

**Nurses' Use Of Research Information In Clinical Decision Making: A
Descriptive and Analytical Study**

Final Report.

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Executive Summary.

Study Background and Rationale

Policy and professional developments over the last 15 years have placed increasing pressure on nurses to be more accountable for their actions. At the same time, research into nurse decision making and research information use by nurses has also increased. The advent of National Service Frameworks, The Commission for Health Improvement (CHI) and the National Institute for Clinical Excellence (NICE), mean that evidence based approaches to nursing practice have become firmly established in research, professional and policy agendas.

The starting point for evidence based approaches to healthcare are the decisions made by professionals delivering services. Little, if any, work has been conducted examining the types of decisions made by nurses. Knowing the nature of these decisions, what reduces the likelihood of nurses using research information when making them, how they access research knowledge in practice, and how useful they think research knowledge might be in informing their clinical decisions, will help policy makers, educators, service developers, researchers and, most importantly, clinicians estimate the *potential of nurses to contribute to an evidence based health service*.

This study uses qualitative interviews, observation and a form of statistical modelling (Q methodology) to explore and describe data from over 120 nurses working in acute care settings in three case sites (Hospitals) in the UK. The study focuses on the following research questions:

- To what extent does nursing care involve making clinical decisions which require research evidence?
- What are the perceptions of nurses regarding the barriers and obstacles to access and use of research based information?
- How do clinical nurses access research-based information?
- What are the perceptions of nurses regarding the need for research based evidence to support clinical decision making?

The study took place in medical, surgical and coronary care units in three NHS Trusts in the North of England (See Table E1).

The Decisions Made By Nurses

Nurses made clinical decisions in six key areas:

- **intervention/effectiveness:** choosing between intervention X and intervention Y.
- **targeting:** *a subcategory of intervention/effectiveness decisions outlined above. These decisions were of the form, 'choosing which patient will most benefit from this intervention'*
- **timing:** *again, a subcategory of intervention/effectiveness decisions. These commonly take the form of choosing the best time to deploy particular interventions.*
- **communication:** these decisions focused on choices relating to ways of delivering and receiving information to and from patients, families or colleagues. Sometimes these decisions were specifically related to the communication of risks and benefits of different interventions or prognostic categories.
- **service organisation, delivery and management:** decisions concerning the configuration or processes of service delivery.
- **experiential, understanding or hermeneutic:** these relate to the interpretation of cues in the process of care. The choices involved might include deciding on the ways in which a patient may be experiencing a particular situation.

Barriers to Using Research Based Information in Clinical Decisions

Four primary perspectives on what stops nurses using research based information in practice emerged:

- **problems in interpreting and working with research products** which are seen as too complex, 'academic' and overly statistical. Nurses defining this perspective want to use research but feel limited in their ability to do so by their lack of research appreciation skills and confidence.
- despite being confident with research-based information, and the perceived ability to be able to engage with such material if they so wished, nurses defining this perspective perceive **a lack of organisational support** (in the form of restricted local access to information and unsupportive colleagues) as a significant block. The more experience nurses had in a clinical domain the less likely they were to be aligned with this perspective.
- many nurses adopted the stance that **research products and researchers lack clinical credibility** and that they **fail to offer the desired level of clinical direction**. It would appear that nurses educated to graduate level are more likely to want to see clinically credible and more prescriptive research products in the workplace.
- some nurses **lacked the skills and (to a lesser degree) the motivation** to use research themselves. Consequently, these individuals liked research messages passed to them by a third party and sought to foster others' involvement in research based practice rather than direct involvement themselves. The old style SRN-trained nurse was seen to be the most strongly associated with this perspective. Graduate level (in any subject)

nurses were less likely to be aligned with the perspective. These results suggest that there may be a significant skills (with respect to interpreting and using research material) disparity between the SRN-trained nurses and graduate nurses.

Accessing Research Based Information in Practice

Of 4000 clinical information documents and text based resources audited on the wards only around 42% had any form of traceable heritage. The average age of resources was 5 years and only around a third of all resources made any kind of explicit reference to research.

We found three primary perspectives on accessibility:

- humanistic: in which human sources were easily the most accessible
- local information for local need: in which locally developed technologies began to be seen as accessible
- moving towards technologies: in which new technologies such as on-line databases began to be seen as accessible

Whilst there were areas of delineation between these perspectives the main characteristic across all perspectives was the accessibility of human sources. Specifically, the sources who combine a clinical research remit with clinical workload (CNSs and link nurses) and immediate colleagues.

As well as homogeneity in what counted as accessible, there was also remarkable commonality regarding some sources relative *inaccessibility*. Specifically, all the perspectives saw the nurse-managerial structure (in the form of the Director of Nursing and their team) as not easily accessed. Two of the perspectives stressed the perceived inaccessibility of the Trust medical or nursing librarian in relation to their role in helping resolve clinical uncertainty. The overall picture was one characterised by an insider-outsider distinction with regard to accessibility: if the source was locally relevant, required little ‘translation’, clinically credible and reflected the experiences of practitioners it was judged as accessible.

Those resources which were perceived as most accessible were those which were linked directly to ward-life: the specialist nursing function, the link nurse who helped operationalise the CNSs knowledge, technologies which were local and focussed on the clinical area (information files or guidelines and protocols). Unfortunately, the documentary evidence suggests that despite the important role of clinical nurse specialists and other members of the healthcare team as producers of research based information sources, the basis for much of what is produced remains difficult to ascertain.

The Usefulness of Research Information for Nurses' Clinical Decision Making

Four perspectives on the usefulness of research based information for clinical decision making by nurses emerged:

- the guiding or prescriptive role of useful information: information seen as useful offers clear guidance or prescriptive messages for practice. The most common forms of this kind of information were local guidelines or protocols or advice from clinical specialists.
- the experiential: information derived from the clinical experience of trusted sources is seen as the most useful. Graduates (in any subject) appeared to be less likely to hold this perspective.
- structurally supported experiential, in which information provided by the central 'machinery' of Trust R&D support structures is seen as useful. However, most of the utility associated with these roles seemed to lie in the inclusive and 'hands on' development processes of technologies such as guidelines, which brought practitioners into contact with research. We found clinical nurse specialists and coronary care nurses the least likely to hold this perspective. This could be explained by their view that reports of single studies and systematic summaries of research were useful in practice. It was our experience that, qualitatively at least, it was the focussed and specialised role of the CNS and the environmentally 'special' nature of CCU which brought practitioners into contact with research.
- research and technology derived, in which technologies (in the form of computerised databases) and systematically presented research findings begin to be useful for clinical decision making. We found that the more experience in a clinical domain a nurse had, the less likely they were to be aligned with this perspective. (These results should be viewed cautiously as our sample of clinical nurse specialists was probably too small to detect whether or not this trend also applied to them).

Conclusion: The Potential for Evidence Based Practice in Nursing

It is clear that nurses have the potential for participating in evidence based decision making. However, a significant educational, research, management and policy response is required if this potential is to be exploited.

Nurses need to be better able to recognise the decisions they make and to understand the uncertainties associated with them. They need to be given the skills to construct focused clinical questions and to effectively and efficiently search for the best available research evidence with which to answer these questions. The study reveals that each of the Trusts had relatively rich IT resources to draw on (although not on the wards themselves) but that the impact of these resources on practice was minimised by the absence of the most basic skills and support (even at the rather prosaic level of providing funding for training and photocopying). In terms of implementation,

clinical nurse specialists, the ‘focus’ offered by the CCU domain, and multi-disciplinary sponsorship of research based technologies such as guidelines, seemed to be facilitators for the process.

We need to better understand the nature of these effects in order to harness the potential increases in understanding implementation they offer.

Useful and clinically relevant audit was a relatively small part of ward life and the results of such audits played an even smaller part in the clinical decisions of nurses. Nurses’ lack of skills in handling statistical information and audit’s stand-alone nature divorced from a broader, and coherent, process of evidence based practice weakened its impact.

Recommendations

The following recommendations are borne of the need to move towards the UKCC’s aim of the autonomous practitioner, accountable for their decisions, and drawing on the most appropriate forms of evidence to inform those decisions.

Training Nurses for Uncertainty Rather Than Certainty

1. A greater recognition of the potential for teaching decision making skills and models in basic and continuing education and training. Any increase in teaching such techniques needs to be accompanied by a commensurate level of robust evaluation.
2. Nurse-educators need to be given the skills and knowledge to teach evidence based decision making skills.

Developing Evidence Based Change Agents

3. There is a clear multi-level organisational agenda associated with the development of EBN including:
 - Efforts to increase evidence based decision making in nursing need to recognise the roles of other stakeholders - most notably doctors, managers, and patients [in clinical decision making].
 - Managers at local and national level needs to combat occupational cultures in which questioning and acknowledgement of uncertainty are discouraged.
 - The process of bringing information technology closer to the work environment is an urgent priority if evidence based literature searching is to be a reality. This needs to be accompanied by validated methods of training and support – possibly harnessing the experience and skills of information brokers such as health service librarians.

4. Because clinical nurse specialists (and those who embody the role) wield significant influence in the decisions of nurses, there is a need to explore and map their qualities and skills in the context of evidence based practice. Related to this, the impact of nurse consultants on getting research into practice needs careful and thorough evaluation.
5. Despite significant investment in their role by Trusts, practice development nurses were not always seen as a valuable resource for informing clinical decision making. There is therefore a need to ensure their work is clinically relevant and useful. Specifically, they need to:
 - act as a bridge between the state of the art in evidence based practice and mainstream nursing activity by fostering skills in EBN as a process as well as just clinical skills
 - adopt a more generic role in services perhaps using a range of their skills to address questions from outside narrow clinical remits. This would potentially increase the demand for their services
 - adopt a more reactive role to complement their proactive function based around skills development. In this way their valuable expertise could be applied to the clinical decisions and questions which clinicians need answers to
 - market the products of their efforts more effectively. We found PDNs were not universally valued but people often failed to note their key role in the production of technologies that were, such as local guidelines or protocols.
6. link nurse roles were potentially very valuable resources but often lacked the structural power to be able to influence change to any degree. A better understanding of their skills and roles is required. Furthermore, organisations need to ensure that these nurses have the knowledge, skills and resources available to allow them to carry out the role effectively: time, financial support for acquiring resources, and commitment from managers and R&D support staff to aid implementation.

Organising and Increasing Accessibility of the Knowledge Needed for Clinical Decision Making

7. In the absence of an adequate level of critical appraisal skills amongst clinicians, there needs to be more emphasis on the development and dissemination of reliable sources of pre-appraised research to practitioners.
8. The effectiveness of decision support initiatives needs to be established through robust research studies.
9. The characteristics and impact of opinion leaders in nursing needs more research and on-going research into methods to promote the implementation of research findings in nursing should be continued.

10. There is a need for more systematic reviews of *existing* research evidence in nursing, for two reasons:

- the knowledge base is mainly unexploited and nurses need reliable, valid overviews to combat the selective and poorly organised resources that exist on wards at the moment.
- we need to ensure that primary research focuses on providing research evidence capable of reducing uncertainty in common clinical decisions.

It is hoped that these recommendations will help provide the right information for practice and encourage primary research fit for the purpose of improving the decisions of practitioners.

Table E1: The Characteristics of the Case Sites

Case site features	Case Site 1	Case Site 2	Case Site 3
General information	Large hospital (700 beds). Referral centre for some specialties; large postgraduate medical education centre	University teaching hospital (800 beds). Recent merger had led to formation of a new Trust body.	Medium sized DGH (650beds) offering general medical and surgical services, A&E and OPD departments.
Research and Development infrastructure	Member of NHS R&D Consortium. R&D Facilitator in post to co-ordinate Nursing and Midwifery R&D within the context of a published strategy for developing research in practice. Key groups: the Research Active Group; the Midwifery R&D Group; the Nursing Research Quality Group	Established R&D Panel to develop a strategic framework of research, subject to annual review. Nurses represented on both the Board of Directors and the R&D panel. Nurses actively involved in clinical audit. Research into Practice group had been established to implement the findings of nursing research	R&D Directorate: Health Services Research Unit and the Clinical Audit Department. Nursing and PAM involvement in R&D included a Research Support Group and clinical audit coordinator posts.
NHS R&D Support Funding	£617,000 - 3 years. Funding directed towards medical R&D. Nursing research mainly in Primary and Community Care and Women and Children's Health.	£6 million pounds for 1997/98. Additional funds derived from charities (in excess of £1million) and commercially funded work (£1.5 million).	£30, 000 per annum for three years (1998-2001). Revenue from commercial research amounted to £250, 000 per year.
Nurses' role in any R&D committees	Nursing representation on Trust R&D Committee, University R&D Division and Consortium Quality Group.	The LREC, Clinical Effectiveness Group and to be included in proposed Consortium Steering Group for R&D funding.	LREC and R&D Steering Group.
Practice Development Structures	Over 30 CNSs and Nurse Practitioners in post and a team of 12 PDNs. Active Link Nurses.	Large body of CNSs active in practice development, alongside a smaller number of PDNs. Link Nurse structure in place.	Small team of PDNs focussing on increasing nurses' clinical skills. CNSs attached to various specialties. Link Nurse system in place but not effective
Library Provision	Extensive postgraduate medical library (over 18,000 books, 286 journal titles) and good on-line data base provision and CD-ROM System	Well-stocked postgraduate medical library offering good on-line database provision. Also a smaller library catering for nurses, midwives and PAMs, with a good range of textbooks and journals but limited on-line database provision.	Access to well stocked but physically cramped library (20, 000 textbooks, 400 periodicals). On-line access to Medline, Cinahl, Cochrane Library and the National Research Register.
Ward based Information Technology	Ward based computers used for patient administration; not linked to electronic databases	Ward based computers for patient admin; CCU installing computer linked to electronic databases just as fieldwork ended	Ward based computers used for patient administration; not linked to electronic databases
Links with local universities	Strong links with local university offering both undergraduate and postgraduate nurse training through a Faculty of Health, comprising Schools of Nursing, Community and Health Studies and Medicine	Strong links between the Trust and the "old" and "new" university providers of medical and nursing education. Some nurses working in the Trust also held part-time academic posts as senior lecturers	Strong links had been established and academics were involved in Trust R&D activity. The university offered diploma level training for student nurses, CPD and Master's level courses and was beginning to recruit doctoral students

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Chapter One: Nurses' Use Of Research Information In Clinical Decision Making.

Key Points:

- Nurses operate in a policy and professional environment with a strong evidence based imperative.
- Approaches to describing nurses' clinical decisions focus on models of *rationality* (such as information processing), *intuition*, or more recently the idea of a [decision] task-led *cognitive continuum*. None of these approaches preclude a role for research based knowledge. It is the source of this knowledge for practice decisions that we focus on in this study.
- The literature on the use of research evidence by nurses is characterised by small underpowered studies which are often divorced from the decision making context of actual practice. These studies often use self report survey designs. Given the prominent role of research-use in professional and policy discourse, these trends mean that a positive bias in reported results cannot be discounted. Particularly as such biases have been exposed in other healthcare groups when observational work has been conducted alongside self report techniques (Covell *et al.* 1985).
- Four primary groups of characteristics impact on nurses' use of research evidence in clinical decisions and need to be taken into account in any study design: features of the information itself, professional cultural factors, environmental characteristics and individually located elements.
- These characteristics mean there is a need for robust research on:
 - how nurses access research based information in the context of their clinical decision making
 - nurses perceptions of the barriers to their use of research knowledge in clinical decisions
 - the usefulness of existing sources of information for clinical decision making
 - the decisions that nurses make, and the potential for research based information to contribute to the quality of those decisions.

1:1 The Policy Context.

Research has been a feature of nursing since the days of Florence Nightingale, but it was not until the publication of the first dedicated research journal in nursing, *Nursing Research*, in the USA in 1952 that the profession began to develop its research knowledge base. In 1966 the Ministry of Health asked the Royal College of Nursing to carry out a series of studies looking at the effectiveness of nursing. This initiative led to a series of important studies examining areas such as wound care (Hunt, 1974) and information provision (Hayward, 1975). In 1972 policy makers recognised the need for nursing to move towards the status of a research based profession (Briggs, 1972). Despite the time that has elapsed, and the concerted attempts of those at the heart of nursing's efforts to foster research based cultures and organisational models (Kitson *et al.*1996), it is clear that progress has been slow, or at least extremely variable (Rodgers, 2000).

Professional use of knowledge derived from research is an implicit principle of the NHS (Kirk, 1996), nursing's professional code of accountability (UKCC, 1992), and broader contractual relations between nurses and their employing authorities (Department of Health, 1993). A series of policy initiatives over the last 12 years has consolidated these principles into the development of an evidence-based NHS culture (Mulhall & Le May, 1999):

Table 1: Key Publications in the Development of an Evidence Based NHS Culture

Year	Document
1988	House Of Lords Select Committee On Science And Technology: <i>Priorities In Medical Research</i>
1989a	Department Of Health: <i>Priorities In Medical Research</i>
1989b	Department Of Health: <i>Working For Patients</i>
1991	Scottish Home And Health Department: <i>A Strategy For Nursing Research In Scotland</i>
1993a	Department Of Health: <i>Research For Health (2nd Version)</i>
1993b	Department Of Health: <i>Report Of The Task Force On The Strategy For Research In Nursing, Midwifery And Health Visiting</i>
1993c	Department Of Health: <i>A Vision For The Future</i>
1994a	Department Of Health: <i>Supporting Research And Development In The NHS (The Culyer Report)</i>
1994b	Department Of Health: <i>Testing The Vision</i>
1995a	Department Of Health: <i>Methods To Promote The Implementation Of Research Findings In The NHS</i>
1995b	Department Of Health: <i>Consumers And Research In The NHS</i>
1996a	Department Of Health: <i>Promoting Clinical Effectiveness</i>
1996b	Department Of Health: <i>Research And Development: Towards An Evidence Based Health Service</i>
1997	Department Of Health: <i>The New NHS: Modern. Dependable.</i>

More recently, National Service Frameworks in areas such as coronary heart disease and cancer; the creation of the National Institute for Clinical Excellence (NICE) and the Commission for Health Improvement (CHI) have given momentum to policy and public expectations that professionals will base their decisions on the best available evidence.

1:2 Nursing, Professionalisation, Knowledge And Research Utilisation.

As well as this general movement towards an evidence based NHS, nursing has also been developing its own internal links between research and professional activity. The relationship between knowledge and decision making has been a crucial element of nursing's attempt to increase its professional status. A number of commentators point to the requirement for professional occupations to possess and develop a relatively esoteric body of knowledge as the basis for practice (Freidson, 1970), (Millerson, 1964). How a professional group uses this knowledge determines, in part, its position as a profession. Macdonald suggests that for nursing in particular

the interface between nursing's knowledge base and practice (represented by clinical decisions) is characterised by three constraining factors on nursing attaining 'full' professional status: the nature of nursing knowledge itself, indeterminacy in application, and a lack of objectivity in practice (MacDonald, 1995).

Perhaps as a response to the need for research which contributes to the needs of Health Services generally, and not just the UK NHS, (Niesson, Grijseels, & Rutten, 2000) nursing has seen a shift away from the heavily theoretical work of American nursing academics in the 1970s and 80s to a stronger emphasis on 'practice' (Traynor & Rafferty, 1997). Nursing has also begun to explore and map those parts of the existing knowledge base which might contribute most to particular forms of clinical decisions. For example, randomised controlled trials (RCTs) for decisions concerning the effectiveness of different nursing interventions (Cullum, 1997). Research is, perhaps for the first time in nursing's recent history, being asked to respond to the challenge of reducing the uncertainty associated with the clinical decisions of practitioners. Moreover, practitioners are being asked to make use of the practice-based research that arises as a result.

1:3 Nurses' Use Of Research Information In Clinical Decision Making: The Literature.

We took the following question as a starting point for our engagement with the research literature, "what factors influence nurses' access to, interactions with, and usage of, research material in their decisions?" In answering this question we focused on two areas:

- nurses and clinical decision making - here the literature was characterised by studies describing nurses' decision making and how this could be improved. Nothing in this body of work helped us gain a purchase on the decisions that nurses make or the degrees to which these decisions are amenable to research evidence.
- nurses and the utilisation of research evidence. Assuming that nursing practice involves a degree of decision making, this corpus of literature examined the wealth of material on research utilisation in nursing.

1:4 Clinical Decisions In Nursing

Decision making in nursing is described using a variety of terms. Clinical decision making is the most common (Ford *et al.*, 1979; Field, 1987; Luker and Kenrick, 1992). Other terms include clinical judgement (Benner & Tanner, 1987; Itano, 1989), clinical inference (Hammond, 1964), clinical reasoning (Grobe *et al.*, 1991), and diagnostic reasoning (Carnevalli *et al.* 1984; Radwin, 1990). To all intents and purposes these terms are interchangeable. Each term describes the *choice* of a discrete option from a range available to the clinician. Three examples of possible choices might involve selecting interventions, making a diagnosis, or the communication of future prognostic possibilities: clinical decisions inevitably involve these *choices*.

There are three major approaches to the process of decision making within the literature: information processing, intuitive-humanist approaches and cognitive continuum.

Information Processing Models

According to these models of decision making the human decision making 'system' consists of short and long term memory. Short term memory houses the stimuli which unlock the factual and experimental knowledge in long term memory. This unlocking is usually represented by a four stage hypotheticalo-deductive process¹:

- the clinician takes part in a patient encounter and gathers preliminary clinical information about the patient (also called the cue acquisition stage)
- following this, the clinician generates initial and tentative hypotheses (usually around 4-6 in number). These are related to already gathered data and short term memory-based cues
- the third stage involves the clinician interpreting the cues gathered and classifying them as confirmatory, negative, or non-contributory hypotheses
- in the final stage the clinician weighs up the pros and cons of each decision alternative and chooses the one most favoured by the evidence (Thompson, 1999a).

Intuitive-Humanist Approaches

The opposite of the information processing approach can be termed the intuitive-humanist model of decision making. In this approach the motivational force for a decision is not the decision 'task' faced. Rather, the shape of the decision is dependent on the individual undertaking it. Various definitions of intuition or intuitive decision making have been advanced:

- *'understanding without a rationale'* (Benner & Tanner, 1987)
- *'a perception of possibilities, meanings and relationships by way of insight'* (Gerrity, 1987)
- *'knowledge of a fact or truth, as a whole; immediate possession of knowledge; and knowledge independent of the linear reasoning process'* (Rew & Barron, 1987)
- *'immediate knowing of something without the conscious use of reason'* (Schrader & Fischer, 1987)
- *'[a]...process whereby the nurse knows something about a patient that cannot be verbalized, that is verbalized with difficulty or for which the source of knowledge cannot be determined.'* (Young, 1987)

In the intuitive model an expert decision maker has no reliance on guiding rules or maxims and an intuitive grasp of situations, only falling back on hypotheticalo deductive logic when new or unexpected challenges arise.

¹ This is a broad definition – some models have more than four stages, some less, but all involve these basic steps.

This decision making model has proved very influential in nursing and nurse education, due mainly to the operationalisation of the ideas of Patricia Benner and her adaptation of the work of the Dreyfus' (1986) on skills acquisition.

A Cognitive Continuum

Commentators have realised that rather than viewing the information processing and intuitive models as separate entities, it is preferable to view them as existing at either end of a [cognitive] continuum. Hamm (1988) suggests that decisions are never wholly rational or uniquely intuitive; rather, they are commonly located somewhere in between. According to this approach different sorts of decisions merit different sorts of cognitive strategies. The decision is dictated by the decision task, which has three dimensions:

- the structural complexity - for example, the number of cues present. Lots of decision cues usually entail falling back on gut instinct or intuition
- the ambiguity of the task – unfamiliar decisions lead to intuitive decision making approaches.
- the way in which the decision task is presented – if visual information is used then intuition is induced. If 'objective' or quantitative data is used then analysis is more common. Time is also an important factor: the shorter the time available for making a decision the more likely intuition is to be invoked.

1:6 Decision Making, Information Needs And Information Use.

Covell and colleagues (Covell *et al.*, 1985) related the decisions that doctors face in practice to the kinds of clinical questions generated, and the resultant information needs. Covell and colleagues' approach heavily influenced the development of this project in that, perhaps for the first time, they related information use to the forms of decisions which professionals faced *in practice*. They found that clinicians generated a range of clinical questions from practice: questions of 'fact'² (40%), medical opinion on management (43%) and non-medical information (17%). The authors also recognised that professionals couldn't be relied upon to accurately self-report their information use and that printed information sources were of limited use in practice (Covell *et al.*, 1985).

As in Covell *et al.*'s. approach we wished to explore the relationship between decision making and information use. We also adopted some of the desirable characteristics of their methodology (specifically, the use of observation in conjunction with other forms of data collection).

² Later the report refers to this kind of knowledge requirement as 'background'. The alternative approach (intervention selection, diagnosis, etc.) is termed 'foreground', or knowledge concerned with the *management* of patients and their clinical problems.

1:7 The Quality Of The Research On Nurse Decision Making And Use Of Evidence.

Most of the existing research on nurse decision making is of poor quality. Many studies use survey methods, often with the self-report questionnaire as a tool for data gathering. (Funk *et al.*, 1995); (Robichaud-Ekstrand & Sherrard, 1994); (Shaffer, 1996); (Walckzack *et al.*, 1994). As we have seen, studies of decision making in medicine that have combined observation with self-report tools highlight the over reporting that occurs with this type of approach to research design (Covell *et al.*, 1985). More recently, Estabrooks (Estabrooks, 1999) has highlighted the lack of theoretical clarity associated with the concept of research utilisation itself. This work implies that different studies of the use of research evidence by nurses may not even be reporting the same phenomenon.

Other studies examining research utilisation via the survey method are limited in their generalizability due to the small non-random nature of their samples (Thompson & Sutton, 1985). Others, despite reasonably large randomly selected samples have poor response rates. For example, Bostrum and Suter's (1993) examination of the correlates of research utilisation only secured a response from 23% of the original 7000 nurse sample. Some studies manage to combine all three of these characteristics. For example, Champion & Leach (1989), in their investigation of variables associated with research utilisation, used a battery of self-report scales on a convenience sample of 150 nurses, of whom only 59 yielded data (a response rate of just 39%).

Studies using qualitative methodologies fair little better in terms of quality. For example, few qualitative studies describe an explicit framework for sampling informants and settings (Luker & Kenrick, 1992); (Meah *et al.*, 1996); (Rodgers, 1994).

There is much repetition in the literature and a paucity of good quality empirical studies examining information use in clinical decision making by nurses. Nethertheless, four themes, representing a typology of variables which may impact on nursing's relationship with research evidence, can be advanced:

- Professional Cultural
- Environmental
- Individual decision maker related
- Information related

1:8 Professional Cultural Variables

Nursing policy promotes practice based on research evidence (Hicks & Hennessy, 1997):

All clinical practice should be founded on up-to-date information and research findings; practitioners should be encouraged to identify the needs and opportunities for research presented by their work. (Department of Health, 1993)

The profession of nursing cannot reach a consensus regarding what counts as the “best available evidence” for decisions. Often nursing appears almost closed off to the possibilities of certain forms of research knowledge. As can be clearly seen in Hicks and Hennessy’s (Hicks & Hennessy, 1997) argument that:

“[if nursing research is dominated by quantitative studies] ...the profession will once again become emasculated handmaidens of the medical profession, but this time in the research domain...nursing is in grave danger of losing its very special and complementary identity... [the author’s] growing experience of the world of health care research has, however, produced a change of heart tantamount to a conversion and a belief that the contributions of experience, intuition and gut-feeling are of unquantifiable value in the quest for greater understanding of the mechanisms of effective health care. (p. 600)”

If the types and trends of published nursing research are examined, it is clear that some authors’ (Rafferty, 1998) fears of quantitative³ domination in nursing are ill- founded. Specifically, if the numbers of RCTs relative to the numbers of qualitative studies are examined then it is clear that qualitative research dominates and the gap is widening (Cullum, 1998). This disparity is significant, as there is some evidence that the meaning of research itself is poorly understood by most health care professionals (Hicks & Hennessy, 1997). Given this confusion, it is unlikely that most practitioners will be able to readily tease out the strengths and weaknesses of the two broad approaches. Clinical decisions that are then professed to be research-based may very well be informed by the rich and vivid description of qualitative evidence but may therefore not be the most clinically effective decisions.

1:9 Environmental Variables.

This group of variables relates to the domains of knowledge referred to by Crow *et al.*, (1995). That is, the ways that different disciplines, specialties and other categorical distinctions shape decision making by limiting the number of feasible/reasonable hypotheses available to the practitioner; or by shaping the experience so crucial to the development of expertise.

³ ‘quantitative’ research amongst nurse researchers is often linked to the RCT and other forms of experimental study design.

The ways in which domains shape or influence decision making are unclear. Moreover, little empirical work has been conducted with nurses. Crow *et al.*, (1995) cite three studies which highlight the effect of domain on nursing decisions (Jacavone & Dostal, 1989; Marks *et al.* 1991; Prescott *et al.* 1989). Crow *et al.*'s (1995) analysis of these studies, however, fails to separate the role of experience and prior knowledge of the patient or clinical situation from the separate effects on decision making that clinical domains exert. For example, nurses working in CCU and those working in the community may handle the decisions associated with the management of patients after a heart attack very differently: the clinical domains in which they work limit or shape the decision hypotheses generated. For Crow *et al.* (1995) knowledge domains are most prominently represented by the categories of expert and novice. A study by White *et al.*, (1992) confirmed that when faced with a clinical problem, specialist and general nurses used similar processes of hypothetico-deductive reasoning. However, the influence of specialism in reaching a 'correct' nursing diagnosis is the point at which specialists and non-specialists diverge. For White *et al.* this point was not at the data acquisition stage of information processing, but when practitioners needed to interpret the significance of the data used and make a correct decision. However, the role of experience is still unclear, with White *et al.* concluding that:

'the time spent in working through the simulations and in the amount of subjective data acquired also is consistent with evolving cognitive models which indicate that efficiency in clustering information develops with experience in a given setting with specific patient presentations.' (White *et al.*, 1992)

Hamers *et al.*, (1994) highlight the association between the isolated bodies of knowledge characterising different disciplines, and the decisions taken within them. They point to differences between nursing and medicine's knowledge base; and their subsequent views on the state of patients:

'It follows that their [health professionals'] judgements and decisions will also differ, at least in different domains. In short, it can be stated that discipline demarcates the domain in which decisions are made...for example, in the discipline of nursing, decisions are directed towards caring rather than curing.' (p. 158)

Nursing is not a universal domain; several subdivisions exist within it. Studies such as those by Baumann and Bourbonnais (1982) and Thompson & Sutton (1985) highlight the special nature of critical care areas, where nurses have expanded and specialised roles. To speak of nursing as an homogenous entity is not simply misguided, but for some commentators philosophically unsustainable (Cash, 1990; De Raeve, 1996). The solution to this unsustainability is for the researcher to focus on particular branches of nursing in order to better understand them. For example, Davis (1974) found that psychiatric nurses tend to list fewer psychological and physiological observations and courses of action than medical-surgical nurses, even when faced with challenges that are associated with psychiatric nursing.

Another characteristic of domains is that of decision complexity. Several factors make up the complexity of a decision: (Tanner, *et al.*, 1987)

- The number of cues associated with a decision: the greater the number of cues present, then the more complex the decision;
- the reliability of the cues used: the more reliable the cues, then the smaller the number needed and the lower the complexity;
- whether or not the decision is likely to become redundant in the near future: the more likely redundancy the lower the complexity;
- the degree of overlap between cues: i.e., if more than one problem is associated with the overall clinical challenge then the greater the complexity
- the likely impact on decisional uncertainty: if uncertainty cannot be reduced, then the decision is more complex.

Seemingly simple decisions for clinicians in one domain may be viewed as complex in another. For example, routine rehabilitation decisions post myocardial infarction in coronary care may be relatively simple for CCU nurses and incredibly complex for someone grounded in paediatric practice. It is equally clear that the activity of nursing is viewed differently in some environments; for example, coronary or intensive care units, which are often portrayed as 'hi tech'.

The research information available to nurses working in different domains differs significantly both in quantity and quality. This is significant because nurses will lack opportunities to revise, on the basis of research, probabilities attached to decision hypotheses or choices. For example, nurses responsible for wound care have a large selection of randomised controlled trials and published systematic reviews of these trials available to inform their decisions, while those in urology are not so well served.

Support from fellow professionals and administrative staff emerges as a significant influence on the use of research-based evidence (Funk *et al.*, 1995). Nilson Kajermo *et al.*'s (1998, 2000) studies of Swedish nurses found such support included: interest, devotion, professional pride, a sympathetic attitude to research, organisational courage and a willingness to carry out changes. Nurses' perceptions then of the supportiveness of an environment may be an important prerequisite to the use of research evidence in decision making (Retsas, 2000). Champion & Leach (1989) found that the perceived support of individual key administrators correlated positively with the use of research. Moreover, it is reasonable to assume that a supportive administrative

environment is associated with satisfaction among the workforce; which itself has been shown to be a positive correlate for adoption of research-based messages for practice (Coyle & Sokow, 1990).

One manifestation of an organisational commitment to research use is the presence of research-based protocols or guidelines for practitioners. Various authors (Brett, 1987; Coyle & Sokow, 1990), however, argue that it is not guidelines or hospital policies *per se* that act as predictors for the increased use of research-based evidence, but rather nurses' perceptions that such policies exist. The need for caution in viewing the impact of such initiatives on decisions (as manifested by behaviour) is reinforced by the conclusions of a systematic review (Davis *et al.*, 1992) on interventions to help professionals making decisions on effectiveness: no "magic bullets" exist for ensuring practitioners use research.

1:10 Internal Decision Maker

The environmental factors outlined above are complemented by a number of variables located within individuals.

Age

Despite the fact that some studies (Champion & Leach, 1989; Robichaud-Ekstrand & Sherrard, 1994) test the hypothesis that age has an effect on attitudes to information use, there is no reliable evidence of a relationship between age and research use.

Experience

A number of studies show that clinical experience is associated with:

- recognising significant patterns in the hypothesis generation stage of the information processing model (Draper, 1986)
- using complex combinations (chunks) of short-term memory as a way of unlocking the knowledge embedded in long-term memory (Carnevali, *et al.* 1984)
- generating sophisticated core constructs, these represent the ideal-typical scenarios that nurses would expect to see (Jacovone & Dostal, 1992); (Prescott *et al.*, 1989).

Of course, according to intuitive models of decision making experience is the prime factor in the development of expertise and therefore 'good' decisions. However, there are negative cases. For example, Henry (1991) found that in computer-simulated clinical challenges experienced and inexperienced critical care nurses did not differ in terms of their proficiency in decision making. Moreover, Tanner and Hughes (1984) argue that experience can bias decision making - particularly in relation to the assessment of possibilities:

- experienced nurses have seen more clinical cases and therefore consider more diagnostic possibilities

- experienced nurses tend towards over-sampling of recent experiences at the expense of less recent but equally useful ones
- experienced nurses are also more likely to have accrued a higher proportion of dramatic events in their careers. This can be unfortunate as individuals have a tendency to over-sample these dramatic exemplars.

It would be foolish, however, to ignore the role of experience in any study. If the Benner (1984) and Dreyfus' (1986) models of expertise have any utility whatsoever, then it is clear that experience *should* (even if it cannot be demonstrated conclusively that it *does!*) play a key role in decision making.

Knowledge

Knowledge is a key component in decision theory. In the information processing model, knowledge is the “fuel” stored in long-term memory and released by short-term cues. Studies that measure knowledge using proxy indicators, such as the level or type of education or training, do not support the argument that increased knowledge on its own equates to better decisions. Pardue (1987) and Girot (2000) found that while critical thinking improved with the level of nurses' educational attainment, the frequency of decisions and the perceived difficulty of the decisions themselves remained unaltered. Similarly, Westfall *et al.* (1986) showed that the number of hypotheses generated by students and graduates at different stages of their educational careers were no different, but the cognitive complexity of these hypotheses was greater in those at the higher educational levels (Hamers *et al.*, 1994).

Educational Preparation

Both Lacey (1994) and Rizzuto *et al.* (1994) demonstrate a positive correlation between basic educational preparation in research methods and utilization of research in practice. There is a need for caution when interpreting their results. Specifically, the Lacey study was a small-scale pilot, and the Rizzuto *et al.* study was plagued by poor response rates. Obviously, the issue of education and training as a means of promoting confidence in the use of research evidence is an important one. Particularly as a lack of research confidence has been shown to be both a barrier to formal research utilisation activity (Funk *et al.*, 1995) and broader consumption of information generally - in the form of health care library use (Wakeham, 1996).

Valuing Research

A nurse's attitude towards research has been shown to be an important correlate of the use of research-based evidence in decisions (Champion & Leach, 1989). Bostrum and Suter (1993) showed that involvement of nurses as collaborators or data collectors in research activity (as opposed to research utilisation) is a significant predictor of a positive attitude to research. Although some studies suggest that not all elements of the research process are universally valued. Specifically, only half of Robichaud-Ekstrand and Sherrard's (1994) sample of cardiac nurses

attached a positive valuation to data collection, and even fewer when the data being collected was for a non-nursing study.

The relationship between knowledge, age and experience is obviously a conceptually difficult area and it is clear that the problems of separating the confounding effects of each are far from resolved in nursing research. The overall picture regarding the relationship between variables located within the individual and the use of research-based evidence in decision making is at best inconclusive. For some commentators this represents the relative lack of impact that individually-located variables have on research-based decision making generally (Varcoe & Hilton, 1995).

1:11 Information Variables

There are a variety of characteristics of clinical information itself which impact on its use. A number of salient themes emerge from studies in both US (Funk *et al.*, 1995) and UK (Dunn, Crichton *et al.*, 1998) contexts:

- the unreplicated nature of the research
- uncertain levels of believability of the results
- the conflicting nature of the results in relation to the literature
- poor methodological quality
- the length of the gap between research and publication
- unjustified conclusions by the authors
- incomprehensible statistical analyses
- inadequate or incomplete literature reviews
- unclear implications for practice
- the research is not reported clearly and in a readable way.

Interestingly, where studies have set out to specifically establish the preferred characteristics of information sources they find that traditional formats of written (i.e., journal or textbook) and verbal communication are still the most favoured sources (Barta, 1995). Moreover, the primary characteristics of information should include the following, and be:

- written in plain language and without jargon
- concise
- contain minimal and simple statistical data
- methodological and statistical techniques accompanied by an explanation of their meaning and use
- attractively laid out, using high quality print that is easy to read
- including illustrations

- possibly humorous. (Meah *et al.*, 1996)

The continued popularity of printed and verbal media (in the form of personal communication) is reinforced by other studies looking at information-seeking behaviours of health care professionals as a whole (Covell *et al.*, 1985); (Salasin & Cedar, 1985); (Stinson & Mueller, 1980). Unsurprisingly, Brett (1987) and Coyle and Sokow (1990) show that consumption of such information (operationalised as number of hours spent reading specialist journals and attendance at research conferences) was positively associated with an increased use of research evidence in clinical decision making.

