dawson S. (1997) Inhabiting different worlds: how can research relate to practice? *Quality in Health Care* **6**, 177–178.

Dobbins M., Ciliska D., Cockerill R., Barnsley J. & DiCenso A. (2002) A framework for the dissemination and utilization of research for health-care policy and practice. *Online Journal of Knowledge Synthesis in Nursing* **9**.

Dopson S., Gabbay J., Locock L. & Chambers D. (1999) Evaluation of the PACE Programme: Final Report. Oxford Healthcare Management Institute and Wessex Institute for Health Services Management.

Dopson S., FitzGerald L., Ferlie E., Gabbay J. & Locock L. (2002) No magic targets! Changing clinical practice to become more evidence based. *Health Care Management Review* **27**, 35–47.

Dunning M., Abi-Aad G., Gilbert D., Gillam S. & Livett H. (1998) *Turning Evidence into Everyday Practice*. King's Fund, London.

Estabrooks C.A. (1999a) The conceptual structure of research utilization. *Research in Nursing & Health* **22**, 203–216.

Estabrooks C.A. (1999b) Modeling the individual determinants of research utilization. *Western Journal of Nursing Research* **21**, 758–772.

Estabrooks C.A., Floyd J.A., Scott-Findlay S., O'Leary K.A. & Gushta M. (2003) Individual determinants of research utilization: a systematic review. *Journal of Advanced Nursing* **43**, 506–520.

Ferlie E., Wood M. & Fitzgerald L. (1998) Assuring high quality and evidence-based health care: a case study from HIV/AIDS services. *Quality in Health Care* 7(Suppl.), s24–s29.

Ferlie E., Wood M. & Fitzgerald L. (1999) Some limits to evidence-based medicine: a case study from elective orthopaedics. *Quality in Health Care* **8**, 99–107.

Funk S., Champagne M., Weise R. & Tornquist E. (1991) Barriers: the barriers to research utilisation scale. *Applied Nursing Research* **4**, 39–45.

Grol R. & Grimshaw J. (1999) Evidence-based implementation of evidence-based medicine. *Joint Commission Journal on Quality Improvement* **25**, 503–513.

Halliday M. & Bero L. (2000) Implementing evidence-based practice in health care. *Public Money and Management* **20**, 43–50.

Harvey G., Loftus-Hills A., Rycroft-Malone J., Titchen A., Kitson A., McCormack B. & Seers K. (2002) Getting evidence into practice: the role and function of facilitation. *Journal of Advanced Nursing* **37**, 577–588.

Huberman A.M. & Miles M.B. (1998) Data management and analysis methods. In *Collecting and Interpreting Qualitative Materials* (Denzin N.K. & Lincoln Y.S., eds). Sage, Thousand Oaks, CA, USA, pp. 179–210.

Hunt J. (1981) Indications for nursing practice: the use of research findings. *Journal of Advanced Nursing* **6**, 189–194.

Iles V. & Sutherland K. (2001) *Organisational Change: A Review for Health Care Managers, Professionals and Researchers*. NCCSDO, London.

Kitson A., Harvey G. & McCormack B. (1998) Enabling the implementation of evidence-based practice: a conceptual framework. *Quality in Health Care* **7**, 149–158.

Krippendorf K. (1982) *Content Analysis: An Introduction to its Methodology*. Sage, London.

Langley G., Nolan K. & Nolan T. (1997) *The Improvement Guide*. Jossey Bass, San Francisco, CA, USA.

LeMay A. (2001) Firm foundations for more effective practice. *Professional Nurse Supplement* **16**, S7–S9.

Locock L., Dopson S., Chambers D. & Gabbay J. (2001) Understanding the role of opinion leaders in improving clinical effectiveness. *Social Science and Medicine* **53**, 745–757.

Lomas J., Enkin M., Anderson G. M., Hannah W. J., Vayda E. & Singer J. (1991) Opinion leaders versus audit and feedback to implement practice guidelines. *Journal of the American Medical Association* **265**, 2202–2207.