1:12 The Implications Of Previous Research For The Design Of This Study.

The research literature highlights a number of key themes which characterise the debate on nurses' use of research information:

- the use of self report instruments for examining utilization or barriers. For example Funk *et al's* (1995) Barriers to Research Scale and Rodgers (2000) survey both fail to account for the fact that nurses may over-report their use of research based material
- the failure to account for the fact that nurses may not recognise knowledge derived from research or 'science' and that which is (re)classified as experiential or practical
- small sample sizes and/or low response rates in traditional survey type designs which rely on normally distributed data and adequate response rates to meet minimum statistical and methodological assumptions
- some reliance on the assumption that using research (as evidenced by behavioural change) is a linear process resulting from simple exposure to research based messages for practice and the necessary organisational ingredients being in place
- an absence of robust evaluations of methods to promote the increased use of research by nurses
- little qualitative research dealing with the basis for information use. For example, few explorations of what drives nurses to seek information in their decision making processes.

Despite the volume of research material examining nurses' utilisation of research information there are a number of important gaps in the knowledge base:

- we do not know what sorts of clinical decisions nurses make in practice
- we don't know whether these decisions require research based information
- we don't know if there is a match between available research evidence and the information needs of nurses' clinical decisions.

In short, we do not yet know the potential for an evidence based approach to nursing practice.

1:13 Research Questions

These gaps in the knowledge base led to the development of the following research questions:

- What are the perceptions of nurses regarding the barriers and obstacles to access and use of research based information?
- How do clinical nurses access research-based information?
- What are the perceptions of nurses regarding the need for research based evidence to support clinical decision making?
- To what extent does nursing care involve making clinical decisions which require research evidence?

In response to the methodological challenges posed, we wished to use a strategy for exploring the use of research information by nurses from *their* (emic) perspective. Thereby allowing the personal, organisational and cultural contexts so important to the study of information-use and real-life clinical decision making, to be incorporated into our analysis (Luker *et al.*, 1998; Kenrick & Luker, 1996).

1:14 The Case Study Design.

What is clear from the literature is that clinical decision making is a social activity or action. The qualitative case site research strategy adopted is intended to capture this social action. We set out to capture the cultures, systems, subjectivities and rational-choices that underpin the social nature of clinical decisions (as the context for nurses' information use).

Case studies provide the ideal strategic choice when researching issues of social action; especially in organisational settings (Yin, 1994). This suitability of the case study method for examining the 'decisions associated with complex social action' is recognised by Schramm (1971):

'The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result.' Schramm (1971)

The study focused on three NHS acute hospitals. These are referred to throughout the study as Sites One, Two and Three. Sites were selected on their capacity to offer very different contexts for the use of research information by nurses. Some contextual data on the case sites was required in order that we could adequately explain emergent themes and negative cases (Beisecker, 1988). Further details of the infrastructure and contextual issues pertinent to each site are presented in Chapter 3. Our final conclusions were derived from analysis of data from across the three case sites.

1:15 Theoretical Sampling Within The Sites.

Within the sites the aim of sampling was to select informants and opportunities for observation most likely to possess characteristics relevant to the phenomenon being studied (Mays & Pope, 1996). We used theoretical sampling techniques (Glaser & Strauss, 1967) to strengthen this general approach to informant selection. Specifically, initial sampling choices were made with reference to the broad theoretical postulates developed from the literature. For example, nurses with higher levels of educational attainment will approach research information use in clinical decisions differently to those with lower degrees of educational attainment. Ergo, we needed to sample nurses with varied levels of educational attainment.

Chapter Two present the initial categories used as the basis for sampling informants and Appendix A outlines the screening questionnaire used for the initial capture of informants.

1:16 Conclusion.

NHS policy has increasingly steered nurses (in common with all healthcare professionals) towards a greater awareness of the value of using research based knowledge in clinical decisions. This external (to nursing) NHS policy imperative has been mirrored by the (internal) professional awareness that the use and development of research based knowledge within nursing is central to its own professionalisation ‘project’. More recently the opportunities for nursing research offered by the growth of the NHS Research and Development Strategy (NHS R&D), and the positive impact it offers for meeting the knowledge needs of UK healthcare professionals, as well as the regulatory imperatives imposed by NICE, CHI and the National Service Frameworks have given nursing’s efforts a renewed impetus.

However, there is little good quality research literature to draw on to tell us how nurses access research based information, what stops them using research in practice and how useful it is in helping resolve the uncertainty associated with clinical decisions. Indeed, there is little regarding those decisions made by nurses at all. The literature suggests four clusters of variables which *may* impact on the ways in which nurses use information in the context of clinical decisions: professional-cultural; environmental; individual decision maker and information related. It suggests that decisions are social creations in which issues of power, demography and culture, as well as rational or intuitive knowledge application, play a part. These characteristics lead to the need for a rich qualitative description of:

- how nurses *access* research based information
- what nurses perceive as the *barriers* to their using research based information
- how *useful* existing sources of information are for clinical decision making

- the *decisions that nurses make* in practice and the potential for research based information to contribute to the quality of those decisions.

The description needs to reflect the social context and nature of the reality of decision making in organisational settings and be able to build this into its analyses and conclusions. For this reason, a case site approach was chosen with a detailed theoretical approach to sampling informants and data collection.

Chapter Two: Methods.

Key Points

- No single approach to research could adequately answer our research questions. Exploring and describing research information-use in clinical decision making requires more than one method to be used.
- The study used a mix of qualitative (in depth interviews, observation, documentary analysis) and quantitative approaches (Q methodology). Each (including the Q component) was sympathetic to the epistemological and ontological stances of qualitative enquiry.
- The study used two pilot and three main case sites in the study.
- A theoretical sampling frame was used as the basis for initial selection of nurses for interview and observation.
- Qualitative and quantitative data collected:
 - 180 hours of non-participant observation of nurses from acute medical, surgical and coronary care units
 - 108 in depth interviews with nurses from the same acute medical, surgical and coronary care units, including some R&D support staff, NHS managers, librarians and a Professor of Health Services Research
 - circa 4000 documents from acute medical, surgical and coronary care units
 - 122 Q sorts relating to barriers to research use, accessibility of research information and the usefulness of research information.
- Regression modeling of demographic data on the nurses conducting Q sorts alongside the factors extracted by the Q methodological modeling. Thereby allowing us to examine the associations between demographic variables and perspectives on the barriers to the use of research information, notions of accessibility and usefulness.
- Final analysis based on principles of grounded theory, between-method triangulation, and a cross-case thematic analysis.

2:1 Introduction.

This chapter outlines the methods used in our examination of the use of research evidence by nurses in acute care.

The chapter is structured around the chronology of the methods employed in the project:

- **Phase 1: Development work**
 - negotiating access and gaining ethical approval
 - the development of a screening questionnaire for initial sampling of nurses in the sites
 - the development of an interview topic guide
 - piloting of interview topic guide, observational methods and screening questionnaire.

- **Phase 2: Data Collection and provisional analysis of qualitative material**
 - conducting Interviews in 3 main sites
 - carrying out observation in 3 main sites
 - documentary audit of ward based information
 - provisional analysis of qualitative data leading to:

- **Phase 3: Q methodological modeling of perspectives**
 - construction of Q samples and conditions of instruction
 - piloting of Q samples and conditions of instruction
 - Q Methodological modeling of barriers to research information use, access to and usefulness of research information in 3 main sites.

- **Phase 4: detailed analysis of the qualitative data and pulling it all together: cross case thematic analysis.**

The only exception to the chronological approach adopted is the outline of the analysis of the qualitative data. This is dealt with in a single section at the end of the chapter. In reality, analysis of the qualitative data occurred at various points during the project (at the end of phase one, during and at the end of phase two, in relation to the emerging perspectives during phase three and during the primary analysis of phase four. Analyses were revised, developed and revisited in a non-linear, non-sequential way. For the purposes of clarity though we present the broad approach and guiding principles in a single section.

2:2 Phase One: Development Work

Negotiating Access And Ethical Approval.

Initial approaches were made to Chief Executives in each of the three Trusts involved asking if they would be willing to participate in the study. Anonymity for the site and the staff involved was promised and maintained throughout. All Chief Executives were willing to participate subject to the relevant ethical approval. At each of the sites meetings were arranged with ward staff prior to entry into the site. At these we outlined the project and the expected level of disruption and involvement with the research team. On the whole these meetings were not well attended by staff despite attempts to fit into their work schedules and locations. Ward managers' explanations for this low turn out focused on the busy nature of the units involved and pressures of workload.

Ethical approval was sought from the three relevant Local Research Ethics Committees (LRECs). Approval was granted in each of the three sites (the first pilot site shared an LREC with one of the main sites). In two cases the LRECs wanted posters displaying information about the project to be displayed. In the event we put up posters on the wards in all three sites. These posters detailed who was conducting the research, the main aims of the project (expressed as the description of the ways in which nurses use information in their daily work) and contact details for further information. We were keen not to stress the 'research-based' nature of the information use, for the simple reason that we did not wish to artificially increase the amounts of research based information used in decisions.

Development Of A Screening Questionnaire For Sampling.

We needed to sample those nurses most likely to inform our understanding of the interaction between information use and clinical decision making (Mays & Pope, 1996). There were almost 400 nurses employed in medical, surgical and CCU units in the three main sites and so a questionnaire was devised which would enable us to sample those individuals possessing the demographic characteristics most likely to lead to different approaches to the use of research information in clinical decision making.

The questionnaire items were based on the review of the literature presented in Chapter One and agreed by the research team. As has been shown, there are four clusters of variables which impact on research information use by nurses: professional cultural, environmental, internal decision maker and information-based variables. Some of these themes were more difficult to operationalise than others and for this reason harder to build into the initial sampling frame. For example, those variables clustered around the theme of 'culture' are far more difficult to identify by way of a questionnaire than selecting someone on the basis of their age or clinical experience. The questionnaire is presented in Appendix A, but the major categories within which we selected nurses for interview and observation were:

- clinical settings (medicine, surgery and coronary care). Each setting representing a knowledge domain for decision making.
- the ward role; the assumption being that role is a proxy for decisional complexity. For example, the clinical specialist is involved in a more 'advanced' level of practice than D grade staff nurse
- a structural research-related role. For example, in one of the case sites involved in our study an entire layer of senior clinicians had structural responsibility for developing research-based guidelines for practice
- age
- clinical experience in a specialty

- levels of domain-specific knowledge as indicated by amount of specialty-specific education or training they have received
- mode of professional preparation
- educational attainment
- previous involvement in research, for example, as participants in studies or in data collection.

The research team agreed that perceptions related to professional cultural variables were more easily identified once in the field sites. Moreover, attempting to operationalise these variables and include them in the questionnaire would have led to an excessive length, with a commensurate effect on screening response rates.

Development Of An Interview Topic Guide

Initially, we wanted some loose structure to interviews with nurses. For this reason we used an interview topic guide as a device for ensuring that areas pertinent to the research questions were raised at interview. The final format and content of the topic guide was agreed by the research team and is presented in Appendix B.

Development Of Observational Methods.

The study uses observation of practice to identify the forms and nature information-use in clinical practice. We chose to adopt an ‘ethnographic’ style of observation in which we observed nurses (preferably those we had already interviewed) in a naturalistic and descriptive way rather than attempting to ‘measure’ their information use or decision making. An example of this style of observation is the work that Benner (1984) and colleagues (Benner *et al.* 1999) have undertaken in their efforts to examine the work of expert and novice nurse. Our status as observers was explicit to both nurses and patients. More details of the observational strategy are presented later in the chapter in the broader description of the data collection methods.

Piloting Of Screening Questionnaire, Topic Guide, Observational Methods.

The questionnaire, interview guides and observational strategy were piloted with nurses in medical and surgical units in acute settings at an NHS Trust in the North East of England.

In the pilot, nurses were selected for interview and observation according to the results of the screening questionnaire and interviews and observational field notes examined for coherence and coverage. Finally we asked nurses how they felt about the nature of the interviews, the relevance of the questions to their practice, and the impact that observation had on their behaviour. Responses were broadly positive with some concrete suggestions as to how the observation – in particular – could be improved. These suggestions were built into later data collection strategies. For example, by spending more time in the sites, shadowing individual nurses rather

than attempting to ‘capture’ whole patient bays of activity, and questioning of nurses’ choices or information-use immediately after a clinical decision rather than during it. We chose not to wear uniform in the sites so that our status as observers was clear and in order not to cause confusion to patients and other members of the multidisciplinary team.

2:3 Phase Two: Data Collection And Provisional Analysis Of Qualitative Material.

We used the semi-structured in-depth interviews, non-participant observation, documentary analysis, Q methodological and conventional statistical modeling as a means of accessing the perceptions, information use and decisions of nurses.

Multiple Methods Of Data Collection.

We adopted a multi-method approach to data collection in light of the potential advantages of the approach:

triangulation – we considered that convergence (or explainable divergence) of results would add to the internal validity of the final analysis

complementarity – the methods complemented each other in that they examined overlapping but separate characteristics of information use and clinical decision making

initiation – we considered that fresh, unexpected, perspectives, contradictions or paradoxes may result from a combination of approaches

development – we felt that using the methods sequentially (so that each adds a new slant to the data and theory derived from the previously applied method) would inform the application of the methods which followed

expansion – we considered that breadth and scope to the project would be enhanced through the use of mixed methods (Turner, 1987).

The use of multiple methods had previously been used to good effect by McKeganey *et al.* (1988) to explore the micro decision processes and contexts of professionals. In their study, as in ours, interviews and observation each provided complementary slants on the problem of researching decisions and the information used in them. They summarise the strengths and weaknesses of each approach thus:

Table 2: characteristics of interview and observational data collection in decision making research

	<u>Interviews</u>	<u>Observation</u>
Data level	Individuals	Processes
Decision points⁴	Multiple	Few
Triangulation of accounts	Strong	Less strong
Components of decisions	Formal	Informal

⁴ Decision points refer to those points during a complex decision task when choices are made. For example, when boiling an egg decision points might include salt or no salt in the water, boiling for three minutes or three and a half etc.

Routine decisions	Less strong	Strong
Non-decisions	Weak	Weak
Rationality/non-rationality of decisions	Overstates rationality	Strong on non-rationality
Disclosure of private accounts (c.f. McKeganey <i>et al.</i> , 1988)	Less strong	Adequate

Despite committing ourselves to multiple methods of data collection we were mindful of the fact that using multiple methods of data collection is rarely easy and that perfect data convergence is rare (Bishop & Scudder, 1997). Ultimately though we considered the complexity of having to incorporate possibly divergent results into an overall descriptive/theoretical framework was offset by the richness of description and gains in internal validity that the approach offered.

Depth Interviewing

Interviews are social events and contextual factors such as power, gender, preconceived notions of ‘other’ and ‘self’ play a role in interpretation (Baker, 1982; Tidd, 1994). Recognising this, we adopted an open ended approach based on the three or four key areas we wished to explore in detail (see the topic guide in Appendix B). The interviewer was left to explore and develop issues as they arose during the interviews. After Denzin (1970) we recognised that this approach had three advantages:

- it allowed nurses to use their unique ways of defining the world
- we assumed that no fixed sequence of questions was going to be suitable for all respondents
- respondents were able to raise important issues not contained in the topic guide.

The interviews undertaken in the pilot study were used as sensitising exercises for the interviewers and played no part in the final analysis of results. This exercise involved us exploring ways of asking questions and the level of probing required to isolate the phenomena of information use and clinical decision making in accounts.

108 Interviews were carried out by DM and CT. by arrangement with nurses. Most interviews took place in the Ward Manager’s office but DM had to resort to a storage cupboard on one occasion! We offered interviewees a choice of location wherever possible in an effort to make them more comfortable and to foster a more neutral atmosphere.

Observation

The policy emphasis associated with the use of research information by nurses is a measure of the importance the profession and policy makers attach to this aspect of healthcare activity. Moreover, the volume of research papers on the topic of nurse decision making is testimony to the fact that nursing itself promotes the idea that nurses routinely make autonomous clinical decisions as a key characteristic of their professional status. It is fair to

assume that many nurses are aware of these policy and professional expectations. It is also fair to assume that, having recognised this, nurses will adjust their accounts of research information use accordingly. For this reason, observational data was used to examine what nurses *did* as opposed to what they *say they did*. It was intended to capture the routine, easily forgotten, or that which they would rather not include in verbatim accounts of practice. The technique also gave us a qualitative sense of the frequency of use of information sources.

Jorgenson argues that observation is a suitable strategy for data collection in research where, 'there are important differences between the views of insiders as opposed to outsiders' (Jorgenson, 1988). Clearly there are elements of professional decision making, and the information-use that accompanies it, which have an insider-outsider dimension. We adopted the participant as observer⁵ model as described by Roper and Shapira (2000). This model suggests the participant as observer role increases the likelihood that the researcher will obtain key "insider" information about what it is like to be a member of the cultural group. This role also enabled us to validate observations with the participants while observing, interpreting and recording their decisions and information use.

Our status as observers, and the social and qualitative nature of the data collection, made it likely that our presence had an impact on the behaviour of the nurses themselves. We minimised these effects via a number of strategies:

- taking time to build a rapport with the nurses being observed
- wherever possible observing those nurses we had previously interviewed⁶
- spending enough time on a unit for the staff to get used to seeing us. This was aided by the case site approach generally which involved lengthy periods in the field – interviewing and auditing documents
- stressing our clinical (as opposed to academic) backgrounds.

Documentary/Resource Audit

Literature and text/electronic-based resources on wards give valuable insight into an organisation's support for dissemination of information (Forster, 1994). We used documentary audit to describe the text based evidence available for nurses on wards. We also wanted to cross-reference sources referred to in interviews. The audit of the data took the form of a single researcher (DM) hand searching materials, recording titles and the type of resource involved (e.g. peer reviewed journal, text book, CD-ROM, educational resource pack) on each of the wards in the three sites. The results are presented in Chapter Six. It should be noted that the Coronary Care Unit in

⁵ Briefly, this model is one in which the participants role as an observer is made explicit and the observers status as a non-participant in the work being observed is also explicit.

⁶ We managed to observe 56% of the nurses we interviewed. This took place over 53 separate periods of observation and totalled >180 hours.

Site Three was in the process of being refurbished and for this reason an audit of their documentary resources was not feasible: most of the material was packed away and sealed in preparation for their temporary relocation.

Provisional Analysis Of Qualitative Data

This provisional stage in the analysis of the qualitative data extracted the initial descriptive themes relating to the perceived barriers to research information use by nurses, how nurses perceive (and actually) accessed research information, as well as those sources of information nurses discussed - or were observed using - in practice. At this stage the analysis focussed on the establishment of first-level coding categories which could be used to represent the main findings and as the basis for the further exploration using Q methodology (see below). The codes were first agreed by DM and CT and then the rest of the research team. Disagreements were settled by discussion within the wider team.

2:4 Phase Three: Q Methodological Modeling Of Perceptions

Q Methodology As A Sympathetic Approach

Qualitative research offers rich descriptive research possibilities. However, the structure and form of analysis can be difficult to audit for those not immediately involved with the data collection. One solution to this problem – in the context of our case site methodology – was the combining of qualitative and quantitative approaches. Whilst a number of authors point to the analytical utility of such approaches (Tashakkori & Teddlie, 1998), (Watson, 1994) few deal with the epistemological and ontological differences which need to be reconciled if the two approaches are to be successfully combined. Table 3 summarises these differences and highlights their polarised natures at either end of the two continua (Thompson, 1998).

Table 3: the epistemology and ontology of quantitative and qualitative approaches

	Qualitative			Quantitative	
Ontology	Multiple realities	Reality socially constructed	Reality as contextual fields of information	Reality as concrete (process)	Reality as concrete (structure)
Epistemology	Uncovering underpinning assumptions of individual realities	Understanding shared creation of social reality	Exploring and mapping social contexts	Studying systems and process change	Constructing a positivist 'science' of laws and rules

Given these differences, two choices presented themselves. We could have argued, along pragmatic lines, that qualitative and quantitative approaches to research are more similar than dissimilar (Walsh, 1998; Watson, 1994)

and that philosophical differences should be put aside in favour of an approach that says some research questions merit both approaches. An extension of this view, was to accept that the quantitative-qualitative dilemma is not a schism but a continuum, and that some qualitative approaches (such as content analysis) and some quantitative approaches (such as reparatory grid technique and Q methodology) occupy a 'middle ground', or *sympathetic*, position.

In this study we consider that qualitative and quantitative data are best seen as complementary. Q methodology is used because it offers both rigorous and transparent statistical procedure, and findings which resemble the richness and depth of 'conventional' qualitative enquiry.

Q Method: The Process.

Q has at its core a belief that individuals cluster around sets of shared values. These shared values are focussed on phenomena or concepts, for example, views on abortion, political allegiance, human sexuality or health (McKeown *et al.*, 1999; Stainton-Rogers, 1991). Q seeks to model these clusters and the underlying shared values using statistical techniques. However, the mathematical models that emerge are interpreted qualitatively.

Q methodology has four stages:

- **construction of a 'Q - sample'**: a set of stimuli (commonly statements) which enables the respondent to model or profile his or her viewpoints on a given topic
- **Q - sorting**: the modeling stage. Individuals systematically sort the Q-statements according to a condition of instruction, resulting in an accurately 'ranked' picture of the respondent's views
- **data analysis**
 - **transposing or 'flipping' the dataset** so that an initial correlation matrix can be constructed based on a dataset in which the Q sample statements are now the rows and the individuals completing the sorts are the columns. This is a key difference from conventional factor analytic methods in which the data matrix is the other way round
 - **factor analysis** of the resultant person x person correlation matrix
 - **isolation of components of factors** (through computation of factor scores) in order to enable interpretation
- **interpretation**: 'in terms of consensual and divergent subjectivity, with attention given to the relevance of such patterns to existing or emerging theories and propositions'

The Q Samples

The Q samples used in the study were developed from the qualitative interview, observational and documentary data collected. We used three sets of Q samples:

- **barriers** – in which the interviews of individuals allowed us to extract verbatim extracts of speech to represent key reasons why people failed to use research information in their clinical decisions
- **access** – in which documentary audit, interview and observational data allowed us to present those sources of information referred to as accessible or inaccessible, observed being accessed or simply present in the sites
- **usefulness** – these were derived from the same data as the access sample but from where people talked about, or were observed, using information rather than passively having it available (as was the case in the access Q sample).

The statements in the Q samples represent the first level descriptive coding of the qualitative data. Each of these samples is presented in appendices C, D and E. The statements in the barriers Q sample are (where possible) verbatim extracts of transcripts or observational field notes and derived from the ‘pattern’ level of coding (see below for an example). Some degree of editing was necessary due to the strong regional dialects present in each site and in order to increase readability. It is worth briefly highlighting the process.

From Coding To Q Sample

The initial pattern-thematic coding was expanded into statements reflecting the underlying definitions and which could act as the stimuli for later use in the Q sample. This basic model was also the one adopted for the access and usefulness Q samples; although in their case it was the more descriptive first level coding that was used.

Table 4 An example of the conversion of pattern code - definition - Q sample statement procedure

Pattern code	Coding definition	Q sample statement
Block-stats	Blocks on research info-use due to statistical fear or deliberate avoidance of ‘numbers’	“Statistics put me off research papers or other kinds of research information”
Block-past cost	Blocks on research info use due to previous negative experiences of implementation in terms of ‘costs’	“Whenever I have tried to use research in the past it costs me too much money, time or commitment – like getting papers from the library or whatever”

The Condition Of Instruction

Each of the samples had an associated condition of instruction (COI). The COI acts as a means of making sure individuals all address a similar concept (such as ‘usefulness’ or ‘accessibility’) and so the emergent final Q sort is their interpretation of what the phenomenon means to them. For example, “sort the following cards according to

- previous research comparing researcher versus postally administered sorts (Van Tubergen & Olins, 1995) established that no significant empirical or theoretical differences in the resulting factors. The postally administered Q sort had also been used successfully in a previous study in an NHS context (Thompson, 1997).
- the numbers of nurses and geographical distances involved meant that the mechanics of administering the Q sorts individually were impractical given the project's timescale and limited budget.

Analysing The Q Data

The initial analysis of the Q sorts took place separately from the overall cross-case analysis of results and for this reason is discussed here. The Q sorts were analysed using the propriety software package PQMETHOD with the hi-resolution plotting option for factor rotation. Specific elements of the data analysis were:

- Inversion of the initial nurse x Q sort scores
- construction of a correlation matrix of the resultant q sort scores x nurse matrix
- principal components analysis on this correlation matrix
- factor rotation using the mathematical criteria of the varimax method
- the generation of factor loadings (correlation coefficients indicating an individual's strength of association with the underlying factor)
- the generation of factor scores and factor arrays. These arrays represent the 'ideal' Q sort for each factor. These factor arrays enable the researcher to outline the nature of the perspective which the factor represents.

We wished to use the factors and nurses' correlations with them in conventional regression analysis using demographic characteristics such as clinical experience or mode of professional preparation as independent variables in the models. We used a method of data spiking. Spiking involves taking a random sample of the total number of Q sorts and creating conventional Q factors according to the process already outlined. The resultant factor arrays were then re-inserted into the raw data file as reference sorts. The Q analysis process is undertaken again on this matrix with the full sample of nurses. The first few lines of the resultant correlation matrix thus represent individuals' associations with the reference sorts. We were then able to use these coefficients as dependent variables in our regression modeling.

After producing scatterplots of the dependent and independent variables to check for compromising the assumptions necessary for regression, we entered the independent variables separately into a linear regression model. Where there were significant associations with the Q factors we entered the significant variables into the model together as a means of controlling for interactions (for example, in the case of educational attainment and length of clinical experience). We used the SPSS (version 9.0) multiple linear regression procedure and partial

plotting procedures as a *post hoc* check for the breakdown of the classical assumptions associated with regression analysis. Further details of the models constructed and their results are presented in Chapters Five, Six and Seven.

Qualitative Interpretation Of The Factors.

The factor score arrays provide a picture of the shared values of individuals defining each factor (i.e. those whose factor loadings are statistically significant). Given these factor arrays, the demographic details, and associated qualitative material, it becomes possible to construct interpretations of the factors. Moreover, it becomes feasible to examine the differences between perspectives and the groups which define them. It should be stressed though that the interpretation of the factor meanings is a qualitative technique; the statistical analysis providing fodder only for the qualitative interpretation of factors. The 'pure' qualitative interview and observational material gathered by the research team was taken from some of the same individuals who completed Q sorts. This enabled us to extract original transcripts, field notes and codified data from those individuals defining or loading significantly with a point of view, which in turn enabled us to explore factors further.

Transcripts and field notes in particular provide essential context for the interpretation of factors. For example, in Site Three the timing of the administration of low molecular weight heparin as a means of Deep Vein Thrombosis prevention prior to surgery was a source of conflict between medical and nursing staff. This conflict was fuelled by a selective use of research evidence (on both sides) in an attempt to change the views of the other party. The ways research evidence had been used in this conflict had clearly impacted on nurses' perceptions of the value of research based information. Quite obviously, these kinds of contextual variables were a powerful force in shaping nurses' views.

2:5 Phase Four: Detailed Analysis Of The Qualitative Data And Pulling It All Together: Cross Case Thematic Analysis

Analysing The Qualitative Data

The data were analysed according to the broad principles and techniques of grounded theory (Glaser & Strauss, 1967). Whilst the process can be represented in four stages it is important to bear in mind that its deployment was not sequential. Because of the nature of the case site approach adopted, the use of multiple methods of data collection, and the need for between-method triangulation, some elements of the analysis had to be revisited in response to new findings and as our understanding of the production of accounts was affected by new contextual information. Bearing this in mind, the process of analysis was in four broad stages:

- developing coding schema
- refining codes

- achieving saturation
- revisiting assumptions and developing cross-case themes in the light of the Q methodological findings.

Developing Coding Schema:

We created three types of codes for our data – descriptive, interpretative and pattern. The volume of data generated by the interviews, observation and documentary audit (circa 4 million lines of text) meant some mechanism for gaining purchase on the material was necessary.

Descriptive

Each transcript or set of notes was read to gain a sense of the whole and to pick out relevant contextual information. The transcript was then coded according to three simple criteria: does a passage of text refer to sources of information, the use of information, or decision making? This approach meant that the text segments detailing information-use, decision making or source references could then be explored in more detail, but in the context of more manageable segments.

Qualitative data was managed using the Nudist 4.0 and later NVivo packages. One of the benefits of using computers was that we could expand segments of text easily. Obviously the data not captured in these broad categories (for example, a common theme was people talking about ‘what nursing meant for them’) were not left unanalysed. But as in any substantive qualitative project there was a need to balance the twin strands of interesting avenues of inquiry versus the need for research focus.

Because this descriptive level of analysis was not as reliant on the researcher’s knowledge of the site or the individuals involved then it was at this level that the highest degree of team-validation of coding could occur. Categories such as the types of decisions which people made could be brought to team meetings, discussed and some measure of agreement reached. A special form of descriptive coding – data attribution - was applied to whole data sources. This enabled us to ask questions of the data using the attributes of the individuals involved. For example, do the interview transcripts of male, as opposed to female, nurses reveal any thematic differences? Do the accounts of nurses with over 25 years of experience look qualitatively different?

Interpretative

The second level of coding was more interpretative. The categories were developed by CT and DM and formed the basis for discussion at team meetings where sections of transcripts were checked for ‘fit’ with the categories. For example, when examining the descriptive category of ‘information-use’ (and its derivative sub-categories) it was clear that an interpretative coding label of ‘conflict’ was useful. This code was further developed to capture

the information-based conflict within individuals. For example, the recognition that you lack the necessary skills to use information effectively but you have enough insight to see that you want to – thereby experiencing a sense of internal conflict. Conflict also applied to between individual disputes. For example, the role of research information in attempts to resolve, or in some cases inflame, disputes between professionals and professional groups.

Pattern

This third level coding attempted to capture those patterns of descriptive and interpretative material representing emerging theoretical themes. These were akin to the second level interpretative themes but more specific and usually more detailed. For example, the coding category continuing professional development (CPD) as a positive driver for information-use captured a variety of text passages which attested to the positive role of CPD as a catalyst in providing the motivation for engaging with research based information.

Refining

Having initially coded the data the second stage was refining these categories into something that seemed to capture more fully the idea of theoretical concepts. This was achieved by re-reading, condensing and reworking emergent findings.

One example of a code at this level included was the concept of nurse-cultural blocker. This label represents nurses' cultural reasons for blocking the use of research information. Some accounts revealed a form of institutionalised lack of confidence amongst nurses. Nurses seemed to reinforce this by appointing junior members of staff (because they were the ones who were assumed to 'know about research') in key information-provision roles such as link nurses⁷. On the one hand this was presented as staff development (which was a positive driver at the first level of interpretative coding) but was also recognised as self-limiting as these nurses held low-status positions in the organisational hierarchy, had no institutional power, and few resources to draw on to help change practice.

Theoretical Saturation.

This third stage of analysis represented an attempt at ensuring that analysis and data collection were complete. Completeness for us meant the stage at which no new properties, dimensions or relationships emerged during analysis (Strauss and Corbin, 1998). This stage primarily involved revising and broadening theoretical propositions in order that negative cases associated with the data could be explained. For example, nurses in Site

⁷ Link nurses were commonly linked to specialist areas such as breast care and were expected to liaise with the relevant clinical nurse specialist and engage with pertinent research. There was an expectation that they would disseminate the results of their efforts.

One portrayed a fairly negative picture of the value of their Practice Development Nurses. However, in Site Three the Practice Development Team appeared to be more positively perceived. Further analysis revealed that the delineating (and explanatory) angle seemed to be the firm focus on clinical skills in case site three's team.

Early in the project we realised that data associated with the research questions posed each had differing characteristics in terms of saturation. Data relating to the questions of accessibility and usefulness of information sources were saturated far more quickly than those relating to barriers to research-evidence use. The more rapid saturation of data in these two areas can be explained by the relative homogeneity of individuals' views on accessibility and usefulness of information sources. This relative homogeneity is apparent in the explanatory power of the two primary factors in the accessibility and usefulness Q sorting exercises. The two main factors in these two sorts accounted for 24% and 20% of the available variance respectively whereas the primary factor in the barriers Q sample only accounted for 12%. Moreover, the theoretical differences between the factors extracted in the accessibility and usefulness Q sorting exercises were far less pronounced than the barriers Q sort.

Cross Case Themes

The fourth stage of analysis concentrated on isolating codes, patterns and themes present in all sites and which could form the basis of a cross-case analysis. To some extent our sampling strategy, the sequential nature of data collection and theoretical refinement aided this process. There was still a pulling together of themes and ideas prior to the construction of the Q samples (which represent those broad cross-case descriptive categories) and the writing of the final report. Where themes didn't cross sites then attempts were made to examine why in the context of our knowledge of the sites and individuals. For example, the negative view of practice development in Site One was (uniquely) linked to the lengthy and bureaucratic ratification of protocols, core plans and guidelines which accompanied their role.

It would be misleading to present the analysis as sequential, well ordered and rigid. Like most qualitative researchers we found analysis was an altogether more messy affair. There were lots of blind alleys and revisions in the theoretical avenues explored. There were disagreements within the team regarding key definitions in areas such as decision types and some executive decisions (primarily involving CT and DM) regarding interpretations were inevitable. Finally, the sampling processes and data collection strategies were revised in the light of these on-going analyses.

Chapter Three: The Case Sites

Key Points

- Cases were sampled according to differences in:
 - research and development (R&D) infrastructure
 - NHS R&D support funding and sources of income
 - the nursing contribution to R&D
 - practice development functions
 - information technology provision
 - local university links

- The purpose of the brief description which follows is to present a ‘snapshot’ of the research sites during the phase of data collection. It focuses on those aspects of most relevance to the research questions. The aim is to give enough background information to illuminate interpretation of the data, without swamping the reader with an overwhelming amount of unnecessary detail. The information presented is, as far as could be ascertained, accurate for the period in question. Inevitably, changes will have occurred since then, and it is worth emphasising that this account applies *only* to that limited period during which fieldwork took place (September 1998- August 1999).

- Table E1 in the executive summary presents a brief summary of the key features of each site

3:1 Case Site 1

General Information

The setting for the research

The site was a large (circa 700 beds) hospital situated in the North East of England, which served as the headquarters for a Trust providing acute services to a population in excess of 500,000. The hospital acted as a centre for referral for a wide geographical area for certain specialities (notably neurology) and enjoyed national and international recognition for its performance in some clinical fields, for instance, in the development of ‘key-hole’ (laparoscopic) surgery.

The Trust had been established five years prior to the commencement of data collection, and was to be involved in a merger during the year following data collection. Of the 4,200 staff employed within the Trust, over half were nurses and the Director of Nursing was a member of the Trust Board. A large postgraduate medical education centre was located at the hospital, the largest of its kind in the Region.

The wards selected

Two acute general medical and surgical wards and the coronary care unit were selected for data collection. Male and female patients were admitted to each of the wards, which had between 28 and 32 beds; the Coronary Monitoring Unit contained 9 beds. The two surgical wards had a combined as well as separate identity; they were run as a 'surgical floor' as well as functioning as separate wards. This pattern was mirrored on the 'medical floor'. This system allowed for a degree of flexibility in workforce planning and facilitated staff development, as staff could be rotated between wards.

Surgical ward A was permanently 'on call' for admissions via GP referral, Outpatients, Accident and Emergency and from other hospitals in the area. Not all of the patients admitted to the ward required surgical intervention; some could be transferred elsewhere after investigations and monitoring in the 'close observation' area. Surgical ward B received transfers from ward A, admitted patients for elective surgery and took emergency admissions when necessary.

The two wards which constituted the 'medical floor' were managed along similar lines. Ward C functioned as the main admitting ward for general medical emergency cases. On admission, patients were assessed, diagnosed and stabilised. As and when appropriate, patients were transferred elsewhere within the hospital for continuing care, including to medical ward D or the Coronary Monitoring Unit.

Each floor was managed by a senior nurse (Charge Nurse), responsible for the safety of patients and staff and for maintaining clinical standards of practice. At ward level, a number of senior staff nurses supervised and worked alongside teams of qualified and unqualified nursing staff. Student nurses on placement were assigned mentors to supervise their progress.

The Coronary Monitoring Unit was led by a Charge Nurse, with a senior staff nurse taking on the role of deputy. The staff on the unit comprised almost entirely qualified nurses, supported by a small number of auxiliary nurses.

Research And Development Infrastructure

The Trust was a member of an NHS R&D Consortium, comprising a number of local Trusts in partnership with health authorities and the local university. The R&D Consortium administered R&D funding on behalf of the member Trusts, though each Trust managed its own Research Support Fund allocated from the Consortium Budget. Research interests, deriving from the range of services offered across the Consortium, included community and primary care, and secondary care in the local hospital setting and in 'high- tech' tertiary referral centres. A Consortium Quality Group had been formed to monitor the quality of research activity, with nominated representatives from a variety of disciplines, including nursing. The Chair of the Group, a medical doctor, was also the Consortium Lead Co-ordinator. R&D was considered an important element of Clinical Governance and R&D co-ordinators liaised with clinicians, finance and business managers in order to consider the wider service and audit implications of research activity.

The Consortium had developed close links with the local university, (which had recently established a Faculty of Health comprising the Schools of Nursing, Community and Health Studies and postgraduate Medicine), resulting in joint academic and Trust posts, a combined research strategy and collaboration between Trust and university researchers. In order to explore and exploit mutual interests, the University was represented on the Consortium Management Steering Group and, in turn, the lead R&D Co-ordinator was a member of the Faculty of Health's Research Committee.

Much R&D activity had been medically led (in 1996/97 more than 50% of projects showed only medical input) and one of the aims of the Consortium was to increase the level of involvement of nurses and therapists in multidisciplinary research. Nurse researchers were already participating in existing multidisciplinary research teams to a limited extent, for instance in the Specialist Centres, within the Diabetes and Rehabilitation Units. Initiatives proposed to promote research activity amongst non-medical professions included:

- Studies into the barriers to research use in nursing and the therapies
- Funding for the Leonardo project, a computer-based statistical learning package for health care professionals
- Establishment of a Research Nurse network to provide professional support to research nurses with regard to their career progression and job satisfaction

Nursing and Midwifery Research and Development in the Trust was co-ordinated by the Research and Development Facilitator for Nursing, within the context of a published strategy for developing research in practice. The aim of the strategy was to improve Nursing and Midwifery R&D activity in terms of quantity and

quality, and this was to be achieved through education and practical support during the research process. Key groups had been formed:

- The Research Active Group - aimed at dissemination and evaluation of practice based nursing research
- The Nursing and Midwifery R&D Steering Committee - concerned with policy and strategy
- The Nursing Research Quality Group- to review the quality of nursing proposals, in conjunction with the Trust Research Quality Group
- The Midwifery Research and Development Group – to focus on R&D issues unique to midwifery.

A further initiative took the form of a ‘Research Partners’ Directory’ produced to facilitate liaison between practitioners and those with research expertise.

Within 2-3 years of implementation of the strategy, the number of completed research projects and publications by nurses and midwives in the Trust rose significantly. Records kept by the postgraduate library revealed that more than 40% of recent publications by staff were from nurses, particularly impressive in view of the existing high profile of medical research. Thereafter, a proposal was put forward for a Centre for Nursing Research, with recognition of its status from both university and Trust.

NHS R&D Support (Culyer) Funding

The Consortium had been allocated monies (£617, 000) from the NHS Executive for a three year period to carry out R&D work in 10 themed activity areas. These major themes were: Cancer, Care of the Elderly, Diabetes and Endocrinology, Health Technology, Mental Health, Neurosciences, Primary and Community Care, Rehabilitation, Respiratory Disease and Women’s and Children’s Health.

R&D Support funding for nursing research was particularly evident in the fields of Primary and Community Care and Women’s and Children’s Health. One member Trust of the Consortium funded the post of the Professor who had founded the Centre for Community Nursing at the University, leading to research expertise in health visiting, nursing specialities and women’s and children’s health. Nursing research posts were also funded in other fields e.g. in Respiratory Disease and Diabetes and Endocrinology.

The most recent bid for R&D funding included a proposal to undertake research projects to investigate how Primary Care Team professionals could be helped to access and use national and local research findings to improve practice in a systematic way. Projects were to include a study of audit and action learning techniques in District Nursing, the role of tele-education in Primary Care and a research evaluation of a Learning Co-ordinator’s

project in Primary Care. Funding was sought for a further programme of research which would involve nurses in a multidisciplinary research team to address the problems of sufferers of chronic pain, using and developing guidelines.

Nurses' Role In R&D Committees

The Professor of Community Nursing Practice was a member of the University R&D Division, a member of a Trust R&D Committee and led the Centre for Community Nursing, which provided research fora for staff from all the Trusts. The R&D Division of the recently established Faculty of Health at the university was led by a Professor of Nursing. Nurse representatives were included amongst the membership of the Consortium Quality Group.

Practice Development Structures

A Nursing and Midwifery Strategy had been produced for the Trust by a Steering Group drawn from practising nurses and midwives, representative of all the services. This document outlined the aims and objectives for practice development, including:

- developing effective clinical and professional leadership
- supporting development towards the delivery of multidisciplinary care
- continuing the advancement of evidence-based practice and research within the Trust
- developing systems for the evaluation of outcomes of care delivery.

The Trust employed over 30 Clinical Nurse Specialists and Nurse Practitioners and 12 Practice Development Nurses. The CNS and NP roles contained elements of clinical practice, clinical leadership, development of the practice of colleagues, and case management, in varying proportions. These are the areas cited by the UKCC (1998) in which specialist practitioners exercise higher levels of discretion, judgement and decision making. These nurses specialised in working in one particular clinical area, for instance palliative care, tissue viability, diabetic care.

The main role of the PDNs was to promote the use of research findings in practice. They aimed to achieve this by producing corporate nursing standards for clinical practice, underpinned by research findings. These were available for use on every ward, collected together in the form of a Nursing and Midwifery Manual. This collection was supplemented by the development of local standards by ward nurses, as a response to a particular set of circumstances or patient requirements. PDNs also contributed to formulating Integrated Care Pathways, a multidisciplinary initiative which had just been set in motion within the Trust.

The structure of the Link Nurse network was designed to allow the (30) Clinical Nurse Specialists to influence practice by ‘cascading’ information to all ward staff via one or two nurses on each ward, whose responsibility it was to bring this information to the notice of colleagues. The role of the Link Nurse was to act as the ‘link’ in the information chain between the CNS and the ward staff. Link Nurses were those who expressed an interest in a particular topic, and who were committed to attending regular meetings with the CNS for the specific purpose of acquiring information about a particular topic. One aspect of their role was to build up Resource Files for use by colleagues on the ward. These contained information passed on directly by the Clinical Nurse Specialist, as well as related information that they acquired themselves (usually in the form of journal articles).

Library Provision

Nurses had access to an extensive postgraduate medical library with 18,000 books, 286 journals on weekly or monthly receipt, audio-visual facilities and a range of on-line databases and CD -ROM system. (The total library resources were split between this main library, and a smaller one at another hospital). The main postgraduate library was not in the same building where most of the nurses worked, but was located barely five minutes walk away from the wards.

One member of the library staff took a particular interest in nursing issues. She trawled the nursing journals on a monthly basis and extracted abstracts of papers of possible interest to nursing staff. A list of abstracts was circulated each month to every ward and department.

Information Technology Facilities And Plans

At the time of data collection, ward- based computers were used for patient administration purposes, and not linked to electronic databases. Existing and planned research activity, particularly in the field of Health Technology Assessment, highlighted the need for IT databases to supply information across the Consortium, and it was proposed that money from the R&D funding should be spent developing these.

Links With Local Universities

The local University had had a long-established, large, department of nursing, offering teaching at both undergraduate and postgraduate levels.

The creation of the Faculty of Health with its Schools of Nursing, Community and Health Studies, and Medicine, and the proposed bid (unsuccessful) for an undergraduate medical school, confirmed the commitment of the University, Health Authority and Trusts to teaching and research.

The investment in clinical academic posts (predominantly medical but also nursing) and the development of collaborative projects between university and Consortium researchers led to a combined effort to meet the service need for research. For example:

- academic appointments funded by the Trusts in association with the university had resulted in the establishment of an Academic Surgical Unit, whose main focus was in the areas of breast and colorectal disease
- a Professor of Respiratory medicine was to be appointed who was expected to commit 50% of their time to research activity
- multidisciplinary, collaborative research was funded in the field of Mental Health and Trust funds had been used to appoint a Professor of Psychiatry to undertake research into schizophrenia
- the university offered research teaching, statistical and specialist support to research active members of Trust staff.

3:2 Case Site 2

General Information

The setting for the research

The setting was a large University Teaching Hospital (circa 800 beds) with an on-site medical school, situated in the North East of England. The site was one of several hospitals in the locality effected by the recent amalgamation of two NHS Hospital Trusts with the subsequent founding of a new Trust body. The new Trust had been established only a year prior to the start of data collection, and for many of the nurses we interviewed, the intervening period had been dominated by change and upheaval.

The wards selected

As elsewhere, two acute medical and surgical wards and the Coronary Care Unit were selected for data collection. At this site, the four wards and Coronary Care Unit were located in the new wing of an older hospital building. The wards shared a similar ‘race-track’ layout: each ward was divided into several bays, and each bay contained up to 6 beds; in addition, there were also a number of single rooms or cubicles, some with en-suite facilities. There was a central ‘nurses’ station’ on each ward, with treatment and utility rooms, drug storage areas etc grouped around it. A room used as a doctor’s office was situated outside the entrance to each ward.

Surgical wards:

Ward A: Bed availability - 29 beds, mixed ward. Specialty: colorectal surgery, though other elective and emergency general surgery were also performed. Grade mix: 70% qualified staff.

Ward B: Bed availability -29 beds, predominantly female patients. Specialty: breast and plastic surgery, though other elective and emergency general surgery were also performed. Grade mix: 70% qualified staff.

Medical wards:

Ward C: 29 beds, mixed ward. Specialised in cardiology and functioned as a 'step-down' ward, housing 6 telemetry beds for patients transferred from coronary care. Grade mix: 70% qualified staff.

Ward D: 24 beds, mixed ward. An acute medical admission ward, taking emergency admissions from A&E, general practitioners, outpatients and other hospitals. Grade mix: 80% qualified staff.

Coronary Care Unit: In addition to providing coronary care for male and female patients, staff from this 6 bedded unit delivered cardiac rehabilitation services to in- and out-patients. Grade mix: 100% qualified staff.

In charge of each ward was a Sister (G-grade) with one or more senior staff nurses acting as deputy(ies) in an F-grade post. All the staff working on the Coronary Care Unit were qualified nurses; they were led by a Charge Nurse (H-grade) and a number of senior nurses appointed at F-grade level.

Research And Development Infrastructure

The Trust Board had established an R&D Panel to develop a strategic framework for research, subject to annual review. Nursing had representatives on both the Board of Directors and the R&D Panel. While there was no post of Director of Nursing at Board level, the Director of Patient Services was a nurse. The majority of clinically qualified R&D Panel members, and the Head of Research and Development, shared a background in medicine; one panel member, the Head of Risk Management and Professional Development, had a background in nursing. A part-time (40% WTE) post of Director of Nursing Research had been funded by the Trust, a joint appointment with an academic institute with a long history of health services research. The post- holder was a Professor of Nursing who had been closely involved with R&D support in the Trust over a period of time, and was perceived as being a vital link between different professional groups.

R&D activity within the Trust was identified as being of three main kinds: explicit R&D defined on a project basis, usually with external funding; implicit R&D, including small scale projects to answer specific questions of routine service work; and R&D as part of postgraduate training and career development for medical, nursing and other staff.

The wide portfolio of research undertaken included examples of multidisciplinary working, and in some areas nurses were seen as integral members of the research team, for instance in diabetes and oncology research. Elsewhere however, the nurse's role in research was de facto that of data collector for medical trials.

Eighteen key areas of research activity had been identified in the most recent bid for 'Culyer' funding. Clinical studies predominated. Research classified as related to 'nursing' was limited to three studies in one of the eighteen areas, namely Child Health. These were: an evaluation of an intervention in the pre-operative preparation of children; an evaluation of a nurse-led service to improve the clinical management of children with urinary tract infections; an analysis of the effectiveness of critical incident technique within the ward nursing team to aid supervision of staff and inform future recruitment.

Further proposed studies directly related to nursing practice were described in the areas of activity 'Health of the Elderly' and 'Cardiology and Cardiothoracic Surgery'. These concerned a methodological pilot study to assess and compare nursing in stroke units and conventional medical wards and a comparison of service provision by nurse practitioners versus senior house officers.

Clinical audit was closely linked with R&D activity and nurses from a variety of specialties were actively involved in performing clinical audit; some of those we spoke to had taken advantage of the opportunity to take a 'sabbatical' from their post to engage full time in carrying out an audit project, with support and training from the clinical audit department.

A Health Services Research Advisory Scheme provided support for R&D activity, teaching and training within the Trust. Post-holders had been regionally funded (although this funding was about to be withdrawn) and they were affiliated to the academic research organisation mentioned above.

Nurses wishing to pursue research training could approach the Trust for funding to attend a Masters level course at one of the local universities, or apply for one of the Regional Research Training Fellowships.

General and specific information about research matters was disseminated through a bulletin published on a regular basis by the Trust and widely circulated to clinical areas. A nursing and midwifery 'Research into Practice' group had been established in order to implement the findings of nursing research.

'R&D' Support (Culyer) Funding

The Trust had been successful in obtaining substantial funding from this source, approaching £6 million pounds for the year in which data collection took place. In addition, R&D was supported by significant grants from charities (in excess of £1 million) and commercially-funded research work, mainly clinical trials of new therapies or drugs, was an important source of external funding, amounting to over £1.5 million.

Nurses' Role In R&D Committees

There was a nursing presence on the Ethics Committee, which met on a monthly basis to consider all research proposals submitted to the Trust. The newly established Clinical Effectiveness Group, one of the structures put in place to introduce Clinical Governance into the Trust, also included a nurse amongst its membership, as a result of a request from the Director of Nursing Research. The same Director of Nursing Research was herself to be included in the membership of a proposed Consortium Steering Group for R&D funding.

Practice Development Structures

The development of a new Strategy for Nursing had been initiated through a process of direct consultation with nursing staff from different grades and specialties. The initial aims of the Strategy were to identify priorities for future developments in nursing, and to promote awareness of the need for practice to be based on sound evidence. Following the merger, a Professional Development Group was established to facilitate the implementation and evaluation of evidence based nursing and multi-professional practice developments. Those areas targeted for priority attention included professional record keeping, safe administration of drugs, patient falls, and assessment and treatment of constipation in elderly patients. The Director for Nursing research was involved in facilitating some of this work.

At this site, there was a large body of Clinical Nurse Specialists who were active in initiating developments related to practice. Within the Directorate of Surgery, for example, there were Specialist Nurses for colorectal, acute pain and breast care, and nurses specialising in oesophago-gastric cancer. CNSs with a Trust-wide remit included the Continence Nurse Specialist and the Tissue Viability Nurse. As well as acting as role models, these clinicians were involved in a range of activities to promote good practice. For instance, the Colorectal Nurse Specialists:

- organised study days with invited guest speakers
- produced booklets for staff new to the specialty and for patient education
- produced educational packages on colorectal nursing
- were involved in writing protocols
- provided leadership for the link nurses
- made available to ward staff a collection of up-to-date specialist textbooks, journals and videos.

The Practice Development Nurse for the surgical directorate was instrumental in producing, disseminating and implementing guidelines, policies and protocols, undertook competency assessment relating to the nurses' expanded scope of practice, and played a leading role in the Research into Practice Group.

Links with the 'new' university provided a gateway to a Practice Development Research Programme, which focused on professional roles and knowledge, the relationships between practitioners and their patients and the partnership between different professional groups.

Library Provision

Nurses had access to a large, well-stocked Postgraduate Medical library offering an extensive collection of up-to-date books, a wide selection of peer reviewed journals and a range of electronic databases, including the Cochrane Library. There was also a second, much smaller library in the hospital, catering specifically for the needs of nurses, midwives and PAMS. Information technology provision here was relatively poor in terms of the number of computers available, but databases which could be accessed included Cinahl, Medline and the Cochrane Library. There was a broad range of nursing and midwifery journals (over 70 titles) and a good stock of nursing textbooks (over 7,000 in stock). According to the librarian, this small library was popular with nurses because of its close physical proximity to the workplace. At the time of data collection, it was unclear whether this library would be retained. The University provider for nurse education was withdrawing from the site to concentrate teaching resources in one campus, where a new purpose-built Learning Resource Centre for nurses and PAMS was about to be opened. This new Centre was situated about four miles from the main Trust site, though some of its facilities, such as the on-line catalogue, could be accessed electronically from the hospital.

Information Technology And Plans

Computers on the wards were used primarily by ward clerks for patient administration and for ward staff to obtain results of laboratory investigations.

Plans were underway in the Trust to launch an Information Resources Project which would bring access to on-line data bases to ward based staff. The Coronary Care Unit held a computer in the Sister's office used by the nurses for the word processing of teaching materials. Just as data collection was coming to an end, a computer was installed on the Unit which was about to be linked to on-line databases.

Connections to the Internet and NHS Net had been established and e-mail was being used for communication and to support clinical and administrative management.

Links To Local Universities

Strong links existed between the Trust and the two local ('old' and 'new') university providers of medical and nursing education. This close relationship was reflected in a number of clinical academic posts (all of the medically qualified clinical researchers were either honorary or formal university employees) and was also evident in the collaborative approach adopted in areas of mutual interest such as clinical governance, teaching and research. An example of such a collaborative venture was the establishment of a Clinical Innovation and Effectiveness Support Unit to promote the implementation of evidence based practice. This was under the direction of a member of the Trust, working in close partnership with the university health services research unit.

A number of nurses working within the Trust held part-time posts at the 'new' university. For example, two nurses specialising in Palliative Care had been appointed as part-time Senior Lecturers.

The university offered Trust nursing staff Continuing Professional Development Programmes in a wide variety of specialties, at both diploma and degree level. Funding was also available through the Trust for nurses to become involved in multidisciplinary postgraduate activity through various Masters courses, including an MA in Advanced Practice (Nursing).

3:3 Case Site 3

General Information

The setting

This was a medium-sized district general hospital in the North of England (circa 650 beds) offering a range of general medical and surgical services, along with an accident and emergency department and a wide range of outpatient clinics. A new Director of Nursing had been appointed just as data collection was drawing to a close.

Traditionally, the hospital had had few problems recruiting nurses, but was beginning to be effected by the national shortage of qualified nurses. The hospital was closely linked to the local university, which provided pre-registration nurse training at Diploma level, midwifery undergraduate training, and postgraduate education through a range of Continuing Professional Development courses.

Wards selected

Two acute medical and surgical wards and the Coronary Care Unit were selected for data collection. All four wards had 30 beds, admitted emergency cases and accommodated both male and female patients. Surgical Ward A was a five-day admission ward admitting a range of 'minor' cases for general surgery, breast surgery and orthopaedic procedures. Surgical Ward B admitted patients requiring major surgical procedures such as colorectal surgery; there were plans to open a 'high dependency' unit within this ward for patients requiring intensive post-operative care.

Of the medical wards, Ward C's specialties were diabetes and haematology, while ward D specialised in respiratory disease. The wards shared an identical 'race-track' layout, with a busy central 'nurses' station' also used by doctors and therapists. Each ward had a computer used mainly by the ward clerks for patient administration. The Coronary Care Unit had eight beds for male and female patients.

R&D Infrastructure

The R&D Directorate was made up of a Health Services Research Unit and the Clinical Audit department, both under the management of the Director of R&D, who reported to the Executive Medical Director. Day to day running of the research unit was the responsibility of a senior research officer and the audit department manager oversaw the activities of the clinical audit department.

One of the first tasks of the recently opened Research Unit had been to develop a Research Strategy, under the auspices of an R&D steering group.

Major objectives included:

- to improve access to relevant research findings for clinical staff from all professions
- to provide post-qualification education for clinical staff in accessing and critically appraising published research
- to develop the Trust's capacity to support high quality research

- to assist clinical staff in achieving and maintaining evidence based changes in clinical practice.

A programme of research activity had been developed, based around six main areas: (1) The management of R&D; (2) Mental Health in Residential Homes Project; (3) Child Health Services Research Programme; (4) Services for the Elderly Research Programme; (5) Effective Health Care Research Programme; (6) Hosting External Research.

The aim of the Effective Health Care Research Programme was to increase awareness and implementation of evidence based health care amongst clinicians. As a preliminary step, staff from the Research Unit and Clinical Audit worked together to review and summarise a series of Evidence Based Health Care Bulletins, before involving clinical staff in comparing the recommendations with local practice. Working together, they produced specific local guidelines for colorectal and lung cancer. These guidelines were reviewed in collaboration with academic expertise provided by the local university, and a series of training days were held to facilitate implementation.

Amongst the non-commercial research projects hosted by the Trust were national studies such as the ‘The Surgical Wound Surveillance Project.’ There were also several local, smaller scale studies in progress.

A multidisciplinary committee had been established to determine the quality of research proposals submitted to the Trust; preliminary approval from this group was necessary before submission to the Local Ethics Committee.

An important aim of the Directorate was to promote multidisciplinary participation in both research and audit. A Research Support Group had been set up for nurses and members of clinical and specialist professions, meeting on a bi-monthly basis. Leadership in clinical audit, mainly medical to date, was to be extended by the appointment of clinical audit co-ordinators for nursing and professions allied to medicine.

R&D Support (Culyer) Funding

The Trust had been awarded £30,000 per annum for three years (1998-2001) as a result of the national bidding process for R&D funds. The money was to be used to fund some of the work of the Health Services Research

Unit and to cover the costs of supporting externally funded projects including multi-centre trials (e.g. MRC trials). None of the funding had been allocated for nursing research.

Revenue from commercial research vastly exceeded that from R&D Support Funding (£250,000 p.a.). A proportion of this income was to be levied to develop research infrastructure within the Trust in various ways – through the purchase of research databases, statistical software or the services of a part time statistician.

Nurses' Role On R&D Related Committees

There was a nurse representative on the Research and Development Steering Group, a nurse on the Local Ethics Committee, and a nurse Clinical Audit Co-ordinator was to be appointed.

Practice Development Structures

A small Practice Development Team (3 posts) had focussed initial efforts in encouraging nurses to take on an expanded role by increasing their clinical skills. A series of workshops and courses were organised to train several hundred ward-based nurses in intravenous cannulation and drug administration and the performance of ECGs. This work was audited by the PDNs themselves to monitor the results of training.

At the time of data collection, the Practice Development Nurses were beginning to turn their attention to examining existing nursing guidelines and policies. They were working in collaboration with the Clinical Nurse Specialists to write new, or improve existing, guidelines in palliative care and wound care, and with the Infection Control Team to produce a policy for use of intravenous devices.

The PDNs were concerned with improving documentation of care, looking at the core care plans used in some wards, and were becoming involved in a new Trust initiative, a move towards multidisciplinary documentation. They also played a role as negotiators between doctors (particularly junior doctors) and nurses, running regular focus groups to discuss contentious issues, and facilitating the development of the nurse's role in pre-assessment and other clinics previously run by junior doctors.

Individual Clinical Nurse Specialists were closely involved in practice development, through formal and informal teaching sessions and hands-on demonstrations on the ward or in clinics. They also produced guidelines targeted at nurses, usually written jointly with a medical consultant. The system of organised Link Nurse meetings which operated on most wards potentially offered the CNSs yet another opportunity to influence care delivery. However, the system frequently broke down, mainly due to lack of staff to attend meetings.

One initiative to support practice development on the wards was a G-grade Development Programme, specifically tailored to the needs of ward managers. The course, accredited by the university, covered management issues (resources, people, risk, clinical care) and clinical effectiveness and audit.

Nurses' efforts in striving to achieve good practice were recognised at an Annual Awards ceremony, and examples of good practice were shared through the publication of a monthly newsletter circulated within the Trust. (The latter has since folded due to apparent lack of interest).

A Nursing Strategy had been produced for the Trust, following consultation with Nursing, Midwifery and health Visiting staff, to support the development of nursing practice over a five year period, in alignment with the Trust's Strategy. Three areas were identified as priorities for action:

- **(human) resource utilisation**, focusing on nursing roles, qualifications, skill mix and employment entitlements
- **clinical developments**, specifically the spread of evidence based practice through promotion of research awareness, addressing educational and training needs, clinical supervision and the development of evidence based policies and protocols
- **information technology**: two objectives were paramount - to increase access to computers for nurses, and to provide training in the use of IT systems.

Library Provision

The library was situated in the Postgraduate Medical Centre and supported by funds from postgraduate medical education and the department for nurse training at the local university. It was physically very cramped, though plans were being made to expand the space available. The library offered access to 20,000 textbooks, including a good selection of up-to-date nursing research textbooks, and a wide selection of peer-reviewed nursing and medical journals (400 periodicals). NHS staff were provided with access to Medline, Cinahl, the Cochrane Library and the National Research Register on stand-alone PCs located in the Library, at a branch library and on a ward. Doctors, nurses and therapists shared this single on-site library facility, with doctors accorded priority as a product of the nature of funding.

The library also provided a service for staff and students of the local university who had access to a much wider range of networked databases through their links with the university.

Interlibrary loans were available, but the service was very limited for those categories of staff not covered by the funding arrangements i.e. qualified nurses, midwives and some of the professions allied to medicine.

Library staff, through the Library Committee, were engaged in preparing a strategy in response to a National Health Services Executive (1997) letter urging providers to improve access to library and information services for all staff groups. The Senior Librarian was kept aware of the needs of the R&D Directorate through her membership of the R&D steering group.

Information Technology And Plans

Plans had been approved by the Trust Board to establish an internal computer network and to join the NHS Net, the first steps in a move to deliver R&D information systems directly to staff on the wards and in clinics. It was recognised that many staff would lack the necessary IT skills to take advantage of this development. One solution proposed was to create new posts for trainers to go the wards to offer staff training in information retrieval and basic critical appraisal skills in their workplace.

Links With Local Universities

The local university had a high national profile for its healthcare research, particularly in the fields of health economics, policy and evaluation.

The foundation of the Trust's Health Services Research Centre encouraged the forging of links with relevant departments and research units in the local university. A number of academics from various disciplines sat on the Research Steering Committee and the work of the R&D Directorate was to be formally evaluated through one of the University departments. Project plans were developed collaboratively and the Unit and university were to work together on the Trust's next bid for task-linked R&D funding.

Academics were also invited into to the Trust on a regular basis to participate in seminars and, through a bursary from the regional office of the NHS Executive to support R&D training, to provide a series of workshops on research methodology.

The college of health, previously based at the research site, had fairly recently been integrated into the local university. It offered diploma level training to student nurses and degree level training for student midwives, as well as a wide range of CPD courses for qualified staff. Master's level courses were also available and an emergent postgraduate school was preparing to offer supervision for doctoral level studies.

3:4 Chapter Notes.

Nursing Grades

Nursing posts in the NHS are graded according to levels of responsibility, with a linked salary structure. NHS Trusts vary to some extent in the allocation of specific grades to particular posts; within the case sites posts were graded and occupied as follows:

- D-grade posts: occupied by newly qualified nurses who were beginning to gain experience as a staff nurse
- E-grade posts: occupied by staff nurses with more than a year's post registration experience, who had undertaken some further professional development and who were responsible for some supervision of junior staff and students
- F-grade posts: the staff occupying these posts were variously called 'senior staff nurse', 'junior sister', 'deputy sister/charge nurse' or 'sister', depending on the individual ward or unit hierarchy. Their duties included: acting as the senior nurse on duty, co-ordinating all activity on the ward; liaising with doctors and other professionals; and acting as role models and team leaders with a responsibility for the supervision, training and development of junior staff and students
- G-grade posts: post-holders were usually referred to as 'Sister' or 'Ward Manager' and their role encompassed prime responsibility for the day to day running of the ward, standards of clinical practice, budgeting, staff management and development (in some instances, nurse managers, clinical nurse specialists, nurse practitioners and practice development nurses had been appointed to G-grade posts)
- H/I grade posts: staff in these posts functioned either as managers of clinical areas (e.g. of the surgical and medical floors at case site 1), or were amongst the ranks of Clinical Nurse Specialists, Nurse-Practitioners or Practice Development Nurses.

Chapter Four: Nurses' Clinical Decisions.

"The function of information is to help us make better decisions" (Wyatt, 1996)

Key points

- Nurses make decisions which are amenable to research evidence.
- These decisions can be captured by a six fold typology:
 - intervention selection
 - timing
 - targetting
 - communication
 - service organisation, delivery and management
 - experiential, understanding or hermeneutic

As Wyatt points out, one of the prime functions of information is the reduction of uncertainty associated with decision choices. A piece of information which is 'fit for the purpose' of answering the (often unacknowledged) questions that arise in decision situations can prove the decisive factor in making a choice. It follows then that information seeking – the searching and selection of information – is also a function of the desire to improve, or at least contribute to, the reduction of uncertainty in decision choices.

This chapter addresses the decisions that nurses make in acute care settings and the questions that arise, in the hope that we can better distinguish the kinds of information which nurses require to maximise the reduction in uncertainty associated with the choices involved.

We used interview accounts of clinical decisions, observational data and the data generated as part of the "usefulness" Q sort (see Chapter Seven) to identify decisions made by nurses. There were a number of characteristics which shaped the decisions themselves:

4:1 Time

The time available for a choice to be made. There was temporal dimension to many of the decisions that nurses faced. Many of the decisions could be thought of as 'reactive' with very short timescales available for a response. For example, a patient is agitated on a surgical ward in Site Three an E grade staff nurse has to decide whether or not she should put cot sides on the patient in bed or not. A patient on the CCU in Site One has crushing chest pain which has not been relieved with GTN Spray or diamorphine and the staff nurse has to decide what to do next.

Nurses repeatedly stressed the busy nature of practice and that there was no time for finding information for decisions. However, when observing nurses it was clear that it was not always the short time scale associated with the decisions that restricted information seeking behaviour. Rather, it was the volume of decisions encountered and the short interval between them. For example, a list of decisions collected during one period of observation (approximately three hours) of one E Grade Staff nurse on a medical ward reveals:

- decides to allow a dressing to stay in place for 3 days on a lady with a large sacral pressure sore
- decides that a patient can be discharged if her blood results are normal
- shared decision with bed coordinator regarding bed management
- decides to check that a patient has signed a consent form
- decides to move patient into a sideroom after chemotherapy
- decides to ring the dietician for advice regarding the management of a diabetic patient and how best to manage a patient previously treated with total parenteral nutrition and who is now not eating
- decides what information to impart to patients' relatives regarding conditions
- decides on the appropriateness of meals for the numerous diabetic patients at lunchtime
- decides on the optimal balance of skills during staff lunch breaks for staff
- decides to call the doctor regarding whether or not a patient can have aspirin or not
- decides to refer a patient to the palliative care clinical nurse specialist
- decides to place a patient on a pressure relieving mattress
- decides to give a painkiller as a response to a patient request
- decides to refer a patient with 'niggling' chest pain to the doctor
- decides what advice to give a colleague who asks for advice regarding the taking of a wound swab
- decides to refer a patient with a sore mouth to the clinical nurse specialist
- decides that a patient who was to be discharged should now not be the patient doesn't understand her self medication programme
- decides to phone the colonoscopy clinic for advice regarding the diet of a patient going for endoscopy

This represents a total of (at least)18 decisions in the space of three hours, an average of one decision every ten minutes. Clearly, the limited time associated with the number of decisions is a real barrier to information seeking in response to these decisions. Nethertheless, there is research based evidence available which may have helped this nurse with at least some of the decisions. For example:

- Sore mouth and infection control after chemotherapy decisions: Smith et al (1994) *A meta-analysis of intervention effectiveness for symptom management in oncology nursing research.*

- Sore mouth decision: Worthington et al. (2000) *Interventions for treating oral mucositis or its associated pain for patients receiving chemotherapy or radiotherapy.*
- Palliative care clinical nurse specialist decision: Grilli et al. (1998) *Do specialists do it better? The impact of specialization on the process and outcomes of care for cancer patients.*
- Bed management decisions and palliative care decision: Kite S (1997) *How can different models of organisation or bed utilisation improve the care of patients dying in hospital?*
- Management of pressure sores decisions: NHS CRD (1995) *The prevention and treatment of pressure sores.*
- Pressure relieving mattress decision: Cullum et al. (2000) *Beds mattresses and cushions for pressure sore prevention and treatment*
- Self medication decision: Collingsworth, Gould and Wainright (1997) *Patient self administration of medication: a review of the literature*
- Self medication decision: Wendt (1998) *Evaluation of medication management interventions for the elderly*
- Information to relatives and patient decisions: Waitzkin (1984) *Doctor-patient communication: clinical implications of social scientific research*

Clearly not all the decisions this nurse made were amenable, or merited, the sorts of knowledge which research can contribute, and not all of them may have been associated with clinical uncertainty. However, the point here is that evidence does exist for a variety of the kinds of decisions that nurses face. All of these sources came from a 10 minute search of the online (and free) Database of Abstracts of Reviews of Effectiveness database (DARE) at the NHS Centre for Reviews and Dissemination, York.

One of the most prominent distinctions between ward staff and clinical nurse specialists was their ability to define their day in terms of time management. For example, the haematology nurse specialist in Site Three expressly set aside time for planning her week to come. This meant that the clinical nurse specialists had fewer ‘reactive’ decisions and, theoretically, an ability to control, at least some of, the volume of potential decisions they faced. The decision ‘end-points’ of clinical nurse specialists also appeared further away from the actual decision point. CNSs often talked in terms of future outcomes associated with the decisions they made or appeared to consider potential outcomes in their decisions more explicitly.

4:2 The Social Nature Of Decision Making

Many of the decisions nurses faced were made in conjunction with colleagues or specialised sources of advice such as clinical nurse specialists, pharmacists or doctors. Often, these sources constituted the ‘information’ sought as a response to uncertainty: the doctor, colonoscopy clinic nurse and dietician in the examples above. At other times the other individuals were ‘stakeholders’ in a decision and their views had to be accommodated in the decisions made by the nurse – for example, doctors’ role in prioritisation of cases for discharge. Almost all the

decisions nurses made which involved stepping outside the realm of personal experience and internalised knowledge involved these sources. The only other sources we observed in use were the British National Formulary and - on only four occasions - local guidelines and protocols.

4:3 The Focus Of Decisions

Decisions people made or reported were surprisingly 'bounded'. Most decisions focussed on areas such as:

- dressings
- pressure sore monitoring/ prevention/ use of devices
- checking/monitoring observations/ fluid intake and output
- patient hygiene
- patient mobility
- patient positioning
- infection control
- nutrition
- iv/oral fluids
- timing of premedications (in conjunction with theatre)
- patient compliance e.g. medications
- referral to colleague/ senior nurse/ doctors/ clinical nurse specialists/ therapists/ pharmacist etc
- referral to relatives/involvement of relatives especially around discharge
- interpreting results, mainly of blood tests/exercise tolerance tests
- decision to document care given
- bed management
- staffing/skill mix/allocation of patients to teams/delegation to juniors
- general administration of ward e.g. checking drug stock levels
- staff development/ supervision/ training.

4:4 A Typology Of Generic Decision Types And Clinical Questions

We found that it was possible to capture the essence of decisions that nurses made in a six fold taxonomy of decision types. It is noteworthy that three of these six decisions were about treatment or intervention and these were overwhelmingly the most common. In order to make evidence based healthcare a reality decisions need to be focused into clinical questions. Such questions serve as the basis for searching, influence appraisal and as a context for implementation. We will return to this issue in Chapter Eight, but for now it is worth outlining that we

asked nurses to try and convert some of their decisions into clinical questions as part of the “usefulness” Q sorting exercise (see Chapter Seven).

Table 6 presents the taxonomy developed:

This has been a short chapter with a very simple aim: to try and gain a sense of the sorts of decisions that nurses face. We saw in Chapter One that decisions necessarily involve choices between discrete options. The idea of generic questions is a technique adopted by Ely *et al.* (1999) to describe the decisions and clinical questions of doctors. Surprisingly, we found that there were marked similarities between the sorts of decisions and questions generated by nurses and those from doctors. namely, the majority of decisions were concerned with the effectiveness, targeting and timing of interventions.. Questions of diagnosis were not very evident in these nurses, not surprisingly given the pre-eminent role of doctors in diagnosis. However, both kinds of healthcare professional needed information geared towards informing the management of patients. This was particularly the case in intervention choices. In the CCUs and amongst clinical nurse specialists, however, we found that a degree of informal diagnostic decision making was evident, with choices expressed to doctors in the form of ‘suggestions’ or ‘advice’.

What this chapter shows is that firstly, nursing decisions can be seen to take place across a range of clinical topics and secondly, that when one removes the clinical focus the generic *type* of question can be captured in a reasonably small but comprehensive taxonomy. Within this taxonomy, questions about various aspects of medical and nursing interventions are by far the most frequent. Each element of this taxonomy can be seen to merit different forms of research knowledge – a theme we return to in Chapter Eight.

Table 6: A Typology of Decision Types found in the Case Sites.

Decision Type	Exemplar Decision	Exemplar Question
<p>Intervention/effectiveness: These kinds of decisions involved choosing between intervention X and intervention Y.</p>	<p>Choosing a mattress for a frail elderly man on who has been admitted with an acute bowel obstruction.</p>	<p>In elderly and inactive patients, who may require surgical intervention, which is the most suitable pressure relieving mattress to prevent pressure sores?</p>
<p>Targeting: this is, strictly speaking, a subcategory of intervention/effectiveness decisions outlined above. These decisions were of the form, ‘choosing which patient will most benefit from this intervention’</p>	<p>Deciding which patients should get anti-embolic stockings.</p>	<p>Is there a risk assessment tool available that will accurately predict which group of patients will benefit most from anti-embolic stockings?</p>
<p>Timing: again, a subcategory of intervention/effectiveness decisions. These commonly take the form of choosing the best time to deploy this intervention.</p>	<p>Choosing a time to commence asthma education on newly diagnosed asthmatics</p>	<p>When to commence asthma education on newly diagnosed asthmatics?</p>
<p>Communication: these kinds of decisions commonly focus on choices relating to ways of delivering and receiving information to and from patients, families or colleagues. Sometimes these decisions are specifically related to the communication of risks and benefits of different interventions or prognostic categories.</p>	<p>Choosing how to approach cardiac rehabilitation with an elderly patient following acute myocardial infarction who lives alone with their family nearby.</p>	<p>Would I be better talking and explainir rehab with the patient’s family present so that a clear understanding is obtaine prior to the patient’s discharge?</p>

Service organisation, delivery and management: these kinds of decisions concern the configuration or processes of service delivery.

Choosing how to organise handover so that communication is most effective.

How should I organise handover so that the most effective form of communicating information results?

Experiential, understanding or hermeneutic: these relate to the interpretation of cues in the process of care. The choices involved might include deciding on the ways in which a patient may be experiencing a particular situation.

Choosing who to reassure a patient who is worrying about cardiac arrest after witnessing another patient arresting.

How best do you reassure a patient who has witnessed someone have a cardiac arrest?

Chapter Five: Perceived Barriers To Research Information.

Key Points

- This chapter examines the issue of nurses' perceptions of what prevents them using research evidence in clinical decision making. It synthesises data from a number of sources: interview, observation and most prominently Q methodological modeling in order to describe the different ways people view barriers to research information use. Multiple linear regression modeling is used to explore the effect of the demographic variables of:
 - working in medical, surgical or CCU settings
 - the nurses' level of educational attainment
 - their clinical experience in their clinical specialty
 - the way in which they trained to be a nurse
 - whether they felt they had a research remit as part of their role.

- The analysis suggests four different perspectives around which nurses cluster, each with a different emphasis:
 - **Perspective one:** centres around problems in interpreting and working with research products which are seen as too complex, 'academic' and overly statistical. Nurses defining this perspective want to use research but feel limited in their ability to do so by their lack of research appreciation skills and confidence.
 - **Perspective two:** is characterised by individuals with high levels of confidence with research-based products and a perceived ability to be able to engage with such material if they wish. Despite their skills and obvious motivation, they perceive lack of organisational support (in the form of restricted local access and unsupportive colleagues) as preventing them from doing so. It appears that the more experience you have in a given clinical domain the less likely you are to be aligned with this perspective.
 - **Perspective three:** places a heavy emphasis on the role of other nurses as blocks on research use and sees the busy nature of practice as a limiting factor. It is characterised by the view that research products and producers lack clinical credibility and that they fail to offer the desired level of clinical direction. It would appear that nurses educated to graduate level are more likely to want to see clinically credible and prescriptive research products in the workplace.
 - **Perspective four:** those nurse associated with this perspective perceive that they lack the skills and, to a lesser degree, the personal motivation to use research themselves. Consequently, these individuals liked research messages passed to them by a third party and sought to foster others' involvement in research based practice rather than direct involvement themselves. The old style SRN-trained nurse was seen to be the most

strongly associated with this perspective. Graduate level (in any subject) nurses were less likely to be aligned with the perspective. These results suggest that there may be a significant skills (with respect to using research material) disparity between the SRN-trained nurses and graduate nurses.