McCaughan D., Thompson C., Cullum N., Sheldon T. & Thompson D.R. (2002) Acute care nurses' perceptions of barriers to using research information in clinical decision-making. *Journal of Advanced Nursing* **39**, 46–60.

McCormack B., Kitson A., Harvey G., Rycroft-Malone J., Seers K. & Titchen A. (2002) Getting evidence into practice: the meaning of 'context'. *Journal of Advanced Nursing* **38**, 94–104.

McLaren S.M.G. & Ross F. (2000) Implementation of evidence in practice settings some methodological issues arising from the South Thames: evidence-based practice project. *Clinical Effectiveness in Nursing* **4**, 99–108.

McSherry R. (1997) What do registered nurses and midwives feel and know about research? *Journal of Advanced Nursing* **25**, 985–998.

National Health Service [NHS] Centre for Reviews and Dissemination (1999) *Effective Health Care: Getting Evidence into Practice*. The Royal Society of Medicine Press Limited, The University of York/NHS Centre for Reviews and Dissemination, London.

Overtveit J., Bate P., Cleary P., Cretin S., Gustafson D., McInnes L., McLeod H., Molfenter T., Plesk P., Robert G., Shortell S. & Wilson T. (2002) Quality collaboratives: lessons from research. *Quality and Safety in Health Care* **11**, 345–351.

Parahoo K. (1999) A comparison of pre-Project 2000 and Project 2000 nurses' perceptions of their research training, research needs and their use of research in clinical areas. *Journal of Advanced Nursing* **29**, 237–245.

Pettigrew A., Ferlie E. & McKee L. (1992) *Shaping Strategic Change*. Sage, London.

Redfern S., Christian S., Murrells T. & Norman I. (2000) *Evaluation of Change in Practice: South Thames Evidence-Based Practice Project (STEP)*. University of London, King's College London, London, UK .

Rogers S. (1994) An exploratory study or research utilization by nurses in general medical and surgical wards. *Journal of Advanced Nursing* **20**, 904–911.

Rogers E. (1995) *Diffusion of Innovations*. Free Press, New York.

Rogers S. (2000) A study of utilization of research in practice and the influence of education. *Nurse Education Today* **20**, 279–287.

Rycroft-Malone, J. Kitson, A. Harvey, G. McCormack, B. Seers, K. Titchen, A. & Estabrooks, C.A. (2002) Ingredients for change: Revisiting a conceptual framework. *Quality and Safety in Health Care* **11**, 174–180.

Rycroft-Malone J., Seers K., Titchen A., Harvey G., Kitson A. & McCormack B. (2004) What counts as evidence in evidence-based practice. *Journal of Advanced Nursing* **47**, 81–90.

Stetler C.B., Brunell M., Giuliano K., Morsi D., Prince L. & Newell-Stokes G. (1998) Evidence based practice and the role of nursing leadership. *Journal of Nursing Administration* **8**, 45–53.

Stocking B. (1985) *Initiative and Inertia: Case Studies in the NHS*. Nuffield Hospitals Trust, London.

Thompson C., McCaughan D., Cullum N., Sheldon T.A., Mulhall A. & Thompson D.R. (2001) The accessibility of research-based knowledge for nurses in United Kingdom acute care settings. *Journal of Advanced Nursing* **36**, 11–22.

West E., Barron D.N., Dowsett J. & Newton J.N. (1999) Hierarchies and cliques in the social networks of health care professional: implications for the design of dissemination strategies. *Social Science and Medicine* **48**, 633–646.

Wilcock P.M., Brown G.C., Bateson J., Carver J. & Machin S. (2003) Using patient stories to inspire quality improvement within the NHS Modernization Agency collaborative programmes. *Journal of Clinical Nursing* **12**, 422–430.

Wood M., Ferlie E. & Fitzgerald L. (1998) Achieving clinical behaviour change: a case of becoming indeterminate. *Social Science and Medicine* **47**, 1729–1738.

Yin R.K. (1993) *Applications of Case Study Research*. Sage, Thousand Oaks, CA, USA.

Yin R.K. (1994) *Case Study Research. Designs and Methods*, 2nd edn. Sage, Thousand Oaks, CA, USA.