5:1 Introduction

Nursing has long called for practitioners to take a greater account of the knowledge afforded by research information in the practice of clinicians (Briggs, 1972). Using research findings in clinical practice is an underpinning of the modern day National Health Service (Kirk, 1996) and has long been a part of nursing's own professionalisation project (English, 1994). Evidence-based or research-based practice has become a part of contemporary nursing discourse and something that has become part and parcel of nurse education (English National Board for Nursing, 1990). However, despite the *prima facie* acceptance of the value of research for nursing we also know that for many reasons nurses and midwives do not seem to routinely incorporate the results of research into the clinical decisions they make (Meah *et al.*, 1996), (Kenrick & Luker, 1996). This chapter continues this theme and explores some of the findings of our own study into those barriers which nurses in the three case sites felt prevented them using research in the decisions that they face. It does this in a number of ways, primarily it:

- reports on the set of stimuli (the Q sample) used to model the values and perceptions of the barriers to research use identified by nurses in the case sites
- outlines the four different perspectives (Q factors) around which people clustered in respect of barriers to research utilisation
- provides interview and observational data from those nurses who define these perspectives as a means of adding descriptive power to each of the outlines
- examines the demographic variables associated with the perspectives on barriers to getting research into practice.

5:2 The Barriers Q Sample

The raw materials for modeling the views of the nurses in the case sites were the pattern codes that emerged from our interview and observational data. There were sixty themes relating to the barriers to research evidence use captured by our pattern coding. These pattern codes formed the *Q sample*, which in turn was used in the *Q sorting* phase at the end of our data collection.

Nurses were asked to sort the Q sample statements (on cards) according to those which most represented their views on the barriers to using research based information in their work (the +5 position) through to those that least represented their views (the -5 position).

The Q Factors: Perspectives On Barriers To Research Use

The potential number of ways of sorting the 60 Q sample statements on the barriers to research utilisation is vast (circa 8.32⁸⁹). Despite the number of statements involved, and the vast amounts of qualitative data represented, four factors associated with the barriers to research information were identified by nurses within the sites. When reporting on the factors in the rest of the Chapter we combine data from a number of sources, adding greater interpretative depth. For this reason - and the fact that most people prefer the term – we shall use the term perspective. A heading can be given to each of the four perspectives identified. These headings are intended to provide a flavour of the central characteristics associated with each perspective. They were:

- confidence with the products of research
- organisational access and culture
- a perceived lack of prescription, direction and clinical credibility associated with research
- scepticism towards research and a desire to implement through others.

We chose to focus on these four perspectives as they were the ones that had Eigenvalues of more than 5.0, and therefore captured most of the variance. They also mirrored the earlier provisional qualitative analysis of the interview and observational material most closely. Moreover, upon examining the interview and observational data of those individuals who loaded most heavily on a given perspective, it is clear that they share common values with other individuals. These shared values are strongly visible in their transcripts and associated field notes.

The factor array for the barriers Q sort is represented in Table 7. Where appropriate the ‘scores’ for statements are included in the text of the chapter to highlight key points. The demographic characteristics of the nurse defining each perspective are presented in Table 8. The perspectives on perceived barriers to research are represented by a factor array for the Q sorts.

Table 7: Factor Array: Barriers Q Sort

Table 1 The Factor Array - Barriers Q Sample. Factor Q-Sort Values for Each Statement Factor Arrays

No.	Statement	No.	1	2	3	4
1	research info is too academic	1	5	-5	2	-3
2	research info is too complicated	2	4	-4	1	-1
3	research info uses complex language and is just a tool for a	3	2	-4	2	-1
4	I read a paper if it is written by a nurse rather than a pro	4	1	0	3	-2
5	The authors of research are just not credible to most nurses	5	-2	0	3	-2
6	research is often not compatible with what I believe as a nu	6	0	-2	-1	-3
7	research often says we shouldn't do stuff that I personally	7	-1	0	1	-2
8	my experiences of doing research in the past make me really	8	0	-2	0	0
9	research is just done for its own sake its not practice rela	9	-2	-5	0	0
10	there is no need for research the experience of d	10	-4	-3	-4	-5
11	implementing research is just unrealistic becasue of time pr	11	-1	2	3	5
12	nursing practice is so busy that there is no time for implem	12	-2	3	5	5
13	written kinds of research are too slow to read and use	13	4	1	2	4
14	the problem with research information is that it takes to lo	14	1	-1	0	2
15	Its unrealistic using information in clinical decisions as m	15	-3	1	-1	0
16	I have no real confidence in reading research	16	3	-4	-4	-2
17	statistics put me off research papers	17	5	1	1	3
18	most kinds of research don't give me enough direction in my	18	1	1	4	1
19	I think that knowledge gained through experience is more use	19	2	0	0	1
20	research is only limited to a small bit of nursing practice	20	0	-1	1	0
21	policies and procedures are unwieldy and once you work here	21	-3	-1	1	0
22	whenever I have tried to use research in the past it costs me	22	0	4	1	0
23	I have worked with people with responsibility for implementi	23	0	2	0	1
24	implementing research is not often led by nurses who are goo	24	0	1	4	-4
25	I don't know enough about what is available to help me imple	25	2	3	-2	4
26	The people in the hospital - like PD or research who are sup	26	-3	0	-1	-1
27	There is no real commitment on the part of management to hel	27	0	3	3	3
28	my own professional education hasn't really prepared me for	28	3	-1	-5	3
29	research is often unrealistic in practice because its not ba	29	-1	0	2	-1
30	its better to have time out and reflect	30	1	0	0	2
31	All the facilities which would help me use research based in	31	2	5	-4	1
32	the library is not geared up for nursing here	32	-1	2	-3	-4
33	The age of the nurses I work with is a real block on impleme	33	-1	1	-2	-5
34	we try and implement research but the Drs block it	34	-1	2	0	-2
35	other nurses themselves are often a block on using research	35	3	5	5	-3
36	using research is a gender thing	36	-5	-1	-3	-4
37	research never says anything its too wishy washy	37	-1	-4	-2	-3
38	the research info we get bombarded with is just too overwhel	38	3	-1	2	3
39	I don't have the necessary computer skills	39	4	1	-3	4
40	I don't have any research role included in my job	40	0	0	-1	2
41	the decisions I make are really complicated and research is	41	-3	-2	0	-1
42	there are people and resources available here to help implem	42	0	3	-1	-1
43	journals are difficult to read and there are better ways of	43	1	0	0	1
44	the research we get presented with is often related to ameri	44	1	3	1	1
45	I don't really have any motivation to use research in my pra	45	-2	-3	-5	1
46	We don't have the facilities to use researchin the ward	46	3	4	-2	-3
47	Its better to have somebody else pass on the research-based	47	1	-1	0	4
48	its easier for senior staff to implement research as they ha	48	2	4	4	2
49	the culture of my unit isn't really geared up for using rese	49	-4	-2	-3	1
50	research is more for managers than practicing nurses	50	-4	-3	-2	-1
51	patients are all individuals and research tends to ignore th	51	1	2	2	0
52	we need research built into the tools we already use	52	4	4	4	3
53	using research just means more paperwork	53	-2	-2	3	2
54	using research in the past hasn't resulted in noticeably bet	54	-3	0	1	0
55	using research is best left to nurses coming out from colleg	55	-5	-3	-4	-4
56	using research won't actually help in my career	56	-4	-3	-3	-2
57	research is always out of date	57	-1	-1	-1	2
58	being able to use research doesn't make you a better nurse	58	2	1	-1	-1
59	I find the research published in the medical journals more u	59	0	2	-1	0
60	I make better decisions without using research	60	-2	-2	-2	0

5:3 Perspective One: ‘Confidence And Products Of Research’

This perspective accounted for 12% of the Q sorts sampled and was defined by nurses from most of the major demographic groups. Interestingly, no graduates defined this group.

The people who defined this perspective on barriers to research evidence use were characterised by three overwhelming stances:

- A view of the products of research as ‘problematic’, overly complex and intellectually inaccessible.
- A relative lack of confidence in understanding and using the products of research
- A real sense of internal conflict generated as a result of *wanting* to use research-based information and not being able to.

The first perspective seems to represent at least some of the individually-located barriers to research-use identified in the literature review (Funk *et al.*, 1995; Retsas, 2000).

The Problematic Nature Of Research Products.

The individuals defining this perspective attached strong positive valuations to the statements:

statistics put me off research papers (+5)

research information is too academic (+5)

research information is too complicated (+4)

Interviews with individuals defining this perspective reveal that statistical material in research publications was a strongly negative influence on the way people engaged with research evidence generally:

Nurse: I've got...I mean, I just think from a nurse's point of view, you look at the research and if its got all the statistics in it and if its not analysed enough for you then I do think its off putting.

Staff nurse, Surgery, Site Two

This aversion to quantitative data had two effects on the ways in which nurses approach research material during their own appraisal processes. The interviews revealed that people often took ‘short cuts’ in the appraisal process when faced with statistical material. Sometimes actively bypassing that part of the paper:

Nurse: It wouldn't put me off, no because you can always like read...well you don't need to properly analyse results...sometimes you can understand it ninety percent of the way. But I suppose if its very complicated and statistics and stuff, yeah it would put me off.

Medical Staff nurse: Site Three

Int: So would you be put off by an article [with statistics in it]?

Nurse: No, I'd read it, but I'd probably scan over the statistics and not analyse them as much as I should do. CCU Staff nurse: Site one.

Interestingly these shortcuts meant that the nurses focused on alternative characteristics in their appraisals of research material. We found that criteria such as who the authors of a report were, the institution involved in producing it, as well as more methodological notions of bias were often focussed on by nurses reading research material:

...there's lies and statistics as someone said...lies, damned lies and statistics... I think the root of it is the 'who'. The 'who' and the 'how', and the statistics should then speak for themselves if those two things are right.

Senior Staff nurse, Medicine, Site One.

What sort of criteria? If it was quantitative... it would have to be truly randomised, and if it wasn't I would completely ignore the statistics. Because sometimes people will try and con people by filling statistics in, when they just had a convenient sample. So in that sort of sense I would look at that. Qualitative, I'd sort of looked to see if it truly was qualitative, and whether or not there has been sort of external factors influencing people.

Staff nurse, CCU, Site One.

The Role Of CPD

Many individuals who saw the nature of research products as problematic attributed their difficulties in engaging with statistical information to their educational preparation, both at the basic and continuing levels. Interviews data seemed to suggest that levels of prior knowledge assumed by teachers and their [the teacher's] own grasp of the subject determined the successful acquisition of statistical concepts. Individuals referred to teachers who: assumed too much prior knowledge or mathematical ability on the part of students (this appeared particularly common amongst diploma prepared nurses taught by lecturers from other disciplines such as psychology). fall back on technology and the use of computer packages for analysing quantitative data (such as SPSS) and 'irrelevant' data sets rather than teach concepts flexibly and in a clinical context.

CPD was also one of the main routes by which people came into contact with critical appraisal. Here one nurse describes the criteria she was taught to focus on when critiquing research.

Nurse: They said don't worry about the numbers just concentrate on who wrote it... whether they knew what they were on about... I think as well just the way it is written whether it is easy to identify you know like the methods and the conclusion, and that you agree with their conclusion really.

Staff nurse, CCU, Site Three

Several issues emerged around the nature of the knowledge acquired in education and CPD generally. The background⁸ knowledge acquired (mainly anatomy, physiology, sociology, psychology and medicine) in formal education was valued. Indeed, increased knowledge of 'A&P' was a source of some pride to some of the CCU nurses having undergone the ENB coronary care course. However, the nature of this knowledge was not always seen as useful. One degree nurse felt that her 'extra' knowledge was not always recognised and valued by others and that, for her, foreground knowledge was the more useful educational contribution:

Nurse: We did a Nursing degree, and people just don't seem to recognise it really, because I'm still in a minority that have got a degree and I've brought a lot of knowledge back with me that I've sort of used that on the ward but just with certain individuals. But other than that, its only been my personal development that I've benefited from with the degree.

Int: What kind of knowledge have you been able to use on the ward?

Nurse ... a very good one [educational module] was management of care, which I learnt a lot from, because I was a bit naïve when I first qualified!

Staff nurse, Medicine, Site Two.

A more experienced medical ward manager highlights the role of practical settings for CPD as the ideal environment for gaining both confidence and basic (sic.) or foreground knowledge to do with management of care. Interestingly, she highlights the fact that gaining this knowledge by creative educational experiences such as shared inter-disciplinary clinical simulations can be challenging – even threatening - for some individuals:

Nurse: ... we have to have the basic knowledge, em..., so in principle that was the idea, [going to CCU for CPD]... I was just sort of thrown in with the rest of them, and one of the sessions that they have is on arrhythmias. So of course, I mean, she just gave me this arrhythmia and said what is it. She did that to me twice... they were fairly easy so I knew what they were, so I could give her an answer, but I said to Jean, I haven't got enough skills on arrhythmias because you... 'cos obviously when you do your practical presentation, you have to decide whether it's mechanical, or whether it's an arrhythmias, and I haven't got enough skills. Yes, I can see what hits us in the eye, I can see the AF's, I can see VT or VF but first degree heart block, second degree heart block, complete heart block - I don't feel I've got enough skills to make that decision... I know some of the girls who had been on coronary care were stressed out ... I suppose what happens is when you go to the advanced life support you take on the role of the medical staff, if you're the only person, you lead and you are telling people what to do....

Medical Ward sister, Site Two.

⁸ Background knowledge here refers to that general knowledge (medical, nursing or other) which often relates to disorders or disease e.g. what are the features of acute pancreatitis? Or what types of diabetes are there? Foreground knowledge, on the other hand, refers to that knowledge which we use in the management of patients – it relates to clinical goals, e.g. what's the best way of teaching cardiac rehabilitation?

Patterns Of Experience

One male staff nurse from coronary care in Site One who represented the antithesis of this perspective highlights the need for both foreground (practical ‘management’ skills borne of experience) and background knowledge in response to the question, ‘where do you feel you get your knowledge about nursing and how to deal with all different situations?’:

Nurse: It's probably a sort of accumulation of things from sort of pattern recognition in a sense; you've been there, you've seen it before, you sort of hear that scenario where somebody says: well, I know that that person is going to do so and so, because they fit into that pattern now, or that person is going to have a cardiac arrest, and they do, you know, is it because they recognise something or is it because they fit into a pattern, that another patient in the past has done it.

Int: Right, predict...

Nurse: Predict that, and somebody else has been in the same situation so it will happen again. I am not sure if it is that, or...

Int: Can you do that?

Nurse: Yes, I think so yes. You know that certain situations will lead to an event or whatever, now whether or not that is just pattern recognition, or whether or not it is because you know that certain physiological processes will cause another event, whether or not that is because of my experience of doing certain post-basic courses I have a better understanding of physiology, and sort of the disease process, perhaps it is a bit of both.

Staff nurse, CCU, Site One.

He goes on to highlight the role of experience-based pattern acquired knowledge in the management of patients during the medical procedure of thrombolysis:

Int: Right. Would you use that instead, as a basis for any of your decisions, would you initiate an intervention because of the feeling you have that you could predict this might happen.

Nurse: I suppose in one sense. We give like, sort of streptokinase., it's a thrombolytic drug, and like, I know that the patient will become hypotensive within sort of twenty ml of the infusion. The patient will become hypotensive, will develop fever but I am probably one..... I would continue the infusion compared to a lot of less experienced staff would maybe stop it, wait for the blood pressure to recover, which I know it will recover, because as soon as the body gets used to it. So, perhaps, I will be more, they will be more reluctant to continue the infusion, where I would probably continue for a lot longer, and we've had these debates before in sort of all like staff meetings and things when should you stop the infusion and things like that, so perhaps in that sense because I have been in that situation before, I have experienced it, I know 9 times out of 10 the patient will have no sort of long term problem, will come round quite quickly, I think it comes through like, you gain confidence by sort of the same situations using certain bits of knowledge.

Staff nurse, CCU, Site One.

The Attractiveness Of Plain English

It was not always the statistical nature of research information which led people towards a lack of engagement, sometimes it was simply the fact that the language used was seen as alienating and inaccessible. Indeed, one of

the most attractive and oft-quoted benefits of the two journals which nurses cited as the most readable (Nursing Times and Professional Nurse) was their lack of academic (sic.) language:

The reason I get the Nursing Times is 'cos it's a bit like a doctors surgery read, you can put your feet up and.. it's just ordinary nurses writing in and saying what they think, and that's what I like about it really. It's not really heavily academic at all really, and it's... like people are published in there that wouldn't stand a chance of being published in other journals, not because they don't deserve to be but because they maybe don't write in a certain way or what they've done isn't on a large scale or isn't on a reliable scale, I just like it 'cos it's got lot of like - bullet points in and... you know... I like the bit at the front where they talk about em... like legal issues or government issues...

Staff nurse, Surgery, Site Two

The Production Process.

Nurses recognised that the time taken to engage with written forms of information was too lengthy to be useful in practice (+3). Moreover, attempts to adapt national or internationally developed technologies such as guidelines or protocols to the local setting were often lengthy and perceived as obstructive or bureaucratic. Some nurses felt that practice developed faster than the technologies intended to improve it. In this example a staff nurse on a coronary care unit describes the development of a protocol, the time lag that was involved, and the bureaucratic system that delayed its progress:

We changed our 24 hour management sheet a few years ago, and it took about 6 months to get it through to the department, to go from like Practice Development Nurse and then, they would then pass it back with comments, and it would go to like [the Assistant Director of Nursing], and then it went to the Trust Board, and then it eventually came back, and then it had to go to the printers, it was a real long time, and when a department is moving through so quickly, if we had to write a guideline and get it through the Trust, you know, we've had to rewrite the guidelines three times because like the administration of the drug and the treatment of the patient has changed three times in less than a year, and if you are looking at six months, you know, the Trust is, you know, too slow. I mean you've got to be reactive. Staff nurse, CCU, Site One.

Table 8: The Demographic Composition of the Barriers Perspectives

BARRIER PERSPECTIVES

Variable	1		2		3		4					
	Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)				
Age	32	7.6	36	10	38	9.5	23	36.5	10	16		
Length in specialty	6	6	5.5	5	8	8.3	23	7	7.1	16		
Length since registration	9	7.05	12.4	9	16	10.8	23	15	11	16		
Post												
Staff nurse		13	65		18	75		16	62		11	61
Senior Staff nurse					1	4		4	15		3	17
Ward Manager		4	20		2	8		1	4		1	6
Clinical Nurse Specialist		1	5		1	4		2	8		1	6
Other		1	5		1	4		1	4		1	6
Education												
5 O Levels or GCSE's		5	25		2	8		11	42		6	33
A Levels		1	5		4	17		3	11		3	17
Diploma		3	15		1	4		2	8		1	6
Vocational		4	20		3	12		3	11		2	11
1 st degree					3	12		1	4		3	17
Higher degree											1	6
Other		2	10		7	8						
Professional preparation												
SEN					2	8		2	8			
SRN		2	10		4	17		12	46		4	22
RGN		5	25		5	21		3	11		3	17
Dip		6	30		5	21		4	15		4	22
Degree					1	4		1	4		2	11
Conversion					3	12						
Other		3	15			12						
Research or management involved in job?												
Yes		9	56		13	54		10	38		9	50

* Where sub groups do not total 100% this is due to missing values

For nurses with a desire to use research in their practice this delay was frustrating and for some was evidenced in their desire to see research based information built into the tools nurses already use (+4) in the hope that the chances of successful implementation would be higher:

We had Braden, the Waterlow and Norton⁹ on here. Its just one thing after another and none of them seem that much better than just eyeballing patients! Its just reinventing the wheel all the time...we need to just stick with one thing and use the research to make it a bit better...tinker with it if you like.

Field Notes, Ward Manager CCU, Site Two

Confidence Induced Conflict

For these nurses research information was seen as overwhelming (+3). This sense of being overwhelmed possibly increased the conflict between wanting to use research and not having the skills and confidence to do so which many nurses expressed. Much of this lack of confidence related to the use of computer technology. This was unfortunate as the interview data reveal that for many nurses information technology and computerised access to research findings and other products were clearly seen as valuable:

I've done a bit on the Medline and things, but I've always had to ask somebody. I just listen to people who have been on the internet, and they say, oh, you know you can get anything you want. And I should really, because I'm sure there is. And just even from journals and using the Medline and things like that. I could just go down to the library and sit on the computer I'm not doing myself any favours really, because its so easy to do and I should really do it.

Senior Staff nurse, Site Two, Medicine

Yet despite recognising that computer skills were going to be a key driver in future ways of accessing information efficiently, many also recognised that they lacked the skills necessary to make use of this technology (+3).

Adequacy in professional preparation (*vis à vis* research and computer skills) appeared strongly associated with developing confidence in using research-based products for the people defining this perspective. In contrast those nurses defining perspectives two and three (organisational blocks and the need for clinical credibility and prescription) were strongly associated with positive valuations of their professional preparatory educational experiences and confidence in their computer skills, as well as a positive motivation towards research.

Changing Cultures: Blocking By Colleagues

Again as in perspectives two and three the nurses defining this perspective saw *other nurses* as a major block on research based information use (+3). Interestingly, for these nurses the role of other professional groups

⁹ These are pressure sore assessment scales in common use in nursing. Interestingly, one systematic review suggests that no one single scale offers any better predictive benefits than its competitors or even that these types of scales are superior to clinical judgement alone.(NHS Centre for Reviews and Dissemination, 1995)

(specifically doctors) in blocking research based change was not so apparent (-1). However, it was clear from interviews and the observational data that multidisciplinary research-based change which was initiated or led by nurses was rare. It was not that surprising therefore that doctors played little part in the blocking or promotion of research based with a nursing focus – they generally didn't have to. However, we found that where there were multiple medical firms in place in units (for example one of the surgical wards in Site Three) then disputes and blocking of nurse-led change was more pronounced. Two specific examples cited included the nurses' intention to stop pre operative shaving as a routine and the standardisation of low molecular weight heparin administration times – both of which were disputed and ultimately over-ridden by consultants.

However, despite the fact that it was other nurses who were seen as a major block on the implementation of research findings nurses did reject the reasons as 'cultural':

The culture of my unit isn't really geared up for using research, we're more practical.(-3)

Many nurses recognised that units were investing in technologies which were linked to research-use such as clinical guidelines and link nurse roles. They had knowledge of the local resources available to help implement research (+2) but perceived that, despite the investment, the facilities to help implement research were not available on their wards (+3). This was linked to a broader perception of relative inaccessibility. The issue of other nurses blocking research implementation seemed to be linked to a broader recognition that it was change *per se* that was problematic. A number of interviews illuminate this theme. For example, this quote from a nurse highlights the need for pragmatism in managing change – it also illustrates that pragmatic influences such as individual reactions to the change can overrule the strength of the evidence.

Nurse: Not really. There's some things to do with infection control that I would like to do, but I've felt that I haven't been able to straight away, because I didn't want to come in and be seen as somebody from the [the new site] changing what was always done for years and years at the [old site]. But there are some things that we should be doing that we're not. And I'm conscious of that, and I know that I need to try and introduce the change, but I think it has to be gradual. What we're doing now isn't a bad practice its not going to be detrimental to anybody's health. But I think its things that should be done slightly differently. But I think its got to be done gradually. I think you'll just come up with lots of hostility if you try and change things all in one go. Little things like stacking the washing bowls in a pyramid I mean I do that just when I'm round in the sluice and I tidy up I just put them like that again. And I did that next door, and it finally filtered down and people started doing it anyway. And some of them might do it without realising why they're doing it I know that. But I think you can't just come in and say, you shouldn't be doing that that way. Because it just makes a bad situation worse.

Staff nurse, Surgery, Site Two

This quote also highlights the scale of the problem of change management – even for the most mundane of changes such as requiring nurses to stack washing bowls in ways which encourage more efficient drying.

Lack Of Confidence But A Research Motivation.

Nurses defining this perspective rejected those Q sample statements which stressed the lack of usefulness of research information in nursing decisions (see below). So, the nurses' relative lack of confidence with research based technology and the rejection of research language, complexity and use of statistics was mirrored by a recognition that research-based knowledge *per se* could be useful. This should provide cause for optimism in those seeking to increase the use of research-based knowledge amongst nurses. Indeed, the overwhelming characteristic of this perspective is one of internal conflict. Specifically, individuals recognised the potential of research-based knowledge and at the same time acknowledged that research-based knowledge had a place in their clinical decisions. Moreover, nurses saw research use as very much a personal responsibility:

Using research is a gender thing. If we try and implement stuff its like women nurses telling the men (Drs) what to do – and they don't like it. (-5)

Using research is best left to nurses coming out from college who know how to use it (-5)

There is no need for research. The experience of daily ward life means that you get enough experience to make most decisions.(-4)

Using research won't actually help in my career - there is absolutely no incentive for me to use it.(-4)

Policies and procedures are unwieldy and once you work here a while you get to know them anyway.(-3)

Using research in the past hasn't resulted in noticeably better care in my experience (-3)

Its unrealistic using research information in clinical decisions as most patients can't, or don't want to, handle it. (-3)

The decisions I make are really complicated and research is often too simple to be of any use. (-3)

Associated Characteristics.

Regression modeling aimed at demonstrating the effects of predictor variables on this perspective showed that none of the hypothesised influential variables (clinical domain, age, length of time since registration, length in specialty, mainstream educational attainment, mode of professional preparation, post on team or previous involvement in research), were associated with this perspective.

This relative universality suggests that individuals who lack the confidence to make use of technologies needed to access research based knowledge (including critical appraisal of statistical results) are not restricted to a single

demographic category, and most surprisingly that educational attainment appeared to make little difference to the view that skills and overly complex presentation act as barriers to using research information.

5:4 Perspective Two: Organisational And Cultural Drivers.

This second perspective – which accounted for 10% of the variance in the Q sorts - was characterised by a more organisational or ‘cultural’ locus. In rejecting those Q sample items in which research is portrayed negatively the nurses defining this approach stress:

- their lack of intimidation by the perceived complexity or the ‘academic’ nature of research-based information
- research information’s practical relevance
- their personal motivation towards using research based information in decision making
- that extensive clinical ‘experience’ does not preclude the use of research evidence.
- their perceived confidence in using research based information.

Research information is too academic (-5)

Research is just done for its own sake its not practice related.(-5)

Research never says anything its too wishy-washy in its findings.(-4)

Research information is too complicated (-4)

Research information uses complex language and is just a tool for academics to show how clever they are (-4)

There is no need for research. The experience of daily ward life means that you get enough experience to make most decisions.(-3)

I don't really have any motivation to use research in my practice (-3)

Increased Confidence

Interviews with the individuals defining this perspective revealed their relatively high levels of confidence in engaging with research based material:

It is very basic what I can do but I can go along to the library - look something up - I know how to reference things properly, I know how to use a computer to find things, I know how to produce something and how to do my assignments as well.

Staff nurse, D grade, Surgery, Site three

All the nurses defining this perspective recognised that not all research is of good quality:

I enjoy critiquing articles. I had to do one for Project 2000 in my training, we went through the critiquing process and things. And then I had to do a lot of it for my degree, and my dissertation was a whole critique of... I think I used about 15 articles. And I had to critique those articles and then draw my own conclusions from the critique. I think it's a skill that goes hand in hand with research. You've got to.... if you're ever reading research you have to be aware that its got its flaws and you have to be.... You've got to be aware of the critiquing process, definitely, because all research isn't good research.

Staff nurse, D grade Medical Ward, Site Two.

Of course such a perspective does not allow us to judge whether this confidence is well founded or if they are overconfident. Knowledge relating to the critical appraisal of research material is potentially no different to other forms of knowledge. As such, a certain degree of, heuristically-derived, overconfidence in one's skills should be expected. However, in terms of the interface between knowledge use and clinical decisions, the interviews with this group of nurses reveal an awareness of being mindful to the problems of overconfidence:

[I was]... coming to an area that I hadn't touched for maybe - well at least 15 years so there was a lot that I had to learn. Not the consultants - basic things like what the consultants like, but also the reasons why because I think when you go further on in your career, you make assumptions about things. You start guessing things for yourself, which is a bit dangerous sometimes, and if you don't know that area, if you don't know that specialty, I think you can assume things and there are usually very good reasons why people ask for things, which you think, well why are they asking for that. Well it is not necessary but if you ask behind there is a very good reason why and I think you have to be careful of being overconfident.

Staff nurse, E grade, surgery, Site three.

Obviously I'm very channelled into cardiology, so I've got a good knowledge of cardiology. I wouldn't profess to have a good knowledge of sort of... endocrinology or anything different. So unless I felt confident, I don't think I would perhaps be as challenging as I would be on here, on another medical ward. Simply from a knowledge point of view.

Staff nurse, E grade CCU, Site Two.

Often for these nurses information sources acted as a way of validating their own knowledge. As in the case below, as a source of support or reassurance – often after decisions had been taken:

As I say, its silly its making more work for everybody, and I think sometimes patients must think, 'well does she know what she's doing, if she's going off to check with somebody what's being used, and why its being used, or whatever'. I mean I think especially for the junior nurses on the ward who haven't seen as many wounds and whatever because I feel confident to look after a wound and competent to carry out taking care of that wound, just by looking at it or whatever. But if I wasn't I'd get one of my other colleagues to look across.

Staff nurse, E grade, Surgery, Site Two.

Qualitatively, the individuals defining this perspective had a number of characteristics which seemed to unite them. They all had a self confessed degree of skill in engaging with the technologies necessary to enable rapid access to research based material – although often they were very reticent about these skills; they all seemed confident in their abilities with regard to practice but as has already been seen were aware of the limitations of their experience alone and problem solving abilities generally; they all recognised (even if only at the intuitive level) the need to distinguish good research from bad and some idea of critical appraisal criteria (not all of which were founded in ideas of good science from a researcher's perspective: the geographical location of the researcher

as important, whether they were a nurse or an ‘academic’, or whether drug companies had sponsored the research. Most also had some form of positive experience of CPD in respect of critiquing information, searching, or being taught statistical concepts or techniques.

Relative Inaccessibility

Perhaps not surprisingly nurses perceived inaccessibility of research information sources as a major block on their use:

*All the facilities which would help me use research based information are off-site and so difficult to access. (+5)
we don't have the facilities to use research in the ward itself. It would be better to have computers and CD-ROMS on the wards rather than somewhere else.(+4)*

There are people and resources available here to help implement research but you can never get hold of them when you need them.(+3)

The library is not geared up for nursing here. (+2)

It is important that these perceptions be seen in terms of *relative* inaccessibility (relative to the human sources of information which dominated) however. Each of the sites had well stocked libraries on-site with good quality electronic information sources available but only text based research based information on the wards. The nurses appeared to access library-based resources in connection with CPD courses or as part of a link role or larger scale project such as a group decision (for example purchasing equipment) or standards/guideline development.

Consumption And Opportunity Costs

These were individuals who by and large had all made use of technologies which were likely to lead to engagement with research-based material – such as clinical guidelines and (to a lesser extent) encountered electronic and library based resources as part of their CPD. Getting something useful from these resources was seen as overly time consuming.

Time, however, was not the only commitment. For many nurses, making use of research material meant having to pay for photocopying or travel expenses from personal funds, or some other form of sacrifice such as the loss of personal time.

Its sort of lapsed a little bit! [the unit journal club] We did get some funding, but we've not had it through, so people are a bit reluctant to go for their turn, because obviously you can spend a good £2 - £5 really, photocopying, in any one go. E grade, Staff nurse, CCU, Site two

Often these perceptions were based on past experiences of using research, as well as a more broadly held belief in the busy nature of clinical practice and the scope for implementation.

Whenever I have tried to use research in the past it costs me too much money, time or commitment – like getting papers from the library or whatever (+4)

The nurses' perceived levels of commitment in respect of being involved in introducing change should not be underestimated. Here one nurse describes how a Trust's insistence that a colleague's CPD project be developed into a formal protocol had a negative effect on her perceptions of such processes:

I mean, the only thing that would put me off recently, one of the girls on the unit has been involved in a... like a meeting group about oxygen therapy for the Trust, and they've been trying to get together and put protocols together, because our practice is pretty naff, really, with that. And she now feels that she's been dumped on with a lot of the work that they want her to do, because she did an assignment in her Degree course that was related to oxygen therapy, and because of that she feels its just been a good excuse for them to say, well you do this, you do that, and the rest aren't really doing a great deal. So I think it would put me off, in some ways. Staff nurse E, CCU, Site Two

Time In Practice

The busy nature of practice and the time taken for implementation was also a frequent feature of many accounts in this group (although not as pronounced as for perspectives three and four).

Implementing research is just unrealistic because of time pressures.(+2)

Nursing practice is so busy that there is no time for implementation (+3)

Interview accounts reveal that the limited time available for research material to input into decision processes was certainly an influence. In some settings (such as the medical admissions unit in Site one) the nurses almost seemed to pride themselves in their ability to cope with the rigorous demands that such work characteristics make. This quote from a medical Ward sister gives a flavour of the accounts of the time pressures that nurses portrayed.

I would like more time to do it, you know, because you've got the experience, and you can feel where they're going wrong, I must have spent about an hour... today I've wasted with a wonderful nurse who's quite new, but she's spending too long, being too kind to people, and I said, you can't stop that, it's human and it's lovely, and you can't change that, but somebody will die in the next bed because she's so interested in a cancer patient. That's her... she'll end up as a Macmillan nurse, but she hasn't let learned that she's not a Macmillan nurse yet, so she has to leave that to the Macmillan nurse and she has to look after the acutely ill patient who she's not looking at. It can be frustrating if somebody's fast and somebody's slow. Sister, Medicine, Site Two.

This edited one hour extract from DM's field notes reveals the incredible volume of activity in a busy ward and a flavour of the immediacy of information required:

Field Notes – Site Two, Medicine, 25/3/99: 3.15-7pm.

When I arrive on 23, Martin says.. “We have no staff, we’ve not had our breaks, we’re ringing round everywhere for staff, we’re desperate! It’s hectic.”

Martin leaves the desk to help get a patient into bed. Another patient is on a bed, waiting by the station and he says of him “This man is being moved to 52, because we need the bed for someone else coming in.” Martin asks one of the nurses to fetch an arm chair so they can put an admission into the chair while they wait for a bed for him. He is a large man who appears quite breathless...

One of the other E-grade staff nurses, Nicki Jordan, tells me that she’s phoned their nurse manager (AJ) to say they shouldn’t be taking admissions as the ward is full and they are so short staffed. The manager has not yet returned her call.

Martin has returned to the new admission. He measures his sats and says they are fine (94%) and he checks the man’s blood pressure (123/58)...

A buzzer rings and Martin goes into the female bay opposite the nurses’ station. A young girl is complaining that her she feels her head is spinning.

Martin tells her to lie flat; he asks her when her mother is coming in, as the doctor would like to talk to her.

Martin goes to the desk with Nicki. “Let’s do a quick recap we’ve had 4 transfers out, one’s gone to 23, one to 48, one to 52, and one to the other site, and there’s been 3 discharges.

JW had a seizure yesterday. He’s an epileptic; he was in AF but he’s spontaneously reverted. He’s query DVT and to have a doppler ultrasound tomorrow. He’s on restricted mobility but he’s fairly independent. Just keep an eye on him.

Mr P: the 65 year old with heart failure and chest infection. He should be on 4 litres of oxygen. He’s on iv antibiotics. He has dementia. He’s been wandering and he’s been off the ward, so we need to watch him carefully. He can be aggressive.

KG: his got central chest pain. He’s SOB and he’s got nausea and he’s been very sweaty. There’s nothing on his ECG and his chest X-ray is normal. We’re going to try to send him home. I’ll need to check his notes to see if someone’s been to see him.

Mr R: he’s COAD and he’s SOB. He’s epileptic and quite drowsy. They’re going to do a CT of his head.

The ward clerk calls Nicki across and gives her a telephone message: The nurse manager (AJ) is in a Sisters’ meeting and she’s left a message that she’s not to be disturbed.”

They continue:

JS She OD’d on something 2 days ago. She’s got a personality disorder. She’s got a Parvolex infusion and she’s having Chlordiazepoxide. She’s drinking quite well at the minute, but we need to watch if she starts getting drowsy.

DG: she was admitted today, a 75 year old, who has a history of shortness of breath and she’s query chest infection which may have knocked her into AF. She’s going to start on antibiotics and she’s on non-steroidals for pain. She’s not been properly diagnosed yet. She’s for ECG and chest X-ray and she’s to have arterial gases done. She’s up and about; she does have arthritis and she may need some assistance. We’ll need to get some Ibuprofen and Bendrofluoazide written up for her.”

Martin says he’s going to look for Mr D’s notes so he “can be dispatched to 52.” Martin goes to tell the patient he is to be moved, and detaches the monitor leads on his chest. He asks the porter to look for an oxygen cylinder and between them they transfer the patient to the chair. The patient is moaning and groaning as they move him. And he looks cyanosed. Martin adjusts (increases) the rate of the oxygen, attaches the mask and gives it to the patient. The patient also has an iv infusion and Martin takes hold of the bag of fluid, saying he’ll go with the porter to move Mr D. As they set off, Martin says to the patient: “You can have a neb when you get there.” Nicki says she’ll hand over to Martin when he gets back.

Nicki says to Martin: "The bank can't cover tomorrow. I rang AJ to tell her, so she is aware of it."

Martin: "So that means we'll be 2 down for the early shift."

Nicki: "We'll probably get someone from the Agency"

Martin: "Yes, well most of them are shit useless anyway."

...Three patients arrive on the ward at once... Two of the patients are elderly ladies with chest pain and they are both put into the bay opposite the nurses' station. The phone is ringing but there is no-one available to answer it. Sam has gone to look for a patient slide... Martin asks Sam "What needs doing?" Sam: "There's in digoxin and Frusemide to give one of the new ladies. Her card's on top of the desk."

The phone rings and Martin picks it up. "It's another admission, a 94 year old on his way in." Martin goes to draw up the iv drugs...The auxiliary interrupts to talk to Martin: "Can you speak to Mrs R.? She's on the phone and she's got a question about her husband's discharge tablets."

Martin: "Did he not get a discharge script? Well, I've got his tablets here for him. He started on a new one didn't he? What does it say on the script?...Nebeverine...that's the same as Chloofac isn't it? Allenopil is the new tablet he's starting. Yeab, they're all here. Why didn't he get them to take with him? I'll come and tell her."

Martin: "Mrs R, I'm sorry the tablets didn't go with him when he was discharged. Could your son pop in and get them...no, he's gone home, well I'll try to get them to you somehow. Give me your address and telephone number and leave it with me. If need be, I'll see if we can get them put in a taxi and sent round to you." Martin gives the package of medicines to the ward clerk and asks her if can ring the site manager to see if they can send the drugs in a taxi.

The ward clerk turns to Martin: "The site manager will say the taxi driver can't carry the drugs on his own." Martin: "Don't even speak to her...just arrange a taxi and hand the drugs over...just ask him to deliver the envelope to the address."

Ward clerk: "Does his wife know all about the drugs, which one he's supposed to take when?" Martin: "Yes, yes she'll know."

Clearly the perceived lack of time for 'building in' research evidence into clinical decisions was a powerful influence on the information seeking behaviours of nurses (go for what is immediately available and likely to give you a sensible answer rather than what is likely to provide the 'right answer' but takes time to get a hold of). However, (as in the first perspective) for some nurses incorporating research into practice was not the problem. Rather, it was the perception that practice developed faster than the technologies which were meant to inform it. Aside from specific technologies such as protocols or guidelines nurses often described complex and lengthy processes and bureaucratic control procedures as a context for change. This staff nurse's interview demonstrates that even for the simplest decision tasks nurses face difficult cultural barriers and are not even always 'allowed' to make decisions:

...it's a simple matter of patient needed urine medicine and they were on cytotoxic therapy and we were taking the wee from their room, they were in a side room with a toilet, to the sluice, measuring it and then tipping it down the sluice and we wanted to know why we couldn't put the jug in the patient's toilet and measure it there and tip it down their toilet. So we wasn't taking cytotoxic stuff up the corridor, which could cause harm to the person carrying it if it got spilt or to anybody else if they tripped and fell over, that type of thing. Oh yes, they said that they welcome change, but it's got to go through the relevant channels, which meant that it had to go through Sister, then it had to go through the haematology nurse specialist that we've got on the ward. And then it had to go through Dr X and Dr Y, the consultants, as well as, which they would just turn round and say 'do what you want anyway'. It's up to you what's in the best interests of you. Sheila, the haematology nurse had said that there were no reasons why you couldn't do it, there's no evidence that you would be causing harm from carrying it from A to B and then the person that she'd asked had said 'well, we've done it for years, so why change it now'. So it didn't get done, we're still carrying it up there

Staff nurse, D grade, Medicine, Site Three.

The complex nature of developing new tools based on research or introducing new technologies into the workplace meant that nurses defining this perspective exhibited a desire to see research built into tools which were part and parcel of ward life already.

We need research built into the tools we already use like the Waterlow scales and stuff if it's going to be used by everyone. (+4)

For many nurses it was the pragmatic characteristics of existing technologies such as their popularity or that they were 'filled in more' rather than attributes such as validity, sensitivity or specificity which made them appealing. This quote from a staff nurse on a coronary care unit reveals the influence of such properties, although she recognised (as many people did) that blanket application of technologies such as a particular risk assessment scale was inappropriate:

They're going from the Braden to the Waterlow. Because the tissue viability nurse wanted everybody to use the Braden score. But we weren't filling them in. And Louise and Deborah, because they're both doing tissue viability, said well we need to look at this. So they pulled 20 sets of notes from the Braden time and looked at them, and I think in actual fact we were probably very poor at filling it in... I think Deborah had actually thought about doing it from the point of view of her degree. I think that was where it originated from... Then as part of her tissue viability thing (link nurse), picked it up. So it was I think in discussion with Dave Turncock we talked about whether or not you actually needed to have a tool, or whether you had an intuitive ability to decide¹⁰. And basically we did a trial over a month and just got people's opinions on here, and then took it back to her and said, well look we've trialed Braden and the Waterlow, and people are filling in the Waterlow and feeling more happy with it, so I'm afraid we're going to change it! I think when we went and said we were wanting to include it because we can include people who are on steroids and people who have got heart failure, and its got an area on peripheral vascular disease, I think she saw that yes, it was more appropriate for our patients. And certainly when we phone up now and say what the Waterlow score is, she's more sort of inclined to say, well yes at least they've been assessed, whereas before people just weren't assessing them. So from that point of view, I think she had to take it on board.

Staff nurse, E grade, CCU, Site Two.

Power And Personality

Whilst much of the literature alludes to the doctors blocking innovation and research based change by nurses, one of the most interesting characteristics of this perspective was that doctors were seen as relatively less of a barrier to research implementation than other nurses. Indeed, in some areas (most notably CCU) doctors were seen as a supportive route for introducing research into practice. Of course, doctors high level in ward hierarchies meant that change was also made easier by the co-operation offered by nurses:

Nurse: I think from a point of view of a medical thing, the cardiologists come in and say this is what we're doing now, and people know that their decisions have been made because they've looked at the recent research and this is the way forward. So that's quite I find that quite good, because you know the patients are then getting the best treatment. So that works well. And also that's taken on board.

Int: So what they say, that's based on research.

Nurse: Yes.

Int: So that's pretty clear cut, is it? If they want to change the information its disseminated quite quickly?

Nurse: It is, yeah.

Staff nurse, CCU, Site Three

In contrast to the first perspective, this perspective stresses a number of distinct organisational-cultural blocks on using research based information. Specifically, the role of nursing and (to a lesser extent) medical colleagues and a perceived lack of commitment by management:

¹⁰ The Effective HealthCare Bulletin 'The Prevention and Treatment of Pressure Sores'(NHS Centre for Reviews and Dissemination, 1995) suggests that the nurse was probably right to question whether using a scale was worthwhile at all.

Other nurses themselves are often a block on using research. (+5)

We try and implement research but the Drs block it and its really frustrating. (+2)

There is no real commitment on the part of management to help us get to grips with using research in our work. (+3)

Many of those defining this perspective were nurses singled out by peers during data collection as ‘dynamic’ or ‘keen’. They often had an enthusiasm for learning (as evidenced by their link nurse roles and extensive CPD portfolios) and many of them spoke of a philosophy of ‘constantly learning’. A number of the nurses alluded to the problems of introducing change in systems which rely on experience and a form of ‘cultural validation’ by peers in order to be successful:

Int. Do you think it would be easy to introduce a change into the ward?

Nurse: People are very reluctant to change. Very reluctant. And I've got to say, it's more higher up than lower down the ladder. They don't feel, whether or not it's because they are going, that they don't want to change their practices now, or what, I don't know. But, yeah, it's more higher up than lower down that they're reluctant to change.

Int. So is it easy to bring new ideas in?

Nurse No, I think if it was, they say that they're very willing for you to go [with the idea], but that's as far as it would get, unless it was a rock solid idea and they thought it was worthwhile and it wasn't going to cost any more money, then yes, they would agree to it.

Staff nurse, E grade, Medicine, Site Three

Cultural resistance was more manifest by inaction rather than an overt resistance to change:

Nurse: I think they're all pretty sticklers for what they like to do really. From what I've heard anyway, I don't think any of them really like change.

Int. Why is that, why do people resist change?

Nurse I don't know really, I think a lot of resentment is because the nurses that are coming through now are more aware of change and that good change can help patients. Although they say they're not reluctant to change, they are not forthcoming to do it, type of thing, and they get very resentful when they say 'why can't we do this' or 'why can't we try something new' type of thing. And it's not the junior nurse's fault, it's just the way we've been trained to do it, because we ask a lot more questions as well, 'why are you doing this?' 'why do you find it necessary?'. Although some don't mind it, some feel that we're trying to put them on the spot and catch them out type of thing.

Staff nurse, E grade, Medicine, Site Three

This extract from DM's field notes shows the subtle ways in which information seeking behaviour as a response to clinical uncertainty in practice was not always welcomed by all members of the clinical team:

[The House Officer] told Sarah to go ahead and give the iv drug...[to a patient with raised blood pressure]

Sarah expressed concern about giving the iv nitrate. She said the HO seemed a bit unclear about what she was doing, and she was the one who had prescribed the drug.

Sarah said there was no dosage stated. It was written : "Give iv nitrate as per protocol." Sarah said "I've only heard of giving nitrates in connection with angina, and then you monitor their pain and alter the dose accordingly. But G. can't tell us if he has pain, and anyway I don't know if he's having pain!" Sarah asked Jacqui about giving the drug. She answered in rather an offhand sort of way: "Well, give it according to the protocol like it says!"

Sarah went to get the Coronary Care Protocol book and started to look it up. Jacqui saw her from the desk and said "Don't use the yellow one, use the red one, it's more up to date."

Sarah got the red book and started to look up the dose, all the while saying "I don't really know why he's having this, I don't think he's in pain." She found the instructions for giving the drug: 25mgs of Nitroline in 25mls of N/Saline, to be administered via Graseby syringe pump. Sarah said: "I'm not happy about this...I've not seen it used before for high blood pressure." She said the patient was to have his blood pressure monitored hourly, and that his blood pressure was 210/140.

Sarah decided that she was going to ring pharmacy to check what she should do. She said: "I'm not used to giving this." Sarah picked up the phone and was put through to pharmacy. She explained the situation to the pharmacist: "We've got this patient whose had a CVA. He's to have IV nitrates for his high blood pressure. I've never seen it used except for pain in angina, but this is just for his blood pressure...would they not usually use something else?"

She replaced the phone and told me that the pharmacist said "It is a recognised use."

Sarah then said: "The next problem is, is it compatible with saline and potassium. Sarah decided to look up the BNF to see if she could see if the drug should be given with saline. She didn't seem to get a satisfactory answer, and decided to ring pharmacy again, this time to check for compatibility with saline and potassium. The pharmacist told her the drug was compatible with both.

Sarah then decided to check the patient's blood pressure again herself the reading she recorded was 200/130. She said aloud; "I don't even know what we're supposed to be aiming towards with his blood pressure...it's not written down what it's supposed to be reduced to."

10.45am: Sarah washed her hands and drew up the nitrate drug, diluted in the appropriate amount of saline. She asked Sam to check it with her and then fixed the syringe to the Graseby Syringe Pump and adjusted the rate to 6mls per hour. She signed the prescription chart. She told the patient what the drug was for, and explained to him that she would be returning to check his blood pressure soon.

[in this intervening period the patient became agitated and appeared in pain]

Sarah went to the desk, where Jacqui was writing in the desk diary. She informed Jacqui that G. seemed agitated, and that she was going to ring the HO to find out about how much they were supposed to reduce his blood pressure by. Jacqui: "Don't worry, it will probably just come down gradually."

Sarah: "It has reduced... quite dramatically...I want to phone her."

Jacqui (in an irritated manner): "OK, if it will make you any happier"

[There is obviously some tension between Sarah and Jacqui, and when Jacqui moved away, Sarah said to me "You can see why I'm leaving."]

Field Notes, Observation, Medical Ward, Site 3

It is clear from this extract that the nurse was unfamiliar with the decision task, she was being asked to work to a protocol for a different condition, she was unsure what was happening and her 'questioning' approach was clearly a source of irritation to more senior colleagues. This was the only example we observed of a nurse explicitly using a protocol, in real time, for observable decision choices. The nurse in question was clearly questioning and keen

to ensure that she made the correct decisions. It was unfortunate however that this was her last shift – she was leaving to become a drugs salesperson.

Of the four perspectives, perspective two – with its emphasis on perceived clinician confidence and a desire for accessibility - was the most ‘pro research’ and appeared to be characterised by those who had developed the necessary skills to be able to make use of the technologies usually associated with evidence based healthcare: basic appraisal of journal articles, using computerised information sources and appropriately applying written guidelines or protocols.

For these individuals many of the blocks on using research material in practice were attributable to organisational failure in some form: overly bureaucratic technology development processes; inadequate support for the main means of engaging with research evidence such as continuing professional development or the link nurse structure; perceived poor physical access to information technology which would enable them to make better use of, and develop, skills they already possessed.

Associated Characteristics:

Regression modeling revealed that the longer a nurse has worked in a clinical specialty the less likely it is that they will be positively associated with this perspective.

<i>R Square</i>	0.061	<i>Sig.</i>	0.01
<i>B</i>	-.75	<i>Sig.</i>	0.01

There are a number of possible explanations for this finding but the one which carries most credence (based on the interviews and observational material) is that a sense of trust, perceived clinical credibility and success in informal negotiation were all crucial influences in the ability to influence change. Experience in a specialty provides more of these valuable characteristics. If this hypothesis proves correct then experience becomes a very influential commodity: experienced staff in a domain are more likely to (or they perceive themselves as more likely to) be able to overcome some of the organisational blocks on research use that are such a negative force amongst less experienced staff.

The competing tension within this explanation is that the perspective is also very positive regarding research knowledge. The negative association between experience and this perspective may mean that despite being able to

overcome organisational barriers, experienced staff may not value research-generated knowledge as much as the less experienced staff.

To summarise, for these nurses barriers to research implementation are less due to the individual practitioner themselves or the products of research (as in perspective one), but due to a lack of access within the organisation, the lack of support from colleagues, doctors and managers and the overwhelming perception that bringing research findings to practice cannot fit into a workload which is simply too time-pressured.

5:5 Perspective Three: Prescription, Direction And Clinical Credibility

This perspective explained 8% of the variability associated with the Q sorts. This third perspective mirrors some of the previous perspective but is marked by three important differences: a greater perceived lack of time for implementation, greater clinical credibility in research, and the desire for a greater level of prescription in research messages for practice.

Other nurses themselves are often a block on using research.(+5)

Nursing practice is so busy that there is no time for implementation(+4)

Implementing research is just unrealistic because of time pressures.(+3)

Time

The comments of two nurses reveal the perceived ‘grind’ of daily life and the impact it seems to have on general health let alone allowing for the very ‘separate’ activity of using research.

We brought in this temperature taking thing, but sometimes if you're not careful research is going to be put on the back boiler I think, and it gets busy, there's no time, the staff start getting tired then, because of the nature of the ward, and em..., the enrollers that have done a conversion course they've have had to do some research done on hand washing and mouth care, so because of that we've had to do it, and I think it's only if you have to do it that people will instigate it.

Sister, Medicine, Site Three (emphasis added)

Well again, yeah, we've had one of those [link nurse meetings] since we've been here and there were only 3 of us who turned up, for whatever reason... we were going to try and make an effort and have more meetings. But the ward's just been so incredibly busy in fact horrendous for the last 6 months, I would say. That people are very tired, there's quite a few who are just so run down, and we've had a lot of people on the sick there's just no time for this sort of thing. And people are really fed up at the moment. So its really difficult.

Senior Staff nurse, Medicine, Site Three

The 'separation' of research from mainstream clinical ward activity was seen as an additional burden on a scarce resource with a special effort needed to introduce it. Time and commitment were the primary blocks on these nurses engagement with research evidence.

Using Research By Nurturing Others

Interestingly, two ward sisters from different sites expressed similar views in relation to their lack of personal desire to embrace research evidence in their work. However, they both believed strongly that it was their role to foster an awareness of research in their staff and to gain resources to help them do this. They talked of 'battling for resources such as computers', 'making sure that there is time for my girls to go on courses', 'investing time and money' [in key link nurses]:

Nurse: I don't know, I think one thing is time, definitely it is time. It's a personal thing, I seem to have this reluctance to commit myself into this.

Int. When you say 'my reluctance to the research base' what is all that about?

Nurse: Well I just never showed any interest. It must be laziness, but I've never gone to ... well I did with Jo, we went to the library and we were shown how to retrieve information and if we'd continued it, that might have been alright. This was about six years ago when she converted from an enrolled nurse on the conversion course. I had this commitment that I would keep it up but I didn't. So that was my own personal ... it didn't stimulate me and my attitude to them all is 'yes, that's fine just don't include me'. I'm Interested to hear and to talk about it, but not to do it, to participate in it at all.

Int. But you're open to it if someone were to come to you and say look 'this is the latest evidence about pressure area care'?

Nurse: Oh definitely, I think that's ongoing you know, continuously ongoing. No it's practically me doing it that I've never taken it up. I don't have time in my working day and it doesn't interest me to do it outside of work.

Ward sister, Medicine, Site Three

The Sister goes on to explain that, despite her lack of personal motivation, she feels that research evidence in nursing is important:

Int. Do you think there are benefits for patient care though research?

Nurse: Yes I do and certainly nutritional things have come up and we've talked about trying to incorporate nutritional with the Waterlow score. That's not quite materialised, although the dieticians have worked very hard and I think it's not far off, but we still go on research based evidence. We've just changed now from using all these very expensive Enlive and Ensure to go back to Complan where we started, because there are no benefits to the majority of people for a replacement meal. It's rather different through disease, when you're losing protein and you need to replace protein for like, and then you need your Ensure, Enlive as guided by your nutritionist. If it's the one-off for loss of appetite or feel a bit sick, don't want the meal, then Complan is more than adequate and that's all been done on research based evidence. We're very up with all of that.

Int. Where did that come from, where did you learn that?

Nurse: Dieticians. She fed that in.

Ward sister, Medicine, Site Three

Again (as in the previous perspectives) the issue of personal motivation, and the recognition that experience alone does not provide you with the necessary knowledge for practice, is pronounced:

I don't really have any motivation to use research in my practice (-5)

There is no need for research. The experience of daily ward life means that you get enough experience to make most decisions (-4)

For these individuals (again like the previous perspective) perceived personal limitations in handling research-based information are not seen as particularly influential barriers. Not surprisingly then they are relatively confident in handling research based information. However, in contrast to perspective two these individuals reject the argument that questions of relative physical accessibility of research information within the organisation act as a primary barrier to implementation. Although this could be due to the fact that they prefer to foster the use of such technologies in others:

My own professional education hasn't really prepared me for using research in my decisions (-5)

I have no real confidence in reading research (-4)

I don't really have any motivation to use research in my practice (--5)

All the facilities which would help me use research based information are off-site and so difficult to access.(-4)

I don't have the necessary computer skills to access and use research properly (-3)

I don't know enough about what is available to help me implement research in the hospital.(-2)

This perspective is marked by the need for guidance and the overarching importance of clinical credibility.

Direction

This first theme - that research material should offer guidance for practice – was something that many nurses referred to. Often research was used to ‘reassure’ or to ‘make sure you are on the right lines’. Many nurses seemed disappointed that research – as they encountered it – appeared to offer little in the way of answers for practice.

Most kinds of research don't give me enough direction in my practice to be useful (+4)

Int: Yes, and do you use policies and procedure manuals much?

Nurse: Yes, we do have those and if any new procedures come in we have a folder which we put them in like the gastroscopy or ... except for the set procedures and set investigations which we need to go through and it does just give you a bit of guidance really, so you know you are on the right lines.

Staff nurse, Surgery, Site Two

This perceived lack of guidance may go some way towards explaining why nurses seemed to prefer sources of information which offered decision specific advice. It was our experience that often this ‘advice’ was adopted uncritically and appeared to be subjected to only the simplest of appraisal processes: often the practitioner asking themselves, ‘do I trust this source?’

Credibility

The basis for this trust seemed to rest in the clinical *credibility* of the source. Whilst nurses seemed to recognise the *academic* credentials of research authors most were not often seen as *clinically* credible.

Implementing research is not often led by nurses who are good practitioners. (+4)

I read a paper if it is written by a nurse rather than a Professor as they are more relevant. (+3)

The authors of research are just not credible to most nurses (+3)

I look at the place they work as well, I must admit, I'm probably subtly swayed by not numbers behind their name, but what they're doing for a living, you know at the part, at the bottom where it says what they're doing, if it says 'Professor in Something' I think 'Oh, no!' - or if it says practice development nurse at a unit in.... and I think, 'Oh, yeah, I'm interested in that'.

Staff nurse, D, Surgery, Site One

Research For Researchers Not Practice

As well as the emphasis on the desirability of clinical credibility the individuals defining this perspective also expressed the view that research information is often seen to serve researchers’ needs rather than practitioners and that it is perceived as ‘academic’:

Research information is too academic (+2)

Research information uses complex language and is just a tool for academics to show how clever they are (+2)

I don't know whether I should say this...but I know that sometimes we [the course members] felt that the teacher just wanted to show how clever she was with research and that. If she really knew it she could have just said it in English so we could have understood it couldn't she?

Staff nurse, E, CCU, Site Two.

For many nurses research and ‘academic’ activity was seen as completely separate from the reality of clinical practice. One nurse who defined this perspective speaks here of the problems of this split in the dissemination of research based information via journals:

We take the Intensive Care journal and we take the Nursing Times... and we did start taking - but people didn't like it - the Evidence Based Nursing Journal it wasn't what they wanted really... [we thought] that perhaps they'd be giving us some idea about what had occurred in the light of their changing of practice and so forth as opposed to these little résumés of bits and pieces. A lot of it of course, because it's looking at such a huge spectrum of nursing, it's not all about necessarily things that we'll be interested in and we have to be sensible about that...it was very dry...the presentation of it was very dry... I think people find it disappointing that it was, it was probably, very dry, very academic. I'm not suggesting that the thing shouldn't be academic but... but the thing about nursing I think that's easy to forget is the fact that it's...you have to be able to translate all of that into practical skills and if you can't do that it's such a waste.

Ward Manager, CCU, Site Three.

Associated Characteristics.

Regression modeling reveals that length of time in a specialty and being educated to graduate level are both significantly associated with this perspective. However, after controlling for the possible correlation between the two variables it is clear that having a degree is the more powerful of the two predictors.

<i>R Squared</i>	.196	<i>Sig.</i>	0.000
<i>B Length in Clinical Specialty (separate)</i>	-.63	<i>Sig.</i>	0.02
<i>B Length in Clinical Specialty(combined)</i>	-.49	<i>Sig.</i>	0.061
<i>B Educated to degree level(separate)</i>	25.75	<i>Sig.</i>	0.000
<i>B Educated to degree level(combined)</i>	24.86	<i>Sig.</i>	0.000

Based on this relationship it is feasible to suggest that graduate-level nurses (in any discipline) would appear to favour research messages which stress clinical credibility and give practitioners clear direction. Certainly, when we examine the sources of evidence people see as useful in chapter 6 there were significant differences between graduates and other practitioners. Graduates were more inclined to attach a higher weighting to the evidence represented by information sources such as a systematic review as opposed to sources such as the patient or family.

5:6 Perspective Four: Individual Scepticism And A Desire To Work Through Others.

Perspective four is complex; unlike the other three perspectives, the nurses aligned with this position do not necessarily see responsibility for acquiring research-based information lying within the individual. Moreover despite seeing the value and worth of research knowledge they have a relative lack of motivation to use it in practice themselves. Although these nurses often saw themselves as facilitators for others' use of research. Of course with no motivation to use research in practice themselves it is difficult to see how they could experience barriers to research use. However, in this perspective the possibility exists that their experiences of trying to use research may have caused their relative lack of motivation.

This perspective is characterised by a strong emphasis on organisational or workload-based blocks on research implementation:

Implementing research is just unrealistic because of time pressures.(+5)

Nursing practice is so busy that there is no time for implementation (+5)

There is no real commitment on the part of management to help us get to grips with using research in our work.(+3)

Nurse: I think because we have so many people in and out you're always against the clock to get people ready for theatre; to get people discharged on time and you've got those many pressures. We like to have a ward meeting once a month and everything else that goes on... there's very little time left.

Staff nurse, D Grade, Surgery, Site Three

Yeah, to a certain extent it is necessary [research]. I mean we've already gone through all the different specialist nurses we've got, that speaks for itself. Whether you actually get time to read all the research that's available, I mean there's wads of the stuff, when can you sit down, there's no time out to do that. I work part time, I study part time, how much more time have I got to give to other research that's out there. If there's anything relevant it comes from all the different sources that we've got on the ward and obviously you read things for your own interest, so yes, it is relevant. To what degree, I don't know.

E Grade Staff nurse, Surgery, Site One

Support For Educational Development

The two primary manifestations of a lack of managerial commitment to getting research into practice for these nurses were perceived lack of support for CPD and lack of provision of information technology. CPD was a significant influence on, the development of critical appraisal skills and the ability to formally distinguish good research from bad. Furthermore, it was often the case that nurses only came 'into contact with' research during CPD courses. The majority of nurses had to support themselves either financially or by doing courses in their own

time. Those who managed to secure organisational support seemed to acquire funding only for major courses such as the ENB coronary care course which they got by virtue of their post (for example, their was an expectation that all specialists – i.e. CCU nurses – would attend the ENB Coronary Care course). There was widespread confusion amongst nurses over the availability of funding for courses, and systems of funding allocation were often opaque, and seemingly quite arbitrary.

Um... it was that I was a junior nurse when I... I mean, I'm assuming it was because I was a junior nurse' cos I knew that different nurses that were senior, either, you know, 'G' grades or, practice development nurses in the trust were getting... were being accepted to do specialist courses or they were doing this or they were doing that, and I thought, well, I'll give it a go. Um... and I applied for two years, and then the last two years I didn't bother 'cos I just thought..., it was just - you don't get an explanation you just, your application form comes back and it just says 'not accepted' on it, or - another word that means denied, or something.

Staff nurse, Medicine, Site One

One of the sites examined placed a heavy emphasis on publicising its approach to research utilisation and nurses' involvement with R&D at both a local and national level. However, this publicity was accompanied by a widespread perception that the organisation was doing little to support this high profile activity. For many nurses, the reality of work and previous negative experiences with R&D precluded their involvement in Trust R&D; or at the very least maintaining a healthy scepticism:

Most nurses are the same, anything that you want to do or you want to progress, you do it, in your own time... You know, when things like the strategy come out of the Trust... everyone just looks and laughs and... you know, the real nurses that are there laying the hands on the patients - who are there, cuddling the relatives when they've lost someone, and just laugh..., because they just think, right, when then....? Staff nurse, D, Medicine, Site One

Supporting Electronic Dissemination

Alongside CPD, the second manifestation of a lack of organisational commitment was lack of deployment of IT resources in clinical areas. It would be easy to assume that the Q scores for IT-related statements were indicative of nurses with poor IT skills. However, the interviews with nurses defining this perspective reveal that some had relatively positive experiences with IT through CPD; and for a small group at least, the potential of technologies such as the internet as a source of information was being exploited as a result of these skills:

Yes, so then that's when I tried the Internet, I tried looking at the States and I couldn't find anything there. I tried Cinabl I tried Medline I tried looking at nurse sites in the States and as I say, they weren't much use. I found one or two things here and then I found - once you get a really good article you can use - it just grows from there doesn't it. And I did in the end, we found quite a bit. Staff nurse, E, CCU, Site Three

A Lack Of Skills To Exploit The Potential Of Research

Their experiences often served to both highlight the potential of research based knowledge for practice and also make them more aware of their limitations in accessing and handling electronic sources of information:

I think its like everything – you don't know what you don't know until someone shows you. If anything I'm more aware of my flaws since I started learning again!

E Grade Staff nurse, CCU, Site Two

My own professional education hasn't really prepared me for using research in my decisions (+3)

I don't have the necessary computer skills to access and use research properly (+4)

The research information we get bombarded with is just too overwhelming. (+3)

Statistics put me off research papers or other kinds of research information (+3)

Push Versus Pull in Information Provision

Nurses defining this perspective were the only ones who expressed a preference for having research based information passed to them via a third party rather than actively seeking information for themselves (+4). Possible reasons for this might include the fact that these nurses were acutely aware of the limitations of written or electronic information. Whilst all of them had experience of research information retrieval most had been frustrated by the experience and many expressed feelings of irritation as a result of not being to fully address issues they had sought information on.

A possible explanation for the attractiveness of the use of a third party for the delivery of research based information is that – in contrast to the other perspectives – these nurses perceived that research implementers (in their organisations) were often good clinicians as well. The interview data confirms that the combined effect of research based messages for practice being passed to them by 'good' or credible clinicians was a crucial component - probably *the* crucial component - in persuading many nurses to consider research findings in their decision choices. Here one liaison nurse for a group of medical wards (Site Three) relays how the development of her clinical skills and decision making autonomy has meant that nurses respect her clinical opinion more now:

Whereas a few years ago I would not have thought about things like blood results and things like that, nowadays I am specifically looking at them if I don't have a doctor and I am dealing with them and acting upon them which is something I wouldn't have done necessarily as a staff nurse. I would have done if something was obviously, glaringly wrong, I would have referred it to doctor, but perhaps wouldn't have thought too much about what did it actually mean. But now I'm looking at those types of things much more intensely really.

Int: You say they listen to you now, did they listen to you on the ward as much?

Nurse: To a certain extent but I think I do they do much more now because they respect my opinion and I think that's very gratifying that they do respect my opinion.

Liaison Nurse, Medicine, Site Three

Motivation

There were two distinctive characteristics of the nurses defining this perspective which set them apart from the other three groups: a relative lack of personal motivation (+1) towards research use and a rejection of the idea that other nurses are a block on research utilisation (-3).

Of course, if people have no motivation to use research results then it is not possible for colleagues to act as a barrier to their use. But a more likely explanation is the fact that some of the nurses defining this perspective could relay stories of involvement in the development of technologies such as guidelines, protocols or core care plans. Success in development commonly depended on securing consensus amongst colleagues and therefore experiences of agreement and co-operation were synonymous with developing 'evidence based' resources.

Well it doesn't have to be proved does it, evidence based nursing, it can be just..., like I say Julie the respiratory specialist, she can know things from the past, what she's used, what she's done, what she's proved, in her role, and we're, of what works or with like say the consultants on here what certain things they've used over the years which have proved to be the best, but might not be research based. That's what I've always believed evidence based nursing is... you know, it doesn't have to be proved but very similar in a way.

Staff nurse D grade medicine Site Three .

This last quote reveals a relative lack of support for the idea of research-based practice. However, whilst the nurses involved may not have been motivated to use research material themselves this does not necessarily mean that research information had no worth or a place in nursing practice. Here the same nurse continues on from her earlier expression that evidence based practice (conceptualised as things being 'proved') is not an alternative to experience:

Int: Right, so do you feel there is a place for research?

Nurse: Yes, I do, yeah....I think it's not particularly for me, it's em..., I thoroughly enjoy nursing although sometimes it's been pushed a bit too far, in the point of view of computers and research...

Staff nurse, D, Medicine, Site three.

Combining Experience And Facilitation

Many of the individuals defining this perspective were those who combined extensive experience with the handling and dissemination of information. They were often those who 'facilitated' the development of others with regard to engaging with research materials or by using research materials themselves:

- the CCU ward manager with an MBA and who single handedly acquire a computer system offering access to the internet before the Hospitals intranet was developed
- the liaison nurse who maintained an extensive library of resources (much based on research in varying levels of depth) and offered specialised teaching and clinical skills sessions
- the coronary care staff nurse who developed teaching packages for night staff in Advanced Life Support and based the format on a research article she had read which said that dedicated ALS facilities on wards led to better uptake of information.

Overall, our impression was that nurses' expressed reluctance to use research arose from a recognition of the limitations of - rather than a resistance to - research related to practice in nursing. Specifically, most talked of the difficulties in applying research to practice due to nursing's more 'qualitative' nature (thus revealing an awareness of the qualitative – quantitative debate); the inability of research to keep pace with practice and the statistical nature of many research reports or articles - which were seen as off-putting.

Of course it has already been shown that the issue of clinical credibility is crucial to getting nurses to change their practice. These individuals (at least qualitatively) were those who had significant levels of experience and credibility amongst peers. The reason why they didn't see nurses as a block on the introduction of research findings could conceivably have been that they didn't encounter such blocking on a routine basis. They were credible clinical role models and therefore people were more ready to adopt their advice or suggestions.

Associated Characteristics.

Regression modeling reveals that the ways in which nurses are prepared for practice and their level of educational attainment are significantly associated with this perspective. Specifically, those nurses who were prepared according to the old SRN system of training were more likely to be aligned with a degree of scepticism and a facilitatory role for others' use of R&D. Conversely those nurses who had achieved degree level status were less likely to adopt this position. Moreover, after controlling for possible interaction effects between the two it can be seen that these are separate effects.

<i>R Squared</i>	<i>.059</i>	<i>Sig.</i>	<i>0.000</i>
<i>B SRN Mode of training (separate)</i>	<i>13.56</i>	<i>Sig.</i>	<i>0.001</i>
<i>B SRN mode of training (combined)</i>	<i>11.78</i>	<i>Sig.</i>	<i>0.003</i>

<i>B Educated to degree level (separate)</i>	-16.05	<i>Sig.</i>	0.008
<i>B Educated to degree level (combined)</i>	-12.88	<i>Sig.</i>	0.003

This finding is difficult to explain but one option, given the relatively high qualitative weighting attached to clinical experience, is that the SRN mode of preparation is simply acting as a proxy for experience. Particularly as, at the descriptive level, the variables concerned with ‘experience’ (age, length of time in the specialty and length of time since registration) are all associated with this perspective (although not strongly enough to achieve statistical significance).

The finding that nurses with higher levels of mainstream educational attainment are negatively associated with the perspective could be explained by the argument that these nurses are more likely to have engaged with the sorts of individualised information retrieval strategies during their studies (as opposed to information provided by a third party). Similarly these nurses had significantly less specialty specific experience (around half the amount) of their non-degree educated counterparts. It is feasible then that the degree variable is – again – acting as a proxy for a relative lack of experience.

5:7 Conclusions

This chapter presents those perspectives held by nurses regarding the barriers to using research evidence in clinical decisions. We used data from a number of sources: interview, observation and most prominently, Q methodological modeling, in an effort to isolate the structure and form of perspectives around which nurses cluster. We also used multiple linear regression modeling to demonstrate the effect of *a priori* predictor variables of clinical domain, mainstream educational attainment, length of time in a clinical specialty, mode of professional preparation and whether nurses felt they had a research remit as part of their role.

We suggest four perspectives:

Perspective one: is characterised by an emphasis on problems with interpreting the products of research and most dramatically that which is seen as statistical or ‘academic’ . Because the people defining this perspective lack the skills to actively engage with such material they also lack the confidence to do so. This perspective, however, is marked by a sense of internal conflict within nurses as they see the worth of research evidence for practice. These nurses would like to incorporate such information into decisions but a lack of skills and knowledge prevents them doing so. This perspective was a universal one in the sites and across demographic boundaries.

Perspective two: is characterised by individuals with high levels of confidence with research-based material and a perceived ability to be able to engage with such material if they wish. For these individuals - perhaps because of their perceived existing skills – the primary obstacles to research use have an organisational locus. These organisational blocks manifest themselves in issues of access (they don't seem to have easy access from the wards) and the impact of other nurses. Moreover, the combined effects of these organisational limiters mean that their past experiences of trying to use research based evidence have been negative. Specifically, research use has become aligned with a perception that it will cost personal time and money. Those nurses with the most experience were the least likely to be aligned with this perspective on the barriers to research use.

Perspective three: places a heavy emphasis on the role of other nurses as blocks on research use and if anything weights the busy nature of practice more heavily as a perceived limiting factor. What sets it apart from the other perspectives (both statistically and theoretically) is the fact that these nurses see existing research products and producers as lacking clinical credibility – a variable which was crucial to the 'selling' of change messages in the interviews and observation. They would also like research to offer more directive messages for practice – a characteristic which is seen as missing in many dissemination formats. Graduate status seems strongly associated with this perspective It would appear that graduate nurses are more likely to want to see clinically credible and directive research products in the workplace.

Perspective four: is characterised by a certain stand-offish relationship between research evidence and practice. These individuals saw the overwhelmingly busy nature of practice and the inability of written forms of research evidence to work within this context as a key barrier to research use. This was combined by a recognition that they lacked utilisation skills and, to a lesser degree, the personal motivation to use research themselves. Consequently, these individuals saw third party involvement as an attractive option – both in dissemination (its better to have somebody else pass on research based messages for practice) and in implementation. This latter point was evidenced by the fact that whilst they saw little to attract them personally to use research based materials in practice, they actively sought to foster others' engagement with research material. In terms of association, SRN-trained nurses were seen to be the most strongly associated with this perspective. Graduate level (in any subject) nurses were seen to be negatively associated with the perspective. These results suggest that there may be a significant skills (with respect to research material and its use) disparity between the SRN-trained nurses and graduate nurses.

Chapter Six: Questions Of Accessibility.

Key points.

- Three main perspectives on the accessibility of research based information emerged from the data. Each is slightly different but primarily characterised by positive perceptions of the accessibility of human sources of information over the relative lack of accessibility associated with text or electronic sources (with the possible exception of local clinical guidelines and protocols).
- length of experience in a clinical specialty is associated with a perception that human sources such as clinical nurse specialists, link nurses, doctors and experienced colleagues are the most accessible.
- There was an association between specialisation and preferred approaches to accessing research knowledge. Specifically, we found that coronary care unit nurses were more likely to see local guidelines and protocols and the electronic technologies of on-line databases as more accessible than their counterparts in general medical and surgical wards.
- Documentary audit material suggests that whilst there was a breadth (circa 4000 documents) of documents available in the case sites, only about a third of text-based resources available to nurses on the wards had any explicit research-base. Much of the material is out of date (the average age of textbooks was 11 years) and authorship hard to ascertain (42.5% of all documents were unattributed).
- Observational data confirms the (almost) total primacy of inter-professional modes of communicating information and knowledge. In over 180 hours of observation of nurses' real-time decision making only the text based resources of the British National Formulary, medical or nursing notes and local protocols or guidelines were accessed. Of these only the latter are explicitly designed to reflect practice based research knowledge. Guidelines or protocols were seen used just four times; three times on coronary care units – although as we shall see people often thought that they were watching 'guidelines being implemented' in the practice of others, and many nurses felt that they had internalised the main points anyway and had no need to consult primary documentation.
- Clinical nurse specialists, link nurses and medical colleagues in particular have a crucial role to play as the conduits through which research-based messages for practice and information for clinical decision making should flow.

6:1 Introduction.

This chapter addresses the research question 'how do nurses access research-based information?'. Before examining the findings relating to the ways in which nurses access information it is worth restating part of the rationale for this project: that we wished to explore the *potential for evidence based approaches to clinical*

decision making in nursing. The emphases in this statement highlight that this chapter is primarily concerned with the interaction between nurses, their clinical decisions and the information that accompanies them. It was relatively easy (although labour intensive) to conduct a survey of the facilities and information resources available to nurses in the three sites. This provides a rough estimate of the *potential* access to research-based technologies and sources¹¹. However, we were particularly concerned with how they *actually* accessed such technologies during their working days, in response to *actual* clinical decisions and with all the constraints that nurses claimed affected the accessibility of research information.

6:2 The Q Sample

The Condition Of Instruction And Scenario

We took a slightly different approach to that used to explore the barriers to research information use. Because we wanted to explore the contextually potentially powerful effects of case site and clinical domain we had to ensure that each nurse was faced with a similar decision. We chose a scenario more likely to resonate with the experiences and knowledge of surgical nurses than medical or coronary care nurses. For this reason we felt it reasonable to hypothesise that surgical nurses would behave differently in their information-seeking – perhaps making more use of available expertise or locally developed protocols. As we shall see later neither clinical domain (with the possible exception of CCU and the role of local guidelines) or the sites sampled, appeared to exert much of an impact on nurses' perceptions of the accessibility of various information sources.

The scenario and condition of instruction were:

A 62 year old woman has been readmitted with a drainage wound which has opened at home following outpatient investigation. It is a little red, sore, and has some exudate (clear and not smelling offensive). The consultant has seen her on admission and as he departs he asks you to use your judgement and dress it and will examine her more fully in a couple of days. It is a situation in which you feel unsure (after all, you want to promote healing in the most effective way possible) where would you go for information, advice or guidance?

Sort the following sources of information and advice from those which you feel are most accessible (+5) through those which are least accessible (-5).

The full text of the Q sample is presented in Appendix D. Table 9 presents the factor array for the perspectives:

¹¹ We also wanted to be able to cross reference sources referred to in interviews and to be able to put the statement 'there's no information out there for nurses' in perspective.

Table 9 Factor Array - Q Sample Access

Factor Q-Sort Values for Each Statement					
Factor Arrays					
No.	Statement	No.	1	2	3
1	practice development nurse	1	2	1	2
2	The research and development (R&D) co-ordinator	2	0	-2	0
3	A research nurse working on a research project in the Trust.	3	2	-1	2
4	Clinical audit co-ordinator	4	0	-4	0
5	Clinical governance lead	5	-1	-3	-2
6	Medical/nursing librarian at the Trust	6	-4	-1	-4
7	One of the experienced nursing colleagues in my team	7	4	5	3
8	The link nurse with an interest in that area	8	4	4	4
9	The consultant on the firm looking after the patient	9	3	-2	-2
10	The registrar on the firm looking after the patient	10	3	0	-2
11	One of the therapy team	11	3	1	0
12	The clinical nurse specialist	12	5	4	5
13	The journals held on the ward	13	0	1	1
14	The journals in the local medical/nursing library	14	-1	0	2
15	One of the information files on the ward	15	2	3	3
16	Local clinical guidelines or protocols	16	2	3	4
17	The Director of Nursing or one of his/her team.	17	-3	-5	-5
18	Information or a poster on the staff/ward	18	0	3	1
19	Information or a poster on staff/ward notice board from a co	19	0	2	-1
20	Clinical guidelines produced by a company with an interest	20	1	0	1
21	Information in the medical notes of a similar patient	21	-1	1	-2
22	Information in the nursing cardex or notes of a similar pati	22	1	2	-3
23	A documentary on television or an article in a magazine or n	23	-3	-1	-3
24	MEDLINE/CINAHL on a CD ROM in the local medical/nursing libr	24	-3	0	3
25	The internet accessed via the local medical/nursing library	25	-2	-2	1
26	The internet accessed at home	26	-5	-4	-1
27	The subject index cards at the local medical/nursing library	27	-2	-1	0
28	Notes from a professional development course you have done	28	1	-2	0
29	Notes from your student training	29	-1	0	-4
30	Notes from an informal teaching session done by one of the s	30	1	2	-1
31	Notes or information from a product company representative	31	0	0	0
32	Text books on the ward	32	0	2	0
33	Text books in the local medical/nursing library	33	-1	0	0
34	Text books you have at home	34	-2	1	-1
35	Notes from an 'in-house' training course	35	1	0	2
36	A product company telephone helpline	36	-2	-2	-2
37	A product company representative	37	-1	-3	-1
38	My documented experience of previous patients (reflective di	38	1	1	2
39	Pharmacist	39	2	2	1
40	medical notes from a patient with a similar problem	40	0	-1	1
41	nursing cardex from a patient with a similar problem	41	-2	-1	-3
42	Royal College of Nursing (RCN Direct)	42	-4	-3	-1

6:3 The Information Available?

Before going on to explore nurses' perceptions of what constituted an 'accessible' source of information it is worth outlining those sources of text-based or audio-visual information available for them to draw on if they wished. Our audit shows that, given the necessary skills to make better use of the material, there is a substantial amount of material with some sort of research-basis for nurses to draw on. Basic appraisal skills would help nurses filter sources for validity, condense the results and ascertain what they mean for patient care more effectively – a not unsubstantial task given the volume of material.

Specifically, the questions asked of the material were:

- Overall, what sources of text, electronic or audio visual material are available for nurses in ward environments?
- How much of it is ‘research based’?
- what is the effect of clinical domain and site on the shape of this material?
- Who produces those resources such as local information files which require someone to compile them?
- How much of this material is research based?
- What is the average age of research and non-research-based resources?
- Which journals are most popular?
- What clinical topics are most popular?

Figure 2 summarises the forms of information available across the 3 sites. Clearly journal articles in various forms are the most prevalent forms of material on units – often these were contained in local information files.

What Sources Were Available For Nurses On Wards Across The 3 Sites¹²

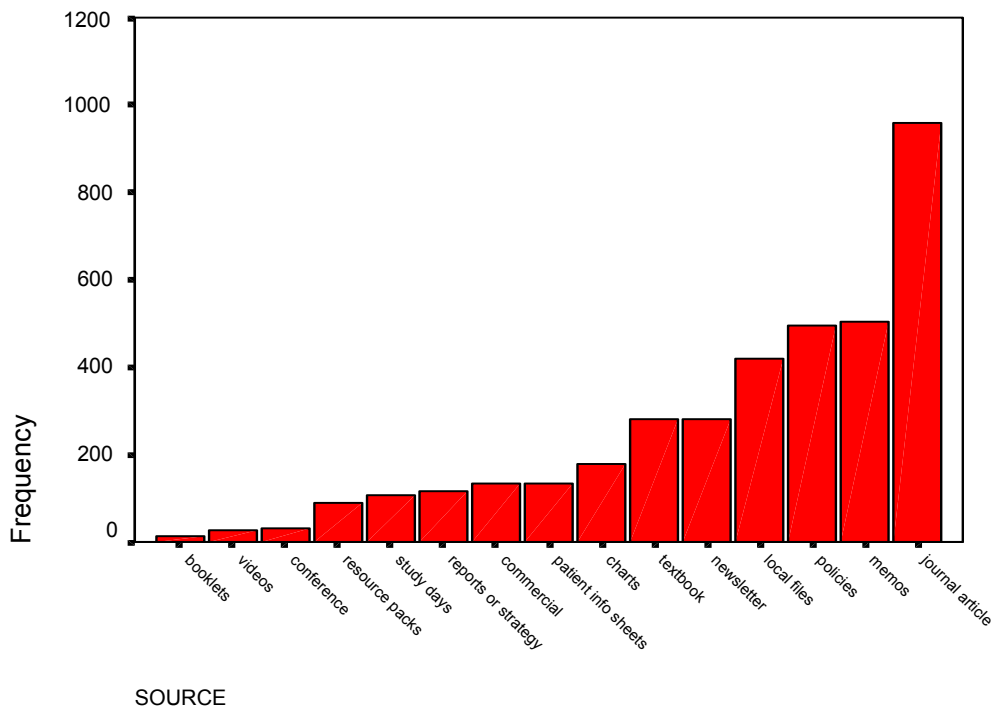


Figure 2 Written Sources Available

¹² For logistical reasons it was impossible to include all documentary material from the CCU in Site Three as they were in the process of planning for refurbishment and much of the material was being stored off-site.

Are There Differences In The Kinds Of Material In Different Clinical Domains?

Table 10 shows that (with the exception of memos and textbooks) the proportions of resources available across clinical domains appears remarkably consistent. CCU appears to place more of an emphasis on the acquisition of textbooks and less on the role of memos – possibly as the units were smaller and more ‘self-contained’ than their general ward counterparts. Note that within the category ‘policies’ are included protocols and guidelines. ‘Study days’ and ‘conferences’ are reports of these events.

What Proportion Of Resources Are Research-Based¹³

Table 10 again shows that the low proportions of research based products are reasonably consistent across domains. Not surprisingly journal articles are the source which most often draws on research; but even here around half were of the discursive style or else failed to provide any references.

Who Produces Which Sources Of Information?

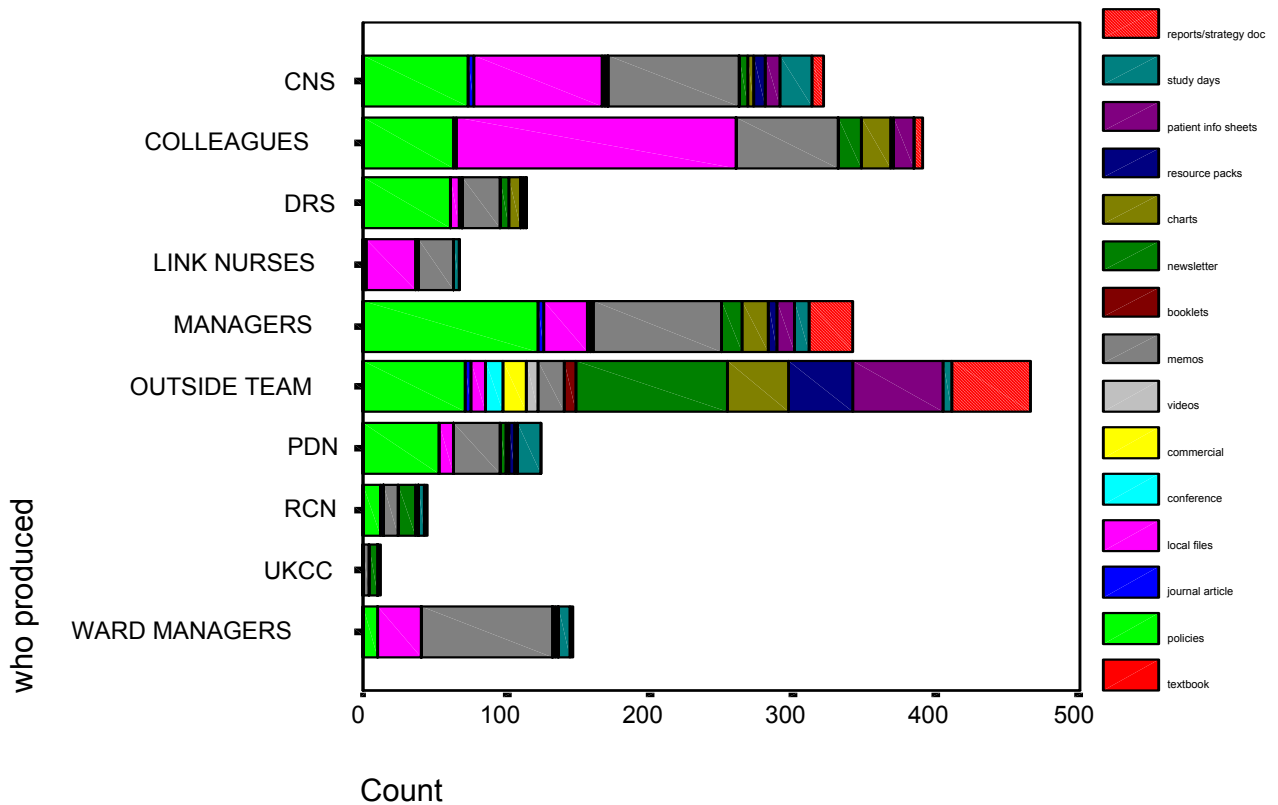


Figure 3: The Originators of Sources of Information

¹³Information was classed as research based if it provided explicit references to research materials or was a report of primary research..

Table 10 Sources of information available in the clinical areas, proportion of which were research based and their mean age.

Source	N CCU (%)	N surgical (%)	N medical (%)	N (%) research based CCU	N (%) research based Surgical	N (%) research based Medicine	Mean Age. (sd)
Textbook	99 (17)	99 (5)	105 (6)	3 (3)	5 (5)	11 (11)	11.4 (7.79)
Policies	67 (12)	221 (11)	228 (14)	20 (30)	83 (38)	94 (41)	4.2 (2.65)
Journal article	152 (26)	434 (22)	379 (23)	97 (64)	254 (59)	231 (61)	6.6 (3.96)
Local files	65 (11)	182 (9)	185 (11)	14 (22)	38 (21)	33 (18)	5.8 (3.87)
Conference output	11 (2)	11 (1)	14 (1)	6 (55)	6 (55)	10 (71)	5.3 (2.93)
Commercial literature	37 (6)	184 (9)	161 (10)	4 (11)	5 (3)	13 (8)	6.9 (4.38)
Videos	10 (2)	12 (1)	15 (1)	1 (10)		1 (7)	6.1 (3.57)
Memos	38 (7)	348 (17)	169 (10)	4 (11)	47 (14)	42 (25)	2.6 (1.89)
Booklets	-	-	14 (1)			6 (43)	6.6 (4.67)
Newsletters	57 (10)	177 (9)	145 (9)	14 (25)	34 (19)	37 (26)	6.7 (4.49)
Charts or posters	14 (2)	74 (4)	87 (5)	3 (21)	8 (11)	11 (13)	5.3 (4.45)
Resource packs	7 (1)	52 (3)	26 (2)	3 (43)	12 (23)	6 (23)	4.4 (2.69)
Patient information	7 (1)	54 (3)	70 (4)	1 (14)	9 (17)	16 (23)	6.56 (3.55)
Study days	3 (1)	80 (4)	21 (1)		15 (19)	10 (48)	1.9 (1.35)
Reports or strategy documents	8 (1)	70 (4)	36 (2)	4 (50)	41 (59)	15 (42)	4.8 (2.85)

It can be seen from figure 3 that outside teams, researchers or authors make the biggest *single* contribution to sources of written information. However Trust colleagues, doctors, clinical nurse specialists and managers all make a sizeable contribution to the production of policies in particular – these varied from formal protocols for care (for example, during angiography in coronary care through to hand written sides of A4 on the management of diabetes). Local information files were also a dominant feature of information sources although these were almost always not critically appraised and mainly linked to professional development course requirements or the personal interests of producers.

Who Produces Research Based Materials?

who produces research based materials

			research based		Total
			no	yes	
who produced	CNS	Count	219	102	321
		% within who produced	68.2%	31.8%	100.0%
	COLLEAGUES	Count	316	74	390
		% within who produced	81.0%	19.0%	100.0%
	DRS	Count	65	49	114
		% within who produced	57.0%	43.0%	100.0%
	LINK NURSES	Count	64	4	68
		% within who produced	94.1%	5.9%	100.0%
	MANAGERS	Count	274	68	342
		% within who produced	80.1%	19.9%	100.0%
	OUTSIDE TEAM	Count	293	173	466
		% within who produced	62.9%	37.1%	100.0%
	PDN	Count	78	46	124
		% within who produced	62.9%	37.1%	100.0%
	RCN	Count	16	28	44
		% within who produced	36.4%	63.6%	100.0%
	UKCC	Count	8	4	12
		% within who produced	66.7%	33.3%	100.0%
	WARD MANAGERS	Count	127	19	146
		% within who produced	87.0%	13.0%	100.0%
Total		Count	1460	567	2027
		% within who produced	72.0%	28.0%	100.0%

Table 11: who produces research based materials

How Old Are The Resources Available?

average age of information sources (p<0.00)

age of source	N	Mean	Std. Deviation
textbook	259	11.4170	7.7497
policies	339	4.1947	2.6542
journal article	915	6.6448	3.9656
local files	182	5.8132	3.8706
conference	24	5.2500	2.9378
commercial	41	6.9024	4.3864
videos	7	6.1429	3.5790
memos	424	2.5519	1.8937
booklets	12	6.6667	4.6775
newsletter	168	6.7202	4.4947
charts	57	5.3333	4.4535
resource packs	45	4.4444	2.6931
patient info sheets	41	6.5610	3.5570
study days	96	1.8750	1.3553
reports or strategy docs	96	4.8021	2.8566
Total	2706	5.7923	4.7135

Table 12: The Mean Age of Resources (years)

Table 11 shows that the Royal College of Nursing, outside researchers, practice development teams, clinical nurse specialists and doctors are the primary producers of research-based resources. Interestingly, given the role of the link nurse in the three sites (as a route to the knowledge of the clinical nurse specialists) we would have expected a higher proportion of research based output from the role. Perhaps their relative lack of productivity is indicative of the general perception expressed in interviews that the role of the link nurse was a good idea but difficult to carry out successfully – due to lack of time and a general lack of organisational support. It should be noted, however, that around 1700 documents could not be sourced at all.

Table 12 demonstrates that the average age of all resources was around 6 years. Clearly this represents a significant lagging behind of text based sources from current best practice. In areas such as wound care and coronary care where practice was developing rapidly there is little hope of text-based resources (as they stand) keeping pace with practice developments. This was a point raised in relation to the practice development function generally and coronary care (see the last chapter) but appears even more acute in the context of text based information.

Research based materials were significantly newer than non-research based materials. The average age of research based materials was 5.4 years whilst non-research based sources averaged 6 years.

If the source of journal articles is examined it is clear that by far the most popular source (over a quarter of the total) is the Nursing Times. This followed by other ‘general’ journals including the Nursing Standard, Professional Nurse and British Journal of Nursing. It is interesting to note that none of these is a peer reviewed research journal. Of the peer reviewed journals, the BMJ was the source of more than twice the articles of the Journal of Advanced Nursing (the most popular of the ‘serious’ nursing research journals). None of the ‘evidenced based’ journals were in evidence in the wards in any significant volume:

- *Nursing Times*: 258
- *Nursing Standard*: 139
- *Professional Nurse*: 107
- *British Journal of Nursing*: 78
- *British Medical Journal*: 44 (peer reviewed research published)
- *Journal of Wound Care*: 24 (peer reviewed research published)
- *Journal of Advanced Nursing*: 17 (peer reviewed research published)
- *Palliative Care Today*: 21
- *Oncology News*: 14

If the clinical focus of text books is examined it is clear that general specialty-specific texts dominate. Books which might deal with the development of critical appraisal skills or a general awareness of research constitute less than 3% of the total amount of resources available.

	N	% of textbooks
• <i>General Medical/Surgical texts</i> :	80	26%
• <i>Cardiac care/cardiology</i> :	71	23%
• <i>Palliative/Cancer/Terminal Care</i> :	31	10%
• <i>General Nursing Texts</i> :	32	10.1%
• <i>Anatomy and Physiology</i> :	20	6.6%
• <i>Pharmacology: (excluding BNF)</i>	18	6%
• <i>Commercial</i> :	14	4.6%
• <i>Nursing research/theory</i> :	11	3.6%
• <i>Haematology</i> :	9	3%

- *Ward management:* 3 1%
- *Dictionaries:* 7 2%

Qualitative examination of the content of the journal articles of the most popular journals (Nursing Times, Nursing Standard, Professional Nurse and British Journal of Nursing) it is clear that a distinct number of ‘themes’ dominate: nutrition, wound care, pressure area care, pain relief and palliative care were by far the most popular.

Table 14: The Demographic Composition of Perspectives on Access

		ACCESS FACTORS											
		1				2				3			
Variable		Mean (SD)		N (%)	Mean (SD)		N (%)	Mean (SD)		N (%)			
Age		38	9	26	31	10	14	34.5	9	13			
Length in specialty		6.4	6.4	26	4.8	5.5	14	6.8	6.8	13			
Length since registration		15.3	9	26	8	10.8	13	12.5	8.8	13			
Post	<i>Staff nurse</i>			22	73.3			15	75	12	80		
	<i>Senior Staff nurse</i>							2	10	1	6.7		
	<i>Ward Manager</i>			1	3.3			1	5				
	<i>Clinical Nurse Specialist</i>			4	13.3								
	<i>Other</i>			2	6.7			1	5	1	6.7		
Education	<i>5 O Levels or GCSE's</i>			10	33.3			2	10	3	20		
	<i>A Levels</i>			5	16.7			5	25	2	13.3		
	<i>Diploma</i>			1	3.3			2	10	1	6.7		
	<i>Vocational</i>			4	13.3			2	10	3	20		
	<i>1st degree</i>							3	15	2	13.3		
	<i>Higher degree</i>												
	<i>Other</i>			6	20			6	20	2	13.3		
Professional preparation	<i>SEN</i>			2	6.7								
	<i>SRN</i>			13	43.3			2	10	2	13.3		
	<i>RGN</i>			4	13.3			5	25	5	33.3		
	<i>Dip</i>			5	16.7			7	35	3	20		
	<i>Degree</i>												
	<i>Conversion</i>			1	3.3					3	20		
	<i>Other</i>			1	3.3			3	15				
Research or management involved in job?	<i>Yes</i>			17	56.7			6	30	7	46.7		

6:4 The Perspectives On Accessibility

There were three significant perspectives extracted from the 78 Q sorts initially sampled. Whilst each differed statistically there were strong elements of shared valuation – particularly with respect to those sources of information which combined clinical expertise with an explicit research dissemination role (clinical nurses specialists and link nurses). Conversely, there were shared negative weightings associated with some information

sources (Directors of Nursing and their support teams and R&D structural components such as audit leads and clinical governance facilitators being good examples).

6:5 Perspective One: The Humanists

This perspective explained 21% of the variance in the Q sorts. This perspective was overwhelmingly dominated by the perceived accessibility of human sources of information. Table 15 shows the most and least accessible sources according to the people who define this perspective.

Table 15: Most and Least Accessible Source: Perspective One (Access)

Most accessible	Least accessible
Clinical nurse specialist +5 Link nurse +4	Internet access at home –5 Medical/nursing librarian in the Trust –4
Experienced colleague +4 Registrar +3 Consultant +3	RCN Direct –4 Medline/Cinahl –3 Documentary or article in mainstream media –3 *it is worth noting that library based resources also seen as relatively inaccessible

The relative accessibility of human sources was pervasive and tied to ‘routine’ ways of working which often accompanied very ‘un-routine’ decisions. Information seeking often appeared to follow common formats regardless of the nature of the decisions involved (for example, the need for a speedy resolution or clinical focus) and their appeared to be almost *reliance* on the sources mentioned in resolving uncertainty. Certainly nurses seemed to use referral to specialist resources such as clinical nurse specialists as a frequent alternative to the individual decision taken on the basis of one’s own information processing efforts. These two staff nurses in different sites highlight the role of human sources in transfer of information:

Int: Right What about a clinical problem. Say you encounter something that you have not met before, or something that you are not too sure about?

Nurse: ... initially - up till 5 o'clock it is the house officer looking after that consultant's patient. After that there will be a house officer on call and if I can't contact them, then there is the senior above them - you go through all the system

Int: What kind of problems might you take to a doctor?

Nurse: Well, sort of things like – a typical sort of scenario - post operative patient, urine volume dropping post surgery, blood pressure problems, vital signs are erratic, something like that, temperature is higher or even some rash or something like that, anything that I thought was not the norm.

Int: Right, and you would take that straight to the doctor?

Nurse: Well, if it was something medical, like the urine volumes, yes I would.

Staff nurse, D, Surgery, Site Three

Nurse: That's right. I mean, some of the consultants don't even like you to disturb the wound, unless you've got a problem and a reason to take the dressing off. They'd rather it was just left. So we've picked up all that information just since July.

Int: Have you picked that up mostly from talking to people and sort of watching them, or how have you got that information?

Nurse: I think talking to them, mostly, yes. And talking to the consultants, and they tell us on the ward rounds they come round every morning.

Int: Yes do you feel you can ask them anything you're unsure about?

Nurse: Yes. We have had a couple of conflicting advice say, if it might not be that consultant who's on call that night, and if you want some advice you might get conflicting advice from one set of surgeons, as to the next morning they'll say, why did you do that? And you say, well the doctor that was on last night told us to do that. So they don't always agree.

Staff nurse, E Grade, Surgery, Site One.

Both nurses highlight the role of 'trust' in these human sources. There was a widespread stated opinion that these sources were trustworthy and the most common bases for this trust seemed to be a perception that sources were up to date and drew on extensive clinical experience (as opposed to research evidence):

Int: Right. How do you know how to treat those more complicated wounds?

Nurse: How do I know how to treat them? Well sometimes its consultant preference they'll ask you to use a certain thing. We've got [the tissue viability nurse], who's a very good source of reference, and if you need any advice she'll come up, and she'll help you. A particular gentleman I'm thinking of, who had a nasty open wound for ages, and we used the new vacuum assisted closure on him, and it worked very well, because we hadn't seen that very well. But she brought that and showed us how to use it, and it did work well on him. So we would use that again if we saw a similar sort of thing. I think you from..... if you've used something before and its worked.... If you've had good results.

Int: So its your experience.

Nurse: Yes. Or maybe someone else's experience, if they've seen something and they've had good results with something.

Staff nurse, D, Surgery, Site Three

Some of the nurses were open to the role of doctors as a source of direction in the decisions being made in nursing practice. The definers of this perspective were marked by a heavy input from medical staff into their work. They didn't appear to have any sense of conflict with this (for example, that they were less professional or that doctors were 'interfering'). The perceived accessibility of such sources could be one explanation for the association with clinical experience and this perspective: that the relationship with Doctors is bi-directional – as nurses become more experienced doctors become more accessible (as Doctors see their experience as a useful input into their clinical decisions). Despite this apparent reliance on human sources of information and the fact that they often couldn't verbalise the basis of their imparted wisdom, nurses recognised that this could lead to significant variability in the advice provided:

Int: Do sometimes consultants hand it over entirely to the nurses.?

Nurse: I don't feel they do. I think maybe the older ones would, maybe, but we've got some young consultants on here, and I think they're quite keyed up.

Int: They like to be involved with the wound care?

Nurse: Yes. Especially the plastic surgeons. Because its quite specific, their wound care. We've had 10 plastic surgery beds since July. And if we have problems with new graft sites or donor sites, then they are quite strict about what they like you to use and what they don't. And even between one consultant and another, they've got different varying opinions, and we've learnt that just since July.

Int: Do they give you any kind of written guidelines about what they like?

Nurse: It's more word of mouth, actually. Staff nurse, E Grade, Surgery, Site One

It is worth noting that amongst the interview data there were very few negative cases in terms of alignment with the major themes here (human sources accessible – technologies and some library based resources inaccessible). However, the area which did generate cases which did not fit the pattern was the issue of library resources. Generally speaking, nurses defining this perspective didn't rank library resources such as on-line databases, subject indexes or librarians as very accessible. However, as we have seen one of the most accessible conduits for research based information was the link nurse role. It was also clear from the interview accounts that some of those defining this perspective were link nurses themselves. Extracts from the interview with the nurse who defines this perspective most clearly illustrate a number of key explanatory themes:

- That the role depends very much on verbal as well as text based modes of information transfer:

Int: So you go to that you're the link nurse and then you're supposed to feed back the information. How do you do that with your colleagues?

Nurse: It would just be word of mouth, or maybe putting some information up on the board to let them know, if it was something that came up that nobody knew. If it was something new.

Staff nurse, E, Surgery, Site Two

- That despite recognising the possibility of 'information overload' some still feel the need to contribute to the production of more text-based materials such as local files (of which only approximately 20% were explicitly research based):

Int: Do you have a file?

Nurse: Yes, there's too many really though, aren't there. I'm in the process of making a new file at the moment. Because of the plastic surgery we need a new one for plastics.

- That producing these files generally depended on engaging with the resources of local libraries (these nurses tended also to be those who had rudimentary library searching skills).
- That close physical proximity to the workplace is not a sufficient condition for use. Particularly when accompanied by a perception that the nature of work discourages such use.

Int: Right. If you wanted to get some information yourself, where would you go, do you think?

Nurse: *The library. There's a CD ROM... I like the one at the other site, because I live near there, and I find that more accessible than the one actually on my doorstep here, but you don't always get off when you're here, you don't often get time to go... So I prefer to go on my days off or something and go to the library if I need something.*

Int: *Right, so did you get in to the way of using the library when you were doing your diploma?*

Nurse: *That's it. That brought me up to date with looking for information.*

Int: *Did you actually have some time to learn how to get on to the computer and use the CD ROM?*

Nurse: *Just myself, yes. Just myself, really. And the librarian at the other site is very good she'll come and help you get on.*

Int: *And have you used some of the databases when you've been looking things up?*

Nurse: *Do you mean Cinahl?*

Int: *You know about them, then.*

Nurse: *Yes. And Medline. I don't find Medline ... I find Medline's a bit more complicated. It's the medical one... And they've got the computer based references now in the library, so if you want a topic you can type it in and it'll bring up all the books in the library, rather than go through the cards.*

Staff nurse, Surgery, Site Two

Associated Characteristics

Regression modeling reveals that, when examined separately, experience in a clinical specialty, a surgical work location, and education to the standard of O level or GCSE are associated with the perspective. However, when possible interaction effects are controlled for it can be seen that it is experience which acts as the most powerful predictor of association with the view that human sources of information are by far the most accessible sources of clinical information.

<i>R Squared</i>	<i>.104</i>	<i>Sig. .012</i>
<i>Length in specialty (separate)</i>	<i>.78</i>	<i>Sig. .003</i>
<i>Length in specialty (combined)</i>	<i>.611</i>	<i>Sig. .03</i>
<i>Surgical domain (separate)</i>	<i>-7.8</i>	<i>Sig. .03</i>
<i>Surgical domain (combined)</i>	<i>-4.54</i>	<i>Sig. .26</i>
<i>O level educated (separate)</i>	<i>8.7</i>	<i>Sig. .02</i>
<i>O level educated (combined)</i>	<i>4.07</i>	<i>Sig. .32</i>

Based on this regression model we can say that the longer a nurse has worked in a clinical specialty the more likely it is that she/he will perceive human sources of information as the most accessible.

6:6 Perspective Two: Local Information For Local Need

This perspective accounted for 18% of the variance associated with the Q sorts and was marked by the relative accessibility of locally produced resources such as information files on the ward and ward noticeboards.

The perspective (like all the perspectives) was dominated by the view that human sources of information were by far the most accessible (in the form of experienced colleagues, clinical nurse specialists and link nurses). However, it appears to be important that the human source has close links to the ward teams or clinical area as the most inaccessible human resources were those associated with central Trust Research and Development, practice development or nurse management structures. All sources seen as the least accessible were those with no direct links to the ward teams involved (the internet at home is obviously not a ward-based resource). Table 16 summarises the most and least accessible sources from this perspective:

Table 16: Most and Least Accessible Sources of Information – Perspective Two (Access)

Most accessible	Least accessible
Experienced colleague +5	Director of nursing services or team -5
Clinical nurse specialist +4	Clinical audit co-ordinator -4
Link nurse +4	Internet accessed at home -4
Information file on the ward +3	Product company representative -3
Information or poster presented on staff or ward notice board +3	Clinical governance lead -3
	R&D co-ordinator -3

Again the accessibility of human sources of information is the predominant theme in the interviews of people who define this perspective. And once more it seems that it is clinical experience which is the common currency in establishing one's worth as a credible source of clinical information. Here one nurse points out the relationship between being seen as a 'good' nurse by doctors and clinical experience:

Nurse: none of the doctors have really been able to work out which are the more senior although I suppose they could go on age but you know, which are the more experienced nurses and which aren't... so I think it's quite difficult for them yeah. I think towards the end of their allocation they've learnt who are the... who are the, I say the 'good nurses' that's a bit... but who are the more experienced and the more reliable nurses yes

Staff nurse, E, Medicine, Site Three.

Here the same nurse highlights the role that 'specialist' advice plays in encouraging a greater degree of uniformity in decisions. Again, it seems that often credible human sources of information (like the ways in which people talked about text-based resources such as journal articles) were used to reinforce decisions already made – or partly made:

Nurse: I think the problem is there's such a lot of trained staff on the wards now and if we're not careful we all do our own thing a little bit. It's trying to sort of get a definite decision rather than different people doing different things. So trying to co-ordinate, getting other specialist advice from other nurses because there's a lot more now than there used to be.

Int: Could you give me a concrete example of the kinds of decisions that you might...

Nurse: Well we had a situation last week where I'd just come back from my holiday and we had a lady who has a nasty pressure sore, she's been extremely ill and hasn't been expected to survive... She was having a dressing on her bottom, which is where the sore is, it's an expensive dressing - which doesn't necessarily come into it - but is a factor and it's a dressing that's supposed to be on, left on for four or five days. Now, this lady was going in the bath on a daily basis because she felt that helped from a pain [perspective]... So I said we had to make the decision and although this dressing was the one, the dressing of choice, it was inappropriate to be ripping it off on a daily basis. So I got the tissue viability nurse involved, specialist nurse, and said look this is a non starter and she agreed. She said the first dressing was the dressing of choice but from a comfort point of view if she wanted a bath everyday it was, you know, a waste of time. So we changed it, all went on the care plan, made sure people knew and we're sort of doing that now.

Staff nurse, E, Medicine, Site Three

What set the people defining this perspective apart was the greater sense of accessibility afforded to locally developed protocols and guidelines and the information contained on notice boards. It is clear from the audit that only 38% of protocols or guidelines were explicitly research based, with figures of 20% for material in local information files, 17% for memos, and 12% for charts or poster material. Moreover, the average age of these resources was 4, 6, 2½, and 5 years respectively.

Despite the age of most of the material on the wards nurses seemed to think that 'the literature' could offer a means of staying more up to date and that human sources had limitations in this regard:

Int: So you say they [nurses] use each other and you implied it would be better if they looked at literature from time to time.

Nurse: My only concern about using each other is that maybe not everybody is up to date literature-wise.

Staff nurse, E, Medicine, Site Three.

The same nurse alluded to the quality of the information that was previously available on the ward in poster form for dressing selection but that this was removed due to the growth in the volume of protocols:

Int: You said you had some posters around and that there's some information on them?

Nurse: We started having some quite good posters on the wall and people did used to refer to them... [but] I bet you if I went now they wouldn't be there. But we did used to have quite a few.

Int: Why don't you have them now?

Nurse: We've had too many protocols and too many things laminated that need to go on the wall... there's a certain priority and some get sort of filed away but everything's accessible. If you went into the treatment room there's lots of files and things.

Staff nurse, E, Medicine, Site Three.

The *source* of protocols (whether formal or informal) was crucial. Here the nurse refers to the introduction of maggots to clean wounds (an intervention for which there is no randomised controlled trial evidence on humans). The change was sponsored by the consultant and consequently the protocol more closely adhered to:

Int: So can you tell me a bit about when they (maggots) were introduced to the ward?

Nurse: *I would say maybe a couple of years ago the consultant ...I don't know whether he'd been to some study day or some meeting or something... I think it was research-led obviously from reading. And then he gave us all the information on it. We'd read about it and then when an appropriate patient came along consultant said "I want to use maggots on this particular gentleman". And that's how it sort of evolved and since then we've used them a couple of times... [the research] backed up what we were doing.*

Int: *So if you wanted to introduce something like that could you do it do you think, in the same way?*

Nurse: *It probably wouldn't have as much weight as a consultant doing it but I would think that it would probably get quite a good reception. But again if it was something that was going to be expensive I think it would be a no-go before you'd really started.*

Staff nurse, Medicine, E, Site Three

Qualitatively it was clear that some environments made use of protocols and guidelines more readily than others. For example the CCUs in all sites (but Site Three in particular) was heavily protocolised. Almost all of their common medical procedures (most of which required some form of nursing input) were covered by a manual of procedures. The core set of protocols was well accepted as the basis for decisions of treatment (in areas such as thrombolysis and the management of diabetes in the unit). However, the key to its widespread adoption was the system of *inclusive* updating between nurses and doctors:

Int: *How do you know it's research based?*

Nurse: *Because any changes that are made are presented. We get papers to read, and it's discussed. We had a big change in the management of diabetes within heart disease, Doctor Smith and one of the senior reg's presented some teaching sessions, they gave us all the data to read so we were all aware exactly what was going on and how they'd come to their conclusions.*

Int: *What was the change there?*

Nurse: *It was more aggressive treating of blood sugars in the presence of an infarct, certainly within 24 hours, so whereas we would check the blood sugar and it would be high and then give it a couple of hours, and see if it settled down, we were treating the blood sugars there and then aggressively with insulin and there were massive changes, or benefits to the patient from a mortality point of view after patients had left hospital... I mean some of the research has been a bit... because of numbers involved, but it was so impressive it needed to change our practice and it has, you know, we're treating even unknown diabetics progressively as diabetics in the early stages when you don't know whether they're definitely had an MI or not, and because it could be their first presentation diabetes, they're treated there and then and then followed up afterwards.*

Int: *You say you had a little bit of doubt about some of the research and....*

Nurse: *Not so much for me, but more... other people have sort of said oh well, you know, the numbers involved and stuff, is it really going to come out as good as they're saying it is, but that time will tell I think. ... it was the Degami paper, that was the research.*

Int: *So you felt consulted and involved in that protocol?*

Nurse: *Yeab, very, yeab. Because as Doctor Tee said, it was us that was doing a lot of the changes, we were the people that would be setting up the IV's and dextrose and it was very much up to us to encourage the junior doctors to prescribe it as well. Yeab, we were very involved.*

Int: *Is that the general tenet of the ward that you do feel consulted and involved in any changes coming in?*

Nurse: *Yeab, on the whole because if it's medical treatment that's changing then you know we are the people that are encouraging the less experienced doctors that the right way to go and as long as we've got the back up and the knowledge with that then you can do that convincingly, whereas if you're not sure then you're not going to be quite so strong in your convictions. Staff nurse, E Grade, CCU, Site Three*

This coronary care nurse's interview from Site One reveals the theme even more dramatically. Here the nurse highlights the value of protocols but went on to highlight the fact that the registrar who had drafted the original protocol did not feel happy with the nurses intervention. It was left to the consultant to include the nurse and resolve differences:

Nurse: Well we're having problems with the protocol.

Int: In what way?

Nurse: Because of a lot of our patients not being able to tolerate a great deal of fluid in the first 24 hours. We asked the registrar to try and put together a protocol that didn't involve great amounts of fluid being infused. And he wrote one for us, but since we've been using it for a good 8 months, it seems that particular problems, like the blood sugar dropping down, we're not giving them enough to keep them steady, and then the nursing staff don't know what to do because the blood sugar's obviously at a dangerous level and they've got to act on it. At this stage the infusion a lot of the time is getting stopped, especially if I'm not around to say you can't do that. It should only be stopped to treat a hypo, and then it should be re-started as soon as possible. But the problem is that we're not maintaining the blood sugar at a steady level. Or we're not finding that this protocol is. So after I critiqued the Degami research their protocol actually looked quite reasonable, but didn't involve as much fluid as I thought it did. And they also dropped the infusion rate at night time, which would seem logical, which we'd not been doing. So I wrote to the registrar, because I'd tried to get hold of him over the phone, like you do I'd spoken to the specialist nurses and they don't really want to get involved because its his jurisdiction. Our registrars won't get involved, because its not something they've written. So there's nobody really that's actually saying we need to do this. One of the consultants, Dr Hanson, must have gathered all this [that we're not very happy] and he's coming tomorrow to see me. So we're getting somewhere. But we need to fine tune the protocol, because its putting people off. Especially the nurses and I think that's so detrimental, because they're all going to be totally against it by the time, you know, they use it.

Staff nurse, E Grade, CCU, Site One.

One common characteristic of accessing protocols and other similar technologies was that many nurses pointed to the fact that as one became more experienced or encountered the procedures regularly that there was little – if any – need to consult the protocol or guideline. Moreover, they were often seen as tools for education, training or 'revision' rather than decision support technologies:

Int: How useful do you find protocol yourself?

Nurse: Very, I mean, it's there as a reminder of what the next step would be if you're faced with a situation... it depends on your experience, because a lot of it is you've been there and you've done that so many times that you know the next step, but it's a very good learning tool for all of us and a revision tool as well because it's explaining why you're doing certain things as well, so it's not just pointing us in the right direction from medical care but it's also good learning tool.

Staff nurse, CCU, E Grade, Site Three

The apprenticeship model of learning associated with acquiring new clinical skills tended to encourage nurses to assume that other more experienced practitioners were 'working to protocol'. As nurses tended not to regularly consult the documents involved then there was little to correct this potentially erroneous assumption:

Nurse: I think most of the work we do is according to policies and protocols without you actually really realising it... I like to think that everybody works within the policies and protocols without having to actually go to the folder and read it before you know what you are doing.

Int: Right, you sort of imbibe it from working with people -

Nurse: Yes, and if you are not sure then you read it.

Int: Right. Which are the ones that you might use more than others would you say?

Nurse: Um. Things like disposing of sharps, disposing of cytotoxic chemo, Discharge against advice - things like that really.

Int: Right.

Emma: But we usually tend to assume that people are working within the policies anyway and if you are not then people are quite willing to pick you up on it and tell you what the right way of doing things are.

Staff nurse, D, Surgery Site Three

Certainly, away from the heavily protocolised environments of the specialist areas, accessing such technologies was often an informal affair – which people could either opt into or not. Here one surgical nurse discusses the informal protocol she introduced for recording wound treatments:

Nurse: One thing I did do, is I did a wound care care file, because what we're finding with the changeover of shifts and one time being on the red team and one time being on the blue team, you know, if the continuation couldn't be carried through we're changing sides all the time, and with wounds coming in and thinking, well why has that particular dressing been used I don't understand it doesn't quite warrant that. So I've started off just a little file in the treatment room just a basic photocopy thing, saying the person's name, what sort of wound they had, what was being used. So we could keep track. But some people use it and some people don't. It's all the time factor people can't be bothered because you're documenting everything down in your nursing assessment cardex. But the thing is, there can be pages and pages and pages, and its reading back, and you sometimes haven't got the time. So I thought, if they used the wound care file it would be a lot easier. But some of us do and some of us don't.

Staff nurse, E grade, Surgery Site Two

The key to the widespread accessing of protocols seemed to lie in medical sponsorship. Where doctors lay behind, or actively supported, the introduction of such technologies then nurses appeared to use them more often – regardless of the research base of the document. In fact if we examine who produced both protocols generally, and research based protocols specifically, then one cannot discount this theme – doctors contribute a sizeable amount of the protocols used by nurses in the units. In fact they produce more explicitly research based protocols than clinical nurse specialists. Figure 5 details this¹⁴:

¹⁴ strictly speaking, the UKCC and RCN are 'outside teams' for many nurses they represent nursing's key professional points of contact and for this reason are highlighted separately

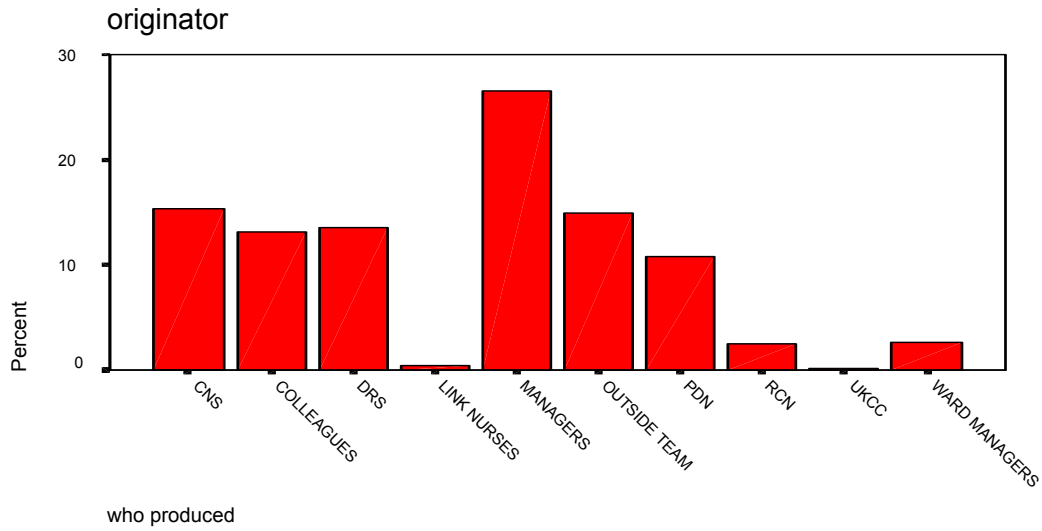


Figure 4: Producers of all Protocols

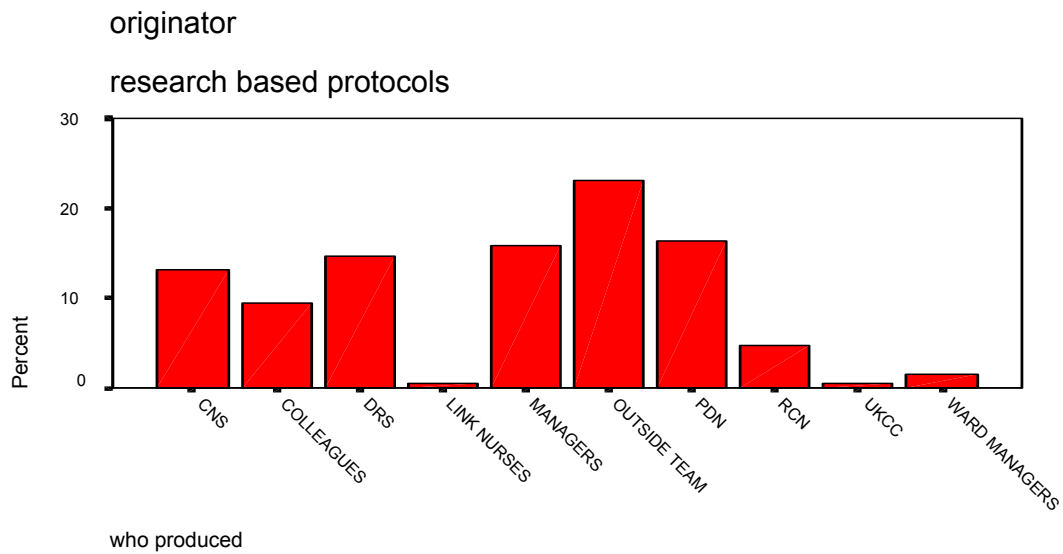


Figure 5: producers of research based protocols

Associated Characteristics

The regression modeling of this perspective reveals that there are no *a priori* hypothesised independent predictors of this perspective, suggesting a degree of universality across categories.

6:7 Perspective Three: Moving Towards Technologies

Perspective three accounted for 15% of the variance. As well as the human sources common to all perspectives these nurses were characterised by the role of information technologies. Specifically, the perceived relative accessibility of local guidelines and protocols and the online databases MEDLINE/CINAHL. Although, interestingly whilst the (in our study) library based resources of online database searching were seen as relatively accessible, the medical or nursing librarians based in the Trusts were not. Perhaps, suggesting a general perception that librarians are not a resource for *clinical* problem solving or for consultation generally. Again, as in the other perspectives, the nurse managerial hierarchy (in the form of the Director of Nursing and their team) was not seen as an accessible route for information. Table 17 summarises the most and least accessible sources of information according to the people defining this perspective:

Table 17: Most and Least Accessible Sources of Information – Perspective Three (Access)

Most useful	Least useful
Clinical nurse specialist +5	Director of Nursing Services or one of his/her team -5
Link nurse +4	Medical/nursing librarian in the Trust -4
Local guidelines or protocols+4	Notes from student nurse training -4
Experienced colleague+3	Information in the nursing cardex notes -3
Medline/cinahl+3	Information in the nursing notes -3
	Television or newspaper articles -3

If anything the perceived accessibility associated with local protocols and guidelines was even more pronounced in this group – although not as accessible as the relevant clinical nurse specialist. The regression analysis presented later shows that working on a coronary care unit is associated with the perception that such guidelines are accessible. This finding is borne out in the qualitative data of those defining this perspective and working in CCU environments:

Nurse: Most of it is [nursing care research-based]. Yeah, definitely. Obviously a lot of the protocols and things we follow from a medical point of view all come from..... I mean our cardiologists are very good at reading the latest information and feeding it back and trying this and we do quite a lot of trial work as well. But I think the basic nursing care as well a lot of it has changed according to recent research and things. CCU, Staff nurse, CCU

Moreover, in the observational data the real-time use of protocols occurred only once in a general medical or surgical environment (in response to a query over the prescription of nitrates to control blood pressure), whereas in the three CCUs involved such use was more ‘routine’. This extract from one episode at Site Three illustrates the interaction between clinical problems and these sources of information:

A lady (67 years old post myocardial infarction four days ago) is readmitted to the unit with chest pain. The staff nurse handing the patient over reveals that she had streptokinase for the original infarct four days ago. The doctor and Angie (the staff nurse) are discussing the patient and the doctor (who originally admitted the woman a few days previously) thinks that she had the streptokinase three days ago and the nurse who was also involved in the original care thinks that it was five days ago. The medical and nursing notes give different dates and there is some discrepancy over times (it was in the middle of the night in the nursing notes and the morning in the medical notes!). They consult 'the protocol' for thrombolysis. The protocol states that repeat administration is OK after four days (to the hour). Despite this clear recommendation the registrar decides to ask the advice of the consultant. He (the consultant) says that just use TPA. In the meantime the nurse decides to explain the increased risk of stroke to the patient (it states in the protocol that there 'is a heightened risk of stroke'). The patient doesn't want to make the decision alone (to consent to more thrombolysis) and wishes to speak to her daughter about it. The daughter is brought in from the relatives room and staff nurse discusses risks using words such as 'more', 'bigger' and 'slightly higher'. She can't quantify the exact risk for the daughter when asked 'how much is slightly higher?', and states that it, 'differs from patient to patient'. In the end they consent to treatment. At the station the Sister and the staff nurse discuss the issue of risk and the Sister offers a figure of 2% (she doesn't say what sort of risk increase this is – for example, relative or absolute). She tells the staff nurse that, 'there's only been one trial of TPA after strep'.

Field Notes, Afternoon, Site Three, CCU

This extract highlights a number of issues (incidentally the Sister involved was someone who defined this perspective):

- the ease with which protocols act as a first port of call in the CCU environment
- that protocols are a useful basis for joint communication between different clinical professionals
- that quantitative summaries of useful information able to 'feed' decisions is something that may prove useful for clinicians. For example, the nature of the consultation between staff nurse and daughter may have been very different if she had been able to quantify the relative or absolute risks involved.

The apparent readiness to use technologies such as protocols or guidelines could be misleading. When such technologies relate to *nursing* care (as opposed to the nursing role in *medical* procedures) then the 'off the record' comments of these two staff nurses in different coronary care units reveal that the valuing of such approaches is far from uniform:

'...yeah we're updating the core care plans and I know they 'should' be used (her emphasis)'

'we try and ignore them as much as we can... it's patronising when you do the stuff day in and day out... its just barking back to 1997 (the year the original core care plans were developed), it's a retrograde step and pretty pointless'

'We use some more than others – like the angio we use a lot – but you know we're selective'

extracts from field notes, early evening, Site Three, CCU

Staff nurse (male) sat down to 'write up the care plans'...it seemed to me that each care plan update was very quick and related to what had largely been written previously and consisted largely of him simply writing the appropriate numbers (of the patient problems) down and circling them. He didn't appear to read the care plans for the individuals concerned, two of which had only been admitted that morning from other wards – he spent a longer period of time writing up the 'non-standard' bits of their care and duplicating (summarising?) the admission-related physical observations data... obviously noting me watching he looked at me and said 'you know what its like when its busy...all our care plans are the same on here...actually we don't really have care plans as such...I bet you remember the bloody paperwork, don't you?'

I told him I did...

...you pay attention to the important stuff like passing on the results but the other bits...the care plan stuff, we all know them off by heart...you know what I mean?'

Field Notes: CCU, Site One, beginning of a late shift.

The other defining characteristic of this perspective was the perceived accessibility electronic resources such as the online databases of MEDLINE/CINAHL. Quite what accessibility in this context meant to the participants is unclear as none of the sites had such technologies on the ward and even the most accessible of the libraries (Site Three) was at least a six minute walk from the wards or units sampled. Nevertheless, the interviews of those defining this perspective reveal that perhaps it is intellectual rather than physical accessibility that plays a part in their responses:

Int: Right..... Do you get on the computer yourself?

Nurse: Yeah, I can use the computer, well the index computer, yeah. It's ok. Because I've been going so long that you know where everything is, it's not a problem now. Staff nurse, Medicine, Site Two.

Int: Say you wanted to find out about Hickmans and giving antibiotics would you feel you could go and get all the information on that topic that you needed?

Nurse: Yes, I am not into the Internet linking but I can use the computer in the library and like being at [the University] I am a bit more confident about actually accessing information.

Staff nurse, D, Medicine, Site Three

Generally, however, nurses tended to utilise such resources when the clinical problems they faced were linked to a professional development course or the development of some broader information resource such as a local file of articles or guidelines. Almost all the nurses identified the need for greater proficiency in the use of such technologies and most admitted that routine use of such sources was not the norm.

Interestingly, the individuals defining this perspective don't see librarians as particularly accessible. This is problematic as librarians in the sites were a key source of advice on using the resources which tended to be based there. This quote from a Staff nurse and a Sister in site two perhaps illustrates that the instructional style of some librarians and demand for their services may be contributing factors to this belief:

Int: So have you got anyone else to look up stuff for you on the computer? Have you ever tried asking the librarian or anyone?

Nurse: No, because sometimes if you go to [the nursing library] they'll tell you what you need to.... they would go through it with you, but they tend not to do it for you!

Staff nurse, Medicine, Site Two.

Sister: I know the librarian quite well down there [the hospital library], she gives me some instruction... will come and give me a hand. I couldn't get... I couldn't print what I wanted one time, and I tried and tried, I was sure I was doing it right, and she actually helped switch it onto the other machine so I wasn't going to be able to print anyway, and it was her fault 'cos she hadn't switched it back over. So something simple like that, the [university nursing] library's a bit more difficult because it's quite a busy library. So, you may have to wait quite a long time to get someone to give you a hand type of thing

Sister, Medicine, Site Two.

Interview data reveals that despite not being seen as particularly physically accessible, Librarians were generally seen as a very positive resource:

Nurse: ... they've actually one particular librarian who deals almost entirely with nursing issues, she's very experienced in nursing issues. One thing they do, though, which I think is very very good, is every month they trawl through all the Nursing Journals, all the journals they get in and they... anything that can impact on nursing or midwifery practice, they have a general review every month that comes out with abstracts from the paper..

Assistant Director of Nursing, Site One.

Int: If you wanted to try and find out from written information, where would you go to look for it?

Nurse: Well, the last time I did go to the library actually, to look up some research, and to find out how you look up research in the library... librarian was brilliant...

Staff nurse, Medicine, Site One.

Associated Characteristics.

Of the *a priori* hypothesised predictor variables the regression modeling of this perspective reveals that only the impact of clinical domain appears associated with the stance. Specifically, working in coronary care appears to be linked to a greater predilection for the technologies of local guidelines and the information possibilities of online databases. As well as the (common) common sources of clinical nurse specialists, link nurses and experienced colleagues.

<i>R Squared</i>	<i>.08</i>	<i>Sig.</i>	<i>.003</i>
<i>B CCU Domain</i>	<i>10.6</i>	<i>Sig.</i>	<i>.003</i>

Based on this model it is possible to tentatively support the hypothesis that clinical domain exerts at least some impact on notions of accessibility. Of course, given the wound-care scenario used we would have expected CCU nurses to see some resources as less accessible than others. For example, given the nature of most protocols or guidelines - which tend to reflect the specialty-specific problems of the units involved – we would not have expected CCU nurses to rank them as particularly accessible in response to this scenario. One explanation could be that nurses tend towards sources they know and trust regardless of the nature of the problem or clinical decision involved.

6:8 Accessing Research Knowledge

Having established those sources of information that nurses perceive as accessible it is not unreasonable to ask whether or not the most accessible sources are those likely to lead nurses towards a greater degree of contact with research knowledge. Unfortunately the documentary analysis paints rather a mixed picture in this regard. Few specific sources of information are explicitly research-based and of course it is hard to know whether the advice provided through contact with human sources such as clinical specialists is based on research. Although as we have seen, influential human sources of information such as clinical nurse specialists, to a lesser extent practice development nurses, and doctors are primarily responsible for producing the research based materials available. The lack of transparency associated with the basis of informal ‘advice’ is problematic, however, as the messages of such powerful individuals carry extra weight by virtue of their extensive clinical credibility.

If we examine the documentary material available on the units themselves it is clear that of all the text, audio visual or electronic sources only around half of all major strategic documents, policy reports, conference proceedings and journal articles are research-based. Other sources fair less well, with an average of only around a third of the 4000 articles examined based on some of research evidence. There is clearly a large amount of material out there but most is not based around research findings. Or if it is, then it is difficult to establish its lineage and so establishing its validity, reliability and applicability is nigh on impossible. Indeed, in nearly a thousand documents it wasn’t possible to discern the authors at all.

Examining the qualitative interview data and Q sorts alone might lead one (quite reasonably) to conclude that, whilst other professionals dominate as the prime source of information sought in response to clinical decisions, other text or electronic technologies might also have something to offer as a route for research information in clinical practice. The analysis of these two sources certainly supports this assertion. However, this has to be balanced against the fact that in more than 180 hours of observation across 15 wards in three sites at different

times of the day we only saw written forms of (explicitly research-based) knowledge accessed four times as a response to uncertainty. They were all protocols and three of these occasions were on coronary care units.

6:9 Conclusion

We found three perspectives on accessibility which together accounted for more than 54% of the variance associated with the sorts. Whilst there were areas of delineation between perspectives (the accessibility of local informal resources and ease of access of technologies such as local guidelines and protocols and on-line databases) the main characteristic across all perspectives was *the accessibility of human sources*. Specifically, the sources who combine a clinical research remit with clinical workload (CNSs and link nurses) and immediate colleagues.

As well as homogeneity regarding those accessible resources there was also remarkable commonality regarding the relative inaccessibility of sources. Specifically, all the perspectives saw the nurse-managerial structure (in the form of the Director of Nursing and their team) as not easily accessed. Two of the perspectives stressed the perceived inaccessibility of the Trust medical or nursing librarian in relation to their role in helping resolve clinical uncertainty. The overall picture was one characterised by an insider-outsider distinction with regard to accessibility.

Those resources perceived as most accessible were those which were linked directly to ward-life: the specialist nursing function, the link nurse who helped operationalise the CNSs knowledge, local technologies focussed on the clinical area (information files or guidelines and protocols). Unfortunately, the documentary evidence suggests that despite the important role of clinical nurse specialists and other members of the healthcare team as producers of research based resources the basis for much of what is produced remains difficult to ascertain. Even optimistic estimates suggest few areas have access to resources which are explicitly research based.

Of course, asking questions of access to information alone is limited in its utility. It is only when we find out whether those sources nurses access as a response to the clinical decisions they face are actually *useful* that we can begin to complete the jigsaw. It is to this question that the report now turns.

Chapter Seven: Usefulness In Research Information For Clinical Decision Making

“The primary criteria of the success of a clinical information system is that it is used.”(Royle et al., 2000)

Key Points

- Nurses defined four broad perspectives on those sources of information classified as ‘useful’ as a means of reducing the uncertainty in their clinical decisions:
 - the guiding or prescriptive
 - the experiential
 - structurally supported experiential
 - the research-technology-experience derived
- Each perspective represents a different blend of explicit-research-based and experiential sources but all were dominated by the overwhelming view that the most useful sources of information for clinical decision making were the Clinical Nurse Specialist and experienced colleagues.
- The clinical nurse specialist role is seen as credible, trustworthy, up to date, and capable of imparting knowledge tailored to individual patient problems. Their experience, and the knowledge derived from this, is valued above all else.
- With the quote at the beginning of the chapter in mind, we found that - with the exception of local guidelines and protocols (seen used on four occasions), and the British National Formulary (the single most frequently accessed written information source) - the only sources of information consulted *in practice* in our sites and in connection with clinical decisions were human: colleagues, pharmacists, doctors and Clinical Nurse Specialists.
- Technologies and roles such as local guidelines, link nurses, protocols, standards, and those resources based in Trust libraries such as on-line databases had some utility but the overwhelming conclusion is that the most useful medium for research based messages for most nurses in our sites were credible, experienced, clinicians.

7:1 The Q Sort And Condition Of Instruction.

The structure and form of the results were informed by the results of the Q methodological modeling. Again, as in the previous chapter, we used a novel condition of instruction as a means of encouraging nurses to reflect on real-life decisions where possible¹⁵. The condition of instruction is presented below. We asked nurses to reflect on and write down a clinical decision. The resulting perspective is firmly rooted in a real life clinical decision.

¹⁵ We also wanted to establish whether nurses (with no specific training) could convert clinical decisions into clinical questions containing an intervention, a population and an outcome as question components – the basis for the evidence based decision making process.

Think of a clinical question based around a decision you have made or that might arise in your clinical practice. Some examples include:

Choosing a time to start cardiac rehab:

‘in patients following acute myocardial infarction what is the best time to start cardiac rehab in order to promote improvements in their outcomes?’

Deciding the best method of monitoring routine blood sugars in a young man, with moderate learning difficulties and who is a newly diagnosed diabetic:

‘in patients with moderate learning difficulties and who have been newly diagnosed as diabetic which method of obtaining blood sugar levels is likely to be the most accurate and encourage regular monitoring?’

Deciding what sort of dressing to use for leg ulcers:

‘in patients with exudating, open, venous leg ulcers, which is better for promoting rapid healing - sorbosan and dry dressings or charcoal-based dressings?’

A middle aged male patient with an acute MI and no history of stroke asks you the risks of a stroke before you start thrombolysis. You decide that the risks should be explained. The question is,

‘what proportion of middle aged male patients undergoing thrombolysis for acute MI will experience a CVA?’

Now write the decision and the question down.

The decision I considered was

.....
.....

The question I formulated was

.....

Now look at the different sources of information in pack C. Sort them according to those you feel would be most useful in helping answer your question in practice through to those you feel would be least useful.

7:2 The Q Sample

As in Chapter Five the stimuli used to model nurses’ viewpoints were the sources of information identified by nurses in interview or observation. The full Q Sample is presented in Appendix E.

7:3 The Perspectives On Usefulness

We identified four perspectives on the usefulness of research information sources. These four perspectives accounted for 55% of the variance associated with the Q sorts and individually each accounted for more than 10%. The factor array is presented below (Table 18) and the demographics of the defining nurses are presented in Table 19.

Table 18 Factor Array - Usefulness Q Sort

Factor Q-Sort Values for Each Statement						
Factor Arrays						
No.	Statement	No.	1	2	3	4
1	1 a systematic summary of all research studies written by a	1	2	0	1	2
2	2 a single research study carried out by a someone in the Tr	2	-4	-1	0	0
3	3 a case study written by a nurse in the Nursing Times	3	-2	0	2	-2
4	4 a case study written by a nurse in the Journal of Advanced	4	-1	0	2	0
5	5 an information file kept on the ward.	5	2	1	2	-2
6	6 Information from a teaching session organised by one of yo	6	0	2	0	0
7	7 Your experience of previous patients	7	1	4	3	4
8	8 A single research study published in the British Medical J	8	-1	-1	-4	0
9	9 Patient information leaflet produced by Trust	9	0	1	-1	-3
10	10 Patient information leaflet produced by national/internet	10	1	1	-3	-1
11	11 The clinical nurse specialist in this area.	11	5	5	5	5
12	12 A product company telephone advice line.	12	0	-4	-1	-4
13	13 Colleagues verbal feedback of a study he/she has read	13	-3	0	1	-3
14	14 General group discussion with nursing colleagues	14	2	2	1	0
15	15 Research project carried out by a colleague for their mas	15	0	0	0	2
16	16 Article seen in the newspaper or on television.	16	-5	-3	-3	-3
17	17 Trust clinical audit/clinical effectiveness/clinical gove	17	0	0	2	1
18	18 Ward manager/Sister	18	1	3	3	0
19	19 A member of the practice development team	19	1	1	3	1
20	20 medical/nursing library (trust-based)	20	0	-1	0	3
21	21 Trust Research & Development R&D) department	21	-1	-1	1	2
22	22 product company representative or literature	22	-1	-1	1	-2
23	23 MEDLINE/CINAHL on CD ROM	23	1	-3	-1	3
24	24 The internet (world wide web)	24	0	-4	-4	1
25	25 BBC/RCN open learning zone.	25	0	-2	-2	-2
26	26 A single research study published in Professional Nurse o	26	-2	0	-1	-1
27	27 Locally produced standards	27	3	1	0	0
28	28 The patient or their family	28	-1	4	-2	-1
29	29 Local clinical guidelines or protocols	29	4	3	4	-1
30	30 National clinical guidelines	30	4	1	0	1
31	31 A single research study published in the Journal of Advan	31	-3	-2	-1	0
32	32 a systematic summary of all research studies published in	32	2	-2	-1	4
33	33 Doctor's report of a research report he/she has read.	33	-2	-1	0	-1
34	34 Text book published in the last 10 years	34	-1	-3	-2	-4
35	35 Text book published before 1989	35	-4	-5	-5	-5
36	36 The link nurse with responsibility for that area	36	3	3	4	3
37	37 Journal club	37	-3	-2	-3	0
38	38 General group discussion with multi-disciplinary team.	38	3	2	0	2
39	39 local audit study	39	1	0	0	1
40	40 Research project carried out by a colleague for an ENB co	40	0	2	1	1
41	41 conference paper or notes	41	-2	0	-2	-1

7:4 Perspective One: Guiding Or Prescriptive?

This perspective accounted for 16% of the variance in the Q sorts and was marked by the usefulness associated with forms of research dissemination such as guidelines and protocols.

Prescriptive Or Guiding Technologies

Aside from the role of clinical nurse specialists (which we will return to presently) this first stance was characterised by the relative usefulness of technologies such as local and national clinical guidelines and locally produced standards:

National clinical guidelines +4

Local clinical guidelines or protocols +4

Locally produced standards +3

For nurses, this perspective on usefulness and its links with the prescriptive technologies of protocols and guidelines were characterised by two themes:

- The technologies often represented the ‘medical’ component of procedures
- Often the nursing component was not explicit within the protocol or was left to the nurse. This was particularly the case amongst coronary care nurses:

Int: How useful do you find protocol yourself?

Nurse: Very, I mean, it's there as a reminder of what the next step would be if you're faced with a situation... it depends on your experience, because a lot of it is you've been there and you've done that so many times that you know the next step, but it's a very good learning tool for all of us and a revision tool as well because it's explaining why you're doing certain things as well, so it's not just pointing us in the right direction from medical care but it's also a good learning tool.

Staff nurse, D Grade, CCU, Site Two

The Ward Manager on a different unit goes on to suggest that the success of the ‘medical’ protocols and nursing’s level of involvement in their implementation has led her unit to question whether the same format could be applied to cover the nursing component of healthcare delivery:

Nurse: This is a medical document really. Although in acute unit it's obviously, it's the nursing staff that do a lot of guiding and indeed preparation, administration of and evaluating the effects or force of these treatments...so that's why we're probably so heavily involved in it...And I suppose that's another reason why we thought we needed to looking more at nursing issues for ourselves. Such as the temperature taking and so forth.

Ward Manager, CCU, Site Three

The quote from the Staff nurse also highlights the fact that many nurses felt that the use of protocols or guidelines was heavily related to clinical experience. Phrases such as ‘they are great when you haven’t seen something before or for a while’, ‘learning aids’, ‘revision tools’ and ‘as ‘handy prompts if you forget something’ were all common expressions in respect of this theme.

The perceived usefulness of these technologies was often related to how they were developed. Here a surgical senior staff nurse expresses the view that whilst the generation of primary research knowledge may be unattractive, the application of that knowledge and the development of technologies incorporating it are not:

Nurse: We don't have protocols as such, we just have sort of standards, and policies. Again, it depends.... I think some of them are quite good, I think the recent ones, the ones that they did recently are fairly good. I got involved in some standard setting when I was a 'D' grade and when I was an 'E' grade for two years with [the practice development nurse] and we had what's called the staff group. And it was to look at local standards for the floor, I was involved in setting some standards then, you know in deciding what kind of things would go in it, and I thought it was quite interesting actually, I know that's based on research, so it sounds a bit silly not actually being interested in the actual research itself, but it was quite interesting actually talking about setting and looking at things and why you would do something and certain standard for it, but actually doing the research is not really my thing, but yeah, I think they're quite useful.

Staff nurse, F, Grade, Surgery, Site One

The 'inclusive' nature of the development process associated with these technologies was seen as attractive by a number of nurses and both the guidelines or protocols themselves and the process that lay behind their construction were seen as effective mechanisms for breaking down barriers between doctors and nurses. Again, this was particularly a feature of the coronary care units involved. Perhaps reflecting the fact that generally they tended to have more multidisciplinary protocols in place and a more limited and defined number of procedures in their day to day working patterns.

Nurse: It's very helpful in as much as if perhaps somebody comes to prescribe a medication for a condition that they'd never dealt with before and is perhaps not so open to discussion - as some people aren't. Particularly people who are perhaps threatened by the environment, it makes life much easier to say - well what we suggest here is this and it's certainly smoothed the waters. It improves relationships between the nursing staff and the medical staff. All of the junior medical staff get a copy of this. All of the staff on the unit get a copy of this. All the consultants get a copy of this and the consultants... at each draft it's sent round to the consultants for them to look at and I get a draft of it, and we discuss that before it goes into the unit.

Ward Manager, CCU, Site Three

A number of nurses alluded to the fact that, whilst useful, the standards implied by such technologies were often unrealistic:

But again I think some of them are very unrealistic I think. I think it's that's an ideal world and it is what you would like, but don't get me wrong, we'd all love to be able to nurse to that even 100 percent, whatever, you know, but I think they are unrealistic.

Senior Staff nurse, Surgery, Site One.

Table 19: Demographic Characteristics - Usefulness

Variable		Perspectives on usefulness											
		1			2			3			4		
		Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)		
Age		35.7 9.6	10	38.3 8.4	17	29.6 7.3	6	34.2 9.8	14				
Length in specialty		8.6 6.6	10	8 6.7	17	5.3 8.8	6	4.3 4	14				
Length since registration		15.1 10	10	15.6 9.1	17	7.5 7.8	6	12.2 10.8	14				
Post	<i>Staff nurse</i>		8 66.7		15 79		6 66.7		10 71.4				
	<i>Senior Staff nurse</i>		1 8.3		1 5.3				2 14.3				
	<i>Ward Manager</i>		1 8.3		1 5.3		1 11.1						
	<i>Clinical Nurse Specialist</i>		2 16.7		1 5.3				2 14.3				
	<i>Other</i>				1 5.3								
Education	<i>5 O Levels or GCSE's</i>		2 16.7		5 26.3		3 33.3		2 14.3				
	<i>A Levels</i>		2 16.7		4 21.1		1 11.1		5 35.7				
	<i>Diploma</i>		1 8.3		2 10.5				1 7.1				
	<i>Vocational</i>		1 8.3		2 10.5		2 22.2		3 21.4				
	<i>1st degree</i>		2 16.7						2 14.3				
	<i>Higher degree</i>		1 8.3										
	<i>Other</i>		1 8.3		4 21				1 7.1				
Professional preparation	<i>SEN</i>				1 5.3								
	<i>SRN</i>		3 25		8 42.1				5 35.7				
	<i>RGN</i>		2 16.7		3 15.8		2 22.2		3 21.4				
	<i>Dip</i>		3 25		4 21.1		3 33.3		3 21.4				
	<i>Degree</i>		1 8.3						2 14.3				
	<i>Conversion</i>		1 3.3		1 5.3		1 11.1						
	<i>Other</i>								1 7.1				
Research management involved in job?	<i>Yes</i>		7 58.3		10 52.6		3 33.3		8 57.1				

Whilst nurses often made the link between these kinds of technologies and research information, they also recognised that the usefulness of guidelines and protocols was often a result of the mediating or translation effects of what they regarded as clinical experts. Here a surgical staff nurse outlines the way in which written protocols are passed from the CNS to the ward via her role as a link nurse:

Int: Where do they come from, these guidelines?

Nurse: I would imagine like research, probably what the surgeon wants from the patient, and I suppose their own experience as well... usually they'll give you a written sheet you just talk about it, tell the others about it when they come on, leave the sheet somewhere, we have a stoma board out here, so I put the information on there.

Int: Right. So, do you feel that's an effective way of passing on information to staff.

Nurse: Yeah, because, I mean, they (the CNSs) do have sessions to tell everybody about it, but it's often people having days off, different shifts, that it's not going to be passed on, so at least if like we work shifts, or the colorectal link nurses is in then, it is yeah, it seems to be effective, yeah.

Int: When you get information from them, do you trust that information?

D Hall: Yeah...

Int: Why, what's the basis...?

D Hall: Because they're specialist nurses. That's why...they have a good grasp of knowledge?

Staff nurse, D, Surgery, Site Two

Nurses who had been involved in developing guidelines often saw that in the absence of evidence the most useful format was to build in the experiential knowledge of the development team. Here a staff nurse in a medical cardiology ward in Site Two discusses the development of a protocol for oxygen administration post myocardial infarction:

Int: At present you are saying people are making different decisions about oxygen. What are they basing that action on

Nurse: Um - intuition or experience a lot of the time - and perhaps the people with a lot of experience can make an educated decision - to stop somebody's oxygen or increase it or whatever. But if we can get that information down logically it will help those who perhaps who haven't got the experience to know with decisions.

Int: Right. So where are you getting that information from?

Nurse: Well we pulled a lot of information from most of the databases in the library and the Cochrane database as well. There is very little information there surprisingly about the use of oxygen in acute MI. Everybody says you should use it, but they don't go much beyond that, you know - the percentage of oxygen? How long for? How long since the pains finish do you leave it on? So we have got some information and then we are having to extend that with how we feel through experience - and whatever guidelines we come up - will go to the cardiologist to see if they are OK about that.

Staff nurse, E, Medicine, Site Two

For many nurses the most useful areas of practice in which these more directive forms of technologies should be applied were those classed as 'practical'. These were often procedural in nature – such as taking temperatures, venepuncture, or catheter care. However, the vague source of many protocols mean that often there was a degree

of confusion surrounding the dissemination of the key messages and, consequently, the weight that should be attached to them. This staff nurse was asked what areas of practice did she think were research based:

Nurse: Wound care in particular. Pressure area care, its had a lot of research done into it, and treatment of pressure sores that's had a lot of research done into it. Diet and nutrition is the big thing at the moment. There's been a lot of things done about how malnourished patients are in hospital when you keep them starved for long periods of time. What else? (pause) Medications! When you're dishing out the tablets. I mean we've changed from doing the medicine rounds with one person to doing them with 2 people, and then we've gone back to doing them with one again, and I must be honest and say I haven't seen why they decided to Do that. I know we've done it... it was hospital policy it changed from one nurse doing the medicines, and then it had to be 2, and then it went back to oh, you can do it with one again. So it's a hospital policy and it will be in the file. But I couldn't say why they've decided that I don't know why.

Staff nurse, E, Site Two, Surgery

It was perhaps no coincidence that the areas in which protocols or directive technologies were often seen as successful (CCU and the management of diabetes or administration of chemotherapy in general medical wards are some examples) were those where the guideline had been initiated, or at least heavily sponsored, by the medical 'firms' and consultants involved. Occasionally, this was the result of a two-way process between nurses and doctors in the context of an inclusive process – as in the development and core role of the standards/protocol manual in Site Three's CCU. This was a joint initiative by a (now) nationally prominent coronary care nurse and an (even more prominent) cardiologist; but since its initial inception, day to day responsibility for its on-going development was with the consultant in charge. The nurses involved saw no problem with this situation – in fact they respected the source's knowledge and expertise. Some nurses and this ward manager from Site Three felt that medical involvement gave the documents more weight and helped increase their voice in collective decisions:

Int: Right, they find them invaluable....

Nurse: Yes, they do because it empowers them really to make comment. Because they know that this is the way that suggests to us from the research and the most recent findings, and as collected by Dr Ryton. That this is perhaps what we should be doing in this situation. And it gives them...I think it makes them feel more credible that, that they're able to contribute really.

Ward Manager, CCU, Site Three

On other occasions it seemed that protocols were imposed 'from above' as a format for consultant preference in the care of their (sic.) patients:

Nurse: We have from the surgeons - we have the bowel preparation policies. And that's written down.

Sister, Surgery, Site Three

Int: You said you would tell about them about the bowel prep, you would decide on the bowel prep that people are going to have. To what extent are you working to your own sort of protocols and guidelines and to what extent is there a framework there for you?

Nurse: It was discussed with Mr Farmer who was our main colorectal surgeon at the time, still is. He does the bulk of it. What sort of prep he likes and what sort of procedures. Like a guideline and protocol thing, so we do use that, but also we do use our own... like assessing a patient... for their age, where the tumour is, if it's low, if it might be an obstructing tumour, and any past experiences with any bowel prep, we use that as well, but most of the time we probably do follow the protocol that was set up.

Clinical Nurse Specialist, Site Two

Technologies? To A Point – The Role Of Experience.

The other useful sources of information according to the nurses who defined this perspective were the clinical nurse specialists and the (related) link nurse role.

The clinical nurse specialist in this area. +5

The link nurse with responsibility for that area +3

The crucial theme from nurses was the trusted nature of the specialist's knowledge. This knowledge was heavily linked to the extensive clinical experience which most specialists had amassed as a pre requisite of their post. We have already seen that one staff nurse saw this expertise as a crucial ingredient in useful local directive technologies but it was also valued enormously as a general resource. Many nurses saw the specialist as a source of knowledge to be tapped into when one's own knowledge fell short:

Nurse There's the tissue viability nurse that we use a lot... you've only got so much knowledge, if you're not looking after those sorts of things every day, and Sue's very good. She'll sort of come up here if you ask her to, and she'll come up and advise you on what the best way to treat it is, and what kind of bed you should use, what kinds of dressings you should use.

Staff nurse, D, Medicine, Site Two

Int: What kind of advice do you need about dressings. Why do you have to call her in - you have been on here ten years?

Nurse: You know there is that many products, it is hard knowing which ones to use. You get so many - our cupboard is full of dressings but it is finding which is the best for which wound really and sometimes you just think - you are bombarded with all these things - you sometimes need somebody to say, well, this works or you know, we have tried it on so and so and it works so it is good really from that point of view.

Staff nurse, E, Surgery, Site Three

The use of specialist sources of knowledge was not without its problems however. It was clear that, for some nurses, usefulness in the clinical nurse specialist role was a result of the fact that they could delegate responsibility for decision making to another, rather than make the decision themselves. In essence, referral was the end point for many decisions. Some nurses recognised that a degree of deskilling was inevitable. Moreover, that whilst specialists may well be able to command greater respect in ward teams this may not be a consequence for everyone:

Nurse: Well, people would say it was a de-skilling thing, having these specialist sisters, however, we're jack of all trades, master of none and you don't always have time to give that specialist care to that patient. You see that patient as a whole, if they've had a formation of colostomy, it's very difficult to have your mind full of every single piece of knowledge. That is what they do, I suppose in reverse you could say is that all they do, do they then forget about the patient as a whole. You know, I can't really answer that. You know, it is a two-way thing but it is good that you've got them there for the specialist advice and it is a good thing, I definitely think so.

Staff nurse, E, Surgery, Site Three.

We've got the specialist nurses, and the new wonder nurses. But whether everyday nurses will be looked upon with the same respect, I don't know.

Staff nurse, E, Surgery, Site Two

Localised clinical experience *alone*, however, was not a sufficient condition for acting as a mediator who could make research based messages useful:

Colleagues verbal feedback of a study they have read (-3)

Similarly, the role of relative power within the ward hierarchy was complex. Unless the experience of the professional mediating research based messages was seen as *credible* then the messages carried less weight. In this nurse's interview she relays a conversation between herself and a colleague in which it is clear that the nurse defining the perspective attaches a higher relative weighting to 'up-to-date' research than her more 'experience-based' colleague:

The tissue viability link nurse, I don't know where her file is, but she is obviously up to date with what we should be using, so I find that useful. Not that I get to do many dressings, because of the role that I lead I'm not always on the ward to do dressings as much. And it's often a surgeon's preference, which shouldn't always be adhered to, because they can be so far behind in what is good wound management. But I mean I was talking to [the link nurse] about this the other day. And I said, 'well...' because she'd said, 'well we put on the wounds what the consultant tells us to'. And I said, 'well you shouldn't say that, Maureen if he told you to put egg white on, would you do it?' And she went, 'well no, I wouldn't'. And I said, 'well you can't just come out with a blanket statement like that, then'. And she said, 'well on plastics, there's a surgeon that likes Milton and liquid paraffin, and yet we haven't used that for years. But when the patient had been stopped and discharged, the district nurse obviously didn't use it, and the wound deteriorated but as soon as it went back on to Milton and liquid paraffin it improved'. And I said, 'well you know, you've obviously got to have research to back up what worked for that patient'. But John's sort of set up a wound management file, which he and I discuss, but people don't fill it in.

Staff nurse, F, Surgery, Site Two

This quote also highlights the distinctive view of nurses defining this perspective that research should be used as a means of validating knowledge derived from elsewhere. Often research was used to 'back up' decisions already taken:

I think you need too be able to back up what you're doing ... you can't go spouting off to people about something just through a gut feeling. It's a way of just proving sometimes, you can make it work to your advantage.

Sister, Medicine, Site Three

The nurses defining this perspective also saw that text books published before 1989 were not particularly useful as sources of clinical information (-4). This was interesting given the significant volume of textbooks present on wards and that their average age was over 10 years. Interviews revealed that many nurses saw textbooks primarily as teaching aids for junior colleagues, new starters, or students, rather than resources to be accessed as a vehicle for real time clinical problem solving.

Practitioners aligned with this perspective also seemed to distinguish between the utility associated with primary research generated by nurses within their Trusts, which people saw as not particularly useful (-4), and the applied products of research (local guidelines, protocols etc.) which most people saw as having some utility. Many nurses had an intuitive awareness of the small-scale nature and limited generalisability of many research efforts:

Nurse: Well I think..... it was a woman who had done an ENB course, she'd done the 998, and she was looking into non-reporting of cardiac pain. But I think it was a very small study. She'd not used proven research tools, and the way she asked the patients, I think she got the answers that she wanted, rather than.... You know.

Staff nurse, CCU, Site One.

The lack of credibility associated with the mainstream media's presentation of healthcare research in newspapers and television limited their perceived usefulness (-5).

Associated Characteristics

The regression modeling of this perspective showed that none of the demographic predictors had a significant association with this stance. This suggests that the perspective was relatively universal in its applicability.

7:5 Perspective Two: Experiential Knowledge First And Foremost

Experience As Currency

For nurses defining this perspective it is clinical experience – either one's own or that of others, including patients – which is given the highest relative weighting in terms of usefulness:

The clinical nurse specialist (+5)

The patient or relatives (+4)

Your experience of a previous patient (+4)

Ward Manager or Sister (+3)

Link Nurse (+3)

For many nurses, this group of colleagues (with medical colleagues as well) represented almost their entire core information resource for daily clinical decisions:

Nurse: Probably, a lot of it is looking at the patient as a whole which sometimes when you're newly qualified you won't do, such as you'll know what someone's vital signs are meant to be and if they look all right a lot of the junior staff or students would just think oh that looks all right but once you get more experienced you tend to be able to look at the patient as a whole and think, something's not right, or whatever, you tend to get that experience as you go along, em..., pick up more on things like health and safety issues, there's probably a lot of things that a less experienced or - even simple things like needle bins, em..., I'll tend to notice more when they need changing and maybe a junior staff wouldn't but that's probably because they've not come across people with needle stick injuries and things and once it happens they'll learn, and think right, never let them get over full and things like that, so I think when you're... when you've been ward co-ordinating you tend to look for things like that as well, safety things, rather than just patient care, you're not just looking at them, you're looking at the whole ward, em..., and things like staffing issues, you can tell more if people are struggling I think, and if you need to ask for help whereas some more junior staff would probably think I've got to struggle on and they will do, but obviously if the co-ordinator knows that you're not coping, then they will try and get you help from another area, so I think..., when you're more experienced you're looking more at the whole ward rather than just at patient care.

Staff nurse, E, Surgery, Site One.

The CNS and Link Nurse roles offered a means of combining experience and research based knowledge. Often this combined role was quite effective at a knowledge-based level and for one's own personal practice. For many nurses however, the culture of units acted as a barrier to transforming research based knowledge into ward practice. Here two different staff nurses (with link roles) describe attempts to introduce changes to practice and the blocks they encountered in doing so:

Nurse: [at Addenbrookes] they're quite open to ideas, whereas I found up here, to make change happen, it takes ages. I mean, I developed a new wound assessment tool, which took me a couple of months, because the documentation here was poor, and I'm tissue viability link nurse on the ward anyway so we developed this assessment tool. The Ward didn't like it so I changed it... I said look I'll do one myself... and it's worked really well, but to get people to start using it is another thing. Even though they will help me to do it I had to just keep bullying people into filling out these things, and just to go along with maybe what is a better idea for them, do you know what I mean?

Staff nurse, D, Surgery, Site Two.

Nurse: I'd actually written an essay about mouth care, and my literature search was, 'What were we doing that was not harmful but was largely ineffective' and we needed to swap it to where the methods of mouth care were broad and are used and are various substances and solutions that were available, because they were often very useful, em..., and all I can do is alter my practice and alter the practice of my students. Em, unless you have support from your immediate management I think ward practice alterations cannot happen on your own, I haven't the power... I talked about it on the ward meetings, I made people aware of what we could do, I did a standards statement for the trust as part of the palliative care team. So I tried... one can but try.

Int: How far did you get with it?

Nurse: Well, I don't feel I've been as a person responsible for other people's practice and I will not take that on board, I used to but I don't any more. I will provide the information and I will act as a sounding board but I will not implement the change as such, because I feel it's not my grading. I used to work above my grade but I don't any more. The lessons learned over many years, I won't... if I'm given a particular project to do then obviously I will implement the change, but in isolation I won't do it any more.

Int: So, you brought the information, brought it up at the ward meeting, what happened next?

Nurse: Nothing... I altered my practice, and I altered that of my students and that's it.

Staff nurse, E, Medicine, Site Two

The overwhelming usefulness of the CNS role and experienced colleagues was primarily attributable though to a number of characteristics:

- they were close at hand
- their advice was tailored to the individual problem at hand
- they were seen as credible
- their advice was trusted.

Often their advice came in the form of seemingly obvious and simple clinical tips for practitioners:

Nurse: Well, I tell you what I did, we went to a study day and a very simple tip she suggested was; you know the 'Comfeel' dressings which you're supposed to leave on for er... three to five days, it's so obvious really. She said if you write the date on the dressing when you actually apply it and then subsequently people know how long it's been on. Now it's so obvious and that is something that we have sort of disseminated round now and most of us do that.

Staff nurse, Medicine, Site Three

The specific nature of their advice was not without its problems however. Here a Staff nurse discusses the variability that can occur when relying on experiential knowledge:

Nurse: I think the problem is that there's such a lot of trained staff on the wards now and if we're not careful we all do our own thing a little bit. It's trying to sort of get a definite decision rather than different people doing different things. So trying to co-ordinate, getting other specialist advice from other nurses because there's a lot more now than there used to be.

Staff nurse, E, Medicine, Site Three

There was little if any appraisal of the knowledge imparted by such experience-rich sources and yet it was clear from talking to clinical nurse specialists that often their knowledge came from the same sources (such as the commercially produced product materials) which were seen as problematic by nurses with some idea of the need for critical appraisal generally:

Nurse: If there's information about new products, well we would have had it first from the company reps who regularly come to see us to give us information on their new products, and we help trial them out, help them with their research for it, and then we would pass that on to the link nurses. But we wouldn't necessarily wait for a meeting to pass it on to the link nurses, we'd just come and just say, if we were using it, we would tell them we were using this and why we were using it and what the advantages of it were.

Clinical Nurse Specialist, Surgery, Site Two

The ability of experience to override the research-based technologies in place was pervasive. Experience provided the ultimate fall back mechanism for most nurses, and ultimately was the currency that had most value in the clinical arena. Here one nurse discusses how nurses fell back on experience in the face of medical blocking of a protocol for managing diabetic and necrotic ulcers:

Nurse: There may well be a protocol somewhere you know. Certainly at one stage I think we did have a proper protocol for diabetic and necrotic ulcers.

int: Right.

Nurse: But I think in the end we found that we followed the protocol and then the consultants came along and wanted something else. So over a period of time it just got sort of discounted really and we just carried on. Not doing our own thing, but... you know, all of us using our experience and drawing on each other's experience. I mean, an example on Saturday, there was another E Grade who's actually been on here - she's about my age - and she's been on here all this time you know. And she asked me to go and see an ulcer on a large hernia to see what I thought I would put on it. She knew what she thought and she wanted to see if we, you know, if we agreed, sort of thing. So, I mean I think we use each other as a sounding board as well to see what we feel.

Staff nurse, E, Medicine, Site Three

Nurses defining this stance tended towards seeing experience as the *core* basis for decision making and also the primary means of improving the decision making process:

Nurse: I tend.... I make decisions quite quickly anyway. So I don't often feel pressured to make decisions. If we do feel pressured about decision making, its always about boarding patients out. Who do you board out, where are they going to.

Int: Right. You can make decisions quickly. What is it that allows you to do that?

Nurse Probably experience...

Int: Do you feel your experience is important?

Nurse Very much so.

Int: Can you see a difference between yourself and a more junior person?

Nurse: Yeab

Int: What are the kinds of differences, do you think, in your decision making?

Nurse: The junior ones tend to sort of plod and think it through. Whereas, as you gain experience, you're probably still thinking it through, but faster, and you'll use experience to base your decision making on, anyway. Like, if I've made a decision, I'm often confident that that's the right decision. The junior ones, 'have I done the right thing?' 'Should I have done it differently'. But even the times when I have felt that maybe..... the staff are so approachable that you can say, do you think I did the right thing there? Should I have done this?

Int: Right, so you do reflect on decisions afterwards, sometimes?

Nurse: Yes, we do reflect a lot, and it helps a lot. And especially if things well even if things have gone right, you sort of collectively congratulate each other. But if things have gone wrong, you can say, well don't worry about that I would have probably done that as well, but we'll you know, we should be doing this, and we should maybe say to others that we should be doing this.

Staff nurse, F, Medicine, Site Two.

The nurses defining this perspective derived some limited utility from local guidelines and protocols. Although as we have seen these were often seen as the function of 'mediated' research knowledge. It was the experience of colleagues involved in the development process that made the protocol or guideline credible: their experience made the research knowledge more useful.

The Experience-IT Interface

As in the other perspectives these nurses recognised that older textbooks possessed little in the way of usefulness in aiding the real-time decision making process (-5). Here a nurse reveals her belief that 'research' is more up to date than textbooks:

Nurse: Obviously when you're a student nurse, because you have to back up everything all your statements, all your essays with research based practice, theory, knowledge, whatever. I was actually quite interested in research when I was a student, because I thought it was much better than sitting there, just getting out these books that had been around from the 1970's or whatever. The research was up to date. And as I say, on the ward, if we're going to practice the way we particularly do something, like say aseptic technique or doing wounds or catheterisation, we'd have to have the research backing to change things and say 'this is the reason why we're doing this'. Research to me is different ideas that people have built up, but they've got the proven facts behind to support and to say, yeah, that works well. And something that we can carry out ourselves.

Staff nurse, E, Surgery, Site Two

The internet (-4) and Medline/Cinahl (-3) were similarly not seen as useful sources of knowledge for clinical decisions. Interviews with nurses revealed that practitioners were very often not confident with their computer/ IT skills and that experiences of using these resources were often negative - or at least not wholly successful:

Nurse: I'd have to ask somebody. I've done a bit on the Medline and things, but I've always had to ask somebody. I couldn't sit at the computer and bring it up myself.

Int: What about the internet?

Nurse: Oh, I've never been on that!! No. I'm quite thick when it comes to things like that. I'm sure, you know, if I.... As I say, I've got to get myself on a course that could be my next project.

Staff nurse, D, Surgery, Site Two

Nurse: I did a basic research thing. I think the hardest thing is actually getting them up on the... where I always have a problem is getting them up on the computer when I do my literature research. I either get nothing, or I get hundreds. That's what I always find is the biggest problem...and I don't know whether I'm doing something wrong, when I do that. I don't know whether I'm just not experienced enough, because when I did this last course a friend even took me up at my local college to go on to the Internet and I never found a thing, and that can't be right, I must have been doing something wrong. I couldn't find anything.

Clinical Nurse Specialist, Surgery, Site Two.

The fact that product company advice lines were not seen as useful sources (-4) could be explained by the fact that, whilst product company representatives were involved as resources in changing practice, they were often limited to two areas – pressure area care and wound care. Moreover, many nurses saw the commercial sector as inherently biased in the presentation of research messages. As has already been seen, some nurses aligned with this stance saw commercial involvement in generating research material as a negative criteria in their informal appraisal processes.

Product company advice lines were often seen as decision specific and only in wound care were they generally seen as useful. Nurses were also sceptical of commercially supported dissemination as well:

Nurse: What do I think of reps?! Well they just want to sell their product, don't they. And they always have the right research that supports their product, which well I don't like that, really. I think its better to read research, or depend on research, that isn't reliant upon the products.

Staff nurse, F, Medicine, Site One

As most questions were not solely concerned with wound care then these resources were of little use (-4). Again, the lack of clinical credibility associated with mainstream media meant that they were not seen as useful. The most often cited reason for the lack of utility, aside from credibility, was the lack of depth associated with most articles.

Associated Characteristics.

Having a first Degree in any subject was negatively associated with this perspective. This suggests that those nurses educated to degree level were less likely to favour the notion of experience over all other forms of knowledge. Of course, those nurses with degrees are also those most likely to be confident with handling research materials and better able to make use of the material (see perspective three: Chapter Four).

<i>R Square</i>	<i>0.53</i>	<i>Sig.</i>	<i>.021</i>
<i>B</i>	<i>-17.33</i>	<i>Sig.</i>	<i>.021</i>

We should remember that despite viewing this perspective negatively, this view is in terms of the *relative* weighting of experience. And that the experienced clinician is still the most valuable resource in many situations, and when accompanied by an awareness of one's knowledge or skills limitations. Here one graduate nurse who has a strong negative association with the perspective (-.7) reveals that despite her own research critiquing skills and awareness, the clinical specialist is the information source of choice:

Nurse: Where normal protocols are not working. We have quite strict diabetic protocols for people who have had surgery and they're not eating, management of them, and if their blood sugars are not being managed on that regime, they might need a review. If we just pick up they've got raised blood sugar when they come in and may need the whole caboodle they need the counselling and everything we get a diabetic nurse specialist in for that because I wouldn't know where to start with counselling somebody about being diagnosed diabetic.

Staff nurse, E, Surgery, Site Three

7:6 Perspective Three: Centrally Supported Experiential Knowledge

This perspective accounted for 11% of the variance associated with the Q sorts. As in the previous perspectives the primary source of usefulness resides in the clinical experience associated with those human sources of information.

Clinical Nurse Specialist (+5)

Your experience of previous patients (+3)

Where the perspective differs is in the weighting it attaches to those resources which are often presented as the central organisational face of development or support for research based practice. These often have an explicit 'research into practice' remit:

The link nurse in this area (+4)

Practice Development team (+3)

Trust Audit or Clinical Governance team (+2)

Nurses defining this perspective seemed to 'blend' resources according to the nature of the problems encountered. Here one medical staff nurse relays her views on protocols, link nurses and specialists. She also reveals the common theme that the degree of specialism has a positive impact on the uptake and use of protocols (i.e. the more specialised the clinical domain the greater the use of directive technologies):

Nurse I tend to like somebody's second opinion. But the more experience you get in a particular area, the more you think you feel confident about the decision you're making. So it's sort of being in that situation before to know what to do in a similar situation. But obviously if you've never come across it, it's just really the medical staff asking their advice, and the other senior members of the nursing team. I think that's how [I make decisions]...

Int: Do you ever have to go further than asking people? Do you ever look for information anywhere else?

Nurse: Oh yeah, looking in the medical records, policies and things you know, if you need to know some of them about making a decision whether to barrier nurse a patient with a particular... you know, say they had chicken pox or something like that, or you know just to see the proper policies for doing things.

Int: Do you use those much, those policies?

Nurse I don't feel like I do so much on here, but working on haematology I did, because we got a lot of patients with different conditions that you had to know the infection control. Also, getting in touch with infection control nurses, and link nurses to the ward. Things like looking after patients with particular pressure sores getting advice from the tissue viability nurse.

Int: What kind of situation might you seek her advice for?

Nurse: Well we had a lady come in a couple of days ago, and she had cellulitis of her legs, but it was quite bad. Just things that you just feel that's out of your depth to know what to do for that patient.

Int: So that lady with cellulitis do you know what the follow up was with that case what happened?

Nurse She [the CNS] told us to rub in...intrasite gel, and use special pads which I got from ITU that we didn't have. And also she advised that we get the dermatology consultant to look.

Int: So the things that she suggested were they things that you wouldn't have known about, or hadn't thought about?

Nurse I wouldn't be the greatest on dressings and things just cos I haven't had a lot of experience yet.

Staff nurse, E, Medicine, Site Two

If we revisit the extract from the field notes of DM presented in Chapter Four (presented as an exemplar of resistance to colleagues information seeking behaviour), but this time view it from the perspective of usefulness, it can be seen that sources were accessed almost hierarchically: colleague first, protocol second, then the BNF and 'expert' knowledge in the shape of the pharmacist last. Clearly the pharmacist's advice was the most powerful driver and the only source the nurse got a satisfactory – decision specific - response from:

Sarah asked Jacqui about giving the drug. She answered in rather an offhand sort of way: "Well, give it according to the protocol like it says!" Sarah went to get the Coronary Care Protocol book and started to look it up. Jacqui saw her from the desk and said "Don't use the yellow one, use the red one, it's more up to date." Sarah got the red book and started to look up the dose, all the while saying "I don't really know why he's having this, I don't think he's in pain." She found the instructions for giving the drug: 25mgs of Nitrocline in 25mls of N/Saline, to be administered via Graseby syringe pump. Sarah said: "I'm not happy about his...I've not seen it used before for high blood pressure." She said the patient was to have his blood pressure monitored hourly, and that his blood pressure was 210/140. Sarah decided that she was going to ring pharmacy to check what she should do. She said: "I'm not used to giving this." Sarah picked up the phone and was put through to pharmacy. She explained the situation to the pharmacist: "We've got this patient whose had a CVA. He's to have IV nitrates for his high blood pressure. I've never seen it used except for pain in angina, but this is just for his blood pressure...would they not usually use something else?" She replaced the phone and told me that the pharmacist said "It is a recognised use." Sarah then said: "The next problem is, is it compatible with saline and potassium. Sarah decided to look up the BNF to see if she could see if the drug should be given with saline. She didn't seem to get a satisfactory answer, and decided to ring pharmacy again, this time to check for compatibility with saline and potassium. The pharmacist told her the drug was compatible with both.

Medical Ward Observational Field Notes, Site Three

The idea that different degrees of specialism imbibe different kinds of knowledge use and information seeking was something that many nurses highlighted:

Int: Can I just ask you, you've gone through some of the kinds of decisions that you've been making, where do you think you get your knowledge from to know how to act?

Nurse Well some of it tends to be, being on here, it tends to be from experience. I do try and read up on things if I get a chance at home. Because a lot of the conditions when I first started on here, I didn't know how to look after particular patients. So reading, and experience, and other members of the team, and just a wide source, really. Where I used to work it was more specialist, so I tried to read quite a bit.

Staff nurse, E, Medicine, Site Two

Support For The Processes Of Knowledge Development.

Often the usefulness of the central resources which were valued was expressed in their role as a supportive element in the development of research based technologies or tools. Here a nurse describes the usefulness of clinical audit information. Crucially, those nurses who had encountered positive experiences of clinical audit were generally those that had been supported in the process of audit centrally. Specifically, this was through practical measures such as data collection or statistical analysis:

Nurse We did a research thing, which was audited... questionnaires was given out in the clinic on how they was giving bad news. What they found useful and what they didn't. They actually fed back to us with that. Otherwise, if you don't get feedback, I think audit's a waste of time. You've got to have that feedback.

Int: How did you find that whole process?

Nurse The information was useful but it wasn't surprising. And we did identify actually which doctors was on that afternoon who gave the bad news poorly, and the ones which are actually good at breaking bad news. And we identified who did what clinic, and we knew...

Staff nurse, E, Surgery, Site One

This idea of offering support in the generation of new knowledge was something that was the *raison d'être* of one R&D support unit's key workers:

Manager: In a way I suppose it has to be rigorous and of a credible standard if it is going to be useful, [research] worthwhile and certainly [the local university] has got quite a purist approach to research whereas Margaret and I are a bit more pragmatic and felt that people at the grass roots level could get involved in small scale research things but that might not be of suitable quality, for example, to be published in a peer refereed journal but would at least give them a good awareness of research and also possibly motivate them to continue as well and so I was aware there is this tension really about how - the best way of encouraging people to get involved in research and for myself one of the best ways would be to just get their hands on it really and I suppose that is something that is quite handy because now the R&D unit has come up we can resource that as well and give the support necessary for it to be a credible piece of research.

R&D Support Manager, Site Three

The perceptions of central support (in the form of practice development and audit functions) revealed in interviews seemed variable. Those elements of the roles which were perceived as useful were those which focused on practical or clinical 'skills' for example, PDN support for venepuncture, recording ECGs, Advanced Life Support or cardiac rehabilitation. Interviews suggest that the activities of these central support functions can have value as stand-alone *processes* even where the topics chosen for scrutiny were not always linked to the *clinical* questions asked by nurses (examples of these questions are presented in Chapter Seven). This surgical nurse for example, reveals that the primary contact (on an annual basis) she has with the Practice Development Team in her Trust (Site One) is in the form of auditing the signing, dating and countersigning of care plans:

Nurse: It was mainly covering things like making sure that every entry was dated and timed and signed by a registered nurse and if a student nurse had signed then they've all been countersigned and things like that. The main thing we didn't do so well at was abbreviations, we tend to use a lot of abbreviations in the care plans which we're not meant to, so we didn't do so well at that. [we did well on]...making sure that when someone's assessed we have it written down, who we got the details from, em... that everything's written in black, that things are dated and signed and things like that, em..., just that the care plans are legal really and we did well with that. Say..., we're going to have to change the standard or come up with something else soon or... anyway, because a lot of it was... is things such as things in the evaluation and things are relevant to the care plan set, but we don't like the care plans now we just go by the standards, so if I was to audit them now we would probably.. it would look like we'd failed, 'cos a lot of it we don't do.

Int: Did you find that audit process useful, did it clarify things for you?

Nurse: Yeah, yeah..., it gets people motivated ..., especially if you get a good feedback and you know..., we're doing really well at this, and it encourages and it makes you do better anyway.

Staff nurse, Surgery, Site One

The emphasis on *clinical* skills, whilst broadly seen as a useful part of the role of central support, is not without its problems. This clinical nurse specialist in Site Three points to the problems of training people in skills based on quotas rather than the clinical needs of the domains in which they work:

Nurse: I think in many respects the practice development team are good and I think I would use them for help because they have a lot of information and a lot of resource information. But I sometimes wonder whether a lot of what they are doing, particularly in putting nurses forward for extra clinical skills, I wonder if that's the right thing to do in large numbers that we're doing. I feel that it is right that nurses who want to increase their clinical skills should do that if they're able to. I don't feel any nurse should be put in a position where she feels she has to do something clinically and feels strongly that she doesn't want to do it. But I also feel it's wrong to train people up to do extra clinical skills purely and simply for the fact of having X number of people who have been on courses and who have those skills who then don't utilise those skills and maintain those skills. The practice development team know how I feel because I've spoken to them about it, but I do feel that one of the problems is that people will go on a course, learn how to whatever, they'll be assessed and then they'll never do it again. Or it will occur that they'll need to do it three months later and they haven't done it for three months and they think 'blimey, I don't know what to do'. And I think that's one of the problems of having huge numbers of people doing courses to say they've got these clinical skills. And people, for various reasons, their own insecurity, or purely circumstances, they don't utilise these skills and become de-skilled and it's been a complete waste of time.

Clinical nurse specialist, Medicine, Site Three.

For some nurses the involvement of Practice Development Teams and scarce resources such as clinical audit assistants were indicative of management or organisational support and for this reason were seen as useful and responsible for sending strong motivational messages to clinicians.

The Value Of Second-Hand Experience

This perspective was also characterised by the perceived usefulness of clinical case studies as a source of information:

Int: What kinds of articles do you like, then, to read? What is it about them that you like?

Nurse: I think it's the ones that aren't too technical. They give you the information often I think a lot of them do them as case studies. You read a case study and what was done afterwards. I think you can relate it more to your patients yourself, then. Obviously some subjects you can't do that with. I don't know how to describe it, really. Its got to be easy reading.

Staff nurse, F, Grade, Medicine, Site Two

Many nurses had been asked to construct case studies as part of the requirements of CPD courses or as academic preparation for registration and so it was not surprising that they expressed a preference for the format. In addition the theme of 'reflection on action' was a strong element in the accounts of some of the nurses defining this stance. Some described decisions or areas of practice almost as mini case studies and used them as such in teaching and instruction of students and those 'less experienced' than themselves. In this account a senior staff nurse on a medical ward describes a patient who absconded and the role of reflection and hindsight in questioning her actions:

Nurse: About 2 weeks ago I had a guy who absconded from the ward, and you'd replay the day, and you'd think, well yes I saw him in the day room and he said he was going to watch the television, but I didn't physically go and check he'd gone to watch the television you just take his word that he'd gone to watch the television. And 40 minutes later he wasn't there. and you think, well if I'd gone and looked, I should have made that decision and gone and made sure that's where he was. But there again, patients aren't prisoners. We can't physically restrain them

Int: Would that affect how you might act in the future? A situation like that?

Nurse: I don't know, because this guy wasn't confused or anything. We were trying to plan his discharge anyway for that day, but he was a person who had nowhere to go no fixed abode which made it worse. And I'm thinking, is he on the streets somewhere. I mean, I don't know. Had he been confused and wandered off, yes, I probably would have thought, I should have gone and made sure that he was there.

Staff nurse, F, Medicine, Site Two.

Associated Characteristics.

Being a clinical nurse specialist and working on a coronary care unit were negatively associated with this perspective.

<i>R Square</i>	<i>0.09</i>	<i>Sig.</i>	<i>.005</i>
<i>B Clinical Nurse Specialist (Separate)</i>	<i>-16.98</i>	<i>Sig.</i>	<i>.029</i>
<i>B Clinical Nurse Specialist (Combined)</i>	<i>-17.68</i>	<i>Sig.</i>	<i>.016</i>
<i>B CCU (Separate)</i>	<i>-7.7</i>	<i>Sig.</i>	<i>.03</i>
<i>B CCU (Combined)</i>	<i>-7.9</i>	<i>Sig.</i>	<i>.016</i>

It is difficult to know whether it is the fact that nurses in these categories have a relative lack of agreement with the useful sources (Practice Development Teams or other clinical nurse specialists) or are less likely to reject as useful sources such as research studies in the BMJ, the internet or journal clubs.

Qualitatively, the clinical nurse specialists and staff interviewed and observed in coronary care units all made reference to medical research studies and often had extensive collections of papers from medical journals. Similarly, two of the three CCUs involved (Two and Three) had appraised papers in the forum of journal clubs. Although the progress and chances of survival associated with such clubs was haphazard. In addition at least some of Site One's CCU staff had clearly appraised research-based technologies (such as the protocol for diabetes management produced as a result of staff reading the DIGAMI¹⁶ clinical trial findings).

¹⁶ Diabetes & Insulin Glucose Infusion in Acute MI.

Qualitatively, CNSs and CCU staff were those associated with some measure of operationalised research use (often in the form of protocols in CCU and an explicit research remit in the case of CNSs); although many CCU nurses felt that they had ‘internalised’ many of the protocols and had little need to physically refer to them on a decision-by-decision basis. The nurses defining this perspective did not attach much usefulness to either published primary research reports or systematic summaries of research. Again, this was not a characteristic of discussions with CNSs and CCU nurses generally - most of whom recognised that reports of research studies seemed to be of value to their work, and most exhibited - at least at the ‘common sense’ (sic.) level – some idea of appraisal criteria. Indeed a number of nurses referred to trials by name (for example, DIGAMI, OPTIMAL) and had a detailed level of knowledge regarding the clinical focus and the applicability of the study results. Here one CNS who defined this perspective talks of the value of critical appraisal:

Nurse: I did one module, this is the research module, it was for the care pathway and that was very good because that made it so that I started to read things with a more critical eye that I would really look at research and think well was it good, was it bad. was it worth anything or was it just done so that somebody could say oh well I've done all this research. So that was useful but other things I don't know that I would find so beneficial. I tend to like more practical things. I think that it made you more aware of actually when you read a piece, you'd just not take it at face value really and also be aware of what had actually gone into somebody doing that piece of research and things that you had to look for to avoid things like bias and that kind of thing just so that you really got a piece of research which was actually valid and of use and it wasn't just an opinion or a lot of opinions really. [maybe get to the stage where you could say] ...there was some evidence behind what they'd obtained and you say 'I can't actually prove anything' but it was a substantial piece that you could use in the future that you would be able to look at that and maybe look at the findings and think well we'll try that and it should, given the same circumstances, should be useful

Clinical Nurse Specialist, Medicine, Site Three.

Similarly, both CNSs and CCUs appeared quite ‘self contained’ in their information seeking behaviors. These extracts from nurses at the CCU in Site One illustrates the self contained nature of the units sampled:

Nurse: I think the knowledge we gain in the unit I mean, there's always people who are up on something. Jills up on ECGs, so if you want to know something about ECGs, we take it across to Jill, and we say, oh, Jill, I've got this ECG.... And like Lins up on airway management. And there's sort of everyone's got a special skill that they can pass on or teach other.

Int: Right. So do you feel you could always get the information that you need from some source?

Nurse: Oh, yeah from some source, yeah...because if that's like their specialist knowledge, and Mike was so good on diabetes, and so knowledgeable about it, that you don't go to the library, because he's already been to the library and got all the research and read it, and you know that he'll tell you what's what, and what's going on.

Staff nurse, E, CCU, Site One

Int: Do you get any other outside influence for updating, like practice development nurse, or your H Grade you mentioned?

Nurse: We tend not to, really, from anybody else. We haven't got a practice development nurse, and the H Grade is just for the 2 wards. They don't have any sort of contact with us in the unit, other than passing on of ward information, really.

Staff nurse, E, CCU, Site One.

Often initiatives were separate from other units: the journal club in Site Two and information resources collated by internal team members or via informal networks of contacts on the part of clinical specialists. CCU nurses also tended towards shared CPD profiles (e.g. the ENB Coronary Care course). Much of the output from the students on this course found its way back into the units and was used by others although not in the context of real time decision making. Relatively speaking, the role of Practice Development Teams and Trust audit teams appeared less prominent in CCUs than in the general medical and surgical units sampled.

Nurse: People tend to leave them [journal articles] lying around if they're interesting, anyway. So we all just pick them up and read them that's how we tend to find out. Or just by word of mouth. Cos generally we find with a lot of things if somebody's had a problem with a particular drug or a particular practice and something changes, then we all tend to pass it on to the others, and we do have a way of documenting it in a communication book. And even though you wouldn't say it was sort of backed up with the reference and the year and the date and everything, we're still finding out from other people what we should be doing, rather than keeping the information to yourself.

Int: So you're all sort of updating each other.

Nurse: Yeah, I think we do.

Staff nurse, E, CCU Site One.

7:7 Perspective Four: Blending Research-Technology And Experience

This perspective accounted for 13% of the variance in the Q sorts. The nurses defining this perspective, like all the perspectives, most valued the role of clinical nurse specialists. Where the perspective differs is in its valuation of some of those sources which have an explicit research base: namely, systematic summaries of research studies and in the fact that they see these as more useful than single research study reports. This distinction suggests an ability to recognise the virtues of not examining single studies alone where systematic summaries exist.

Clearly a major difference in the nurses associated with this perspective is the utility that they attach to the explicitly research-based resources of systematic summaries of research studies (we avoided the term 'systematic review' as it was clear early in the data collection that few nurses fully understood the term). Of course, the role of clinical expertise in the form of the clinical nurse specialist - is still the most valued source of information. Here a coronary care nurse describes the interaction between expertise, reviews of research information and the increased trust in the results that emerges:

Int: So, do you trust all research that's published?

Nurse: No, but then the only research that changes our practice isn't any piece of research, it's a group collection of research that's been proven that it will help to change our practice so it's already gone through that process of being proven.

Int: Before the consultants bring it to you you mean?

C.Jones: Yes, before it's even suggested we change our practice.

Int: Who's filtered it?

C Jones: If it's medical initially it probably would be the consultants and then it would be discussed with [ward manager] and then it's discussed with us a group and then it's brought in, so there's lots of sort of... what word am I looking for... there's lots of people that have looked, and looked at the research that know what they're talking about and have decided whether it's good or bad before it gets to us.
Staff nurse, E, CCU, Site Three

Often amongst nurses this 'filtering' role of other staff was linked to assumptions about the extent to which practices introduced via colleagues were research based:

Nurse: I think the pressure area care is. I know I keep going on about this, but I think that's research based.

Int: Why do you think that's research based?

Nurse: Just from the amount of articles that I've seen about it and why they've come up with this score or the other scores that come out as to why you need which mattress for what patient type of thing. It's got to have come from somewhere, so I assume it's come from research.

Int: Why?

Nurse: Well, somebody's got to have done tests on it. Tests, do you call them tests?... On patient outcomes, type of things like that.

Int: What else?

Nurse: I think oxygen therapy, I think tests have been done on that. Can't say I've seen any. That's about it really.

Int: Where does the information come from that you think that practice is based on that makes it research based? How does that information get to all of you here on the ward?

Nurse: It normally ends up either in the staff in-tray or we have little meetings on a Tuesday and if it's relevant to practice and it's gone by Sister, then it'll normally go in that book. We write down what we've discussed during that meeting then it'll come out there.

Staff nurse, D, Medicine, Site Three.

Library resources generally were valued by the nurses defining this perspective but interviews reveal that, on the whole, library skills were at a fairly rudimentary level. Nurses occasionally relied on serendipity as a route to finding the 'one good paper' as opposed to harnessing the power of IT:

Int: Have you ever used COCHRANE?

Nurse: No. Haven't used MEDLINE either.

Int: Right, is there any other source of information within the library that you've looked at? Apart from the databases.

Nurse: Just the journals and things that are there, but nothing sort of computer based... when I've been in the library here it's all been quite specific around a certain area relating to the courses that I've done, and it's been quite easy to get relevant, interesting references just off for example a decent paper, finding it that way.

Staff nurse, E, Medicine, Site Three

This same nurse again reveals the informal quality filters that are often applied to information prior to it getting into the ward arena:

[Do you get any specialist journals?]

Nurse: I get one with a newsletter sent through the RCN...and I can't think of the name, but Doctor Black and Doctor Gathoura have it and if there's anything interesting in it they'll bring it to the ward and I'll have a look.

Int: So, you depend on them for getting that. What about [the CNS], does she ever bring any stuff your way?

Nurse: She does, she tends to share it with Lyndsey and Janette [ward sisters] really, and they all decide if it's appropriate or whatever, but again, you never seem to get chance to sit and go through things as a group which is a shame really.

Staff nurse, E, Medicine, Site Three

The CNSs defining this perspective revealed a level of confidence in accessing information electronically:

Int: Right, so have you used any of the data bases in the Library, to look up any information?

Nurse: Oh, you mean CINAHL? Well, I've used CINAHL and I've been on Medline as well. And I've used the CINAHL books as well as the CD ROM.

Int: Right, have you dipped into Cochrane at all?

Nurse: Well, Cochrane I've found, I've tried to access that through university as well and I found that a little bit difficult 'cos I seemed to sort of go round in a loop and not really find what I wanted.

Int: Right, what was it you were looking for?

Nurse: I can't remember at the time, I can't remember what I was doing. It must have been to do with assessing really, when I was doing the teaching and assessing course. At the time I just couldn't find what I wanted, but I mean Cochrane's really more to do with clinical care isn't it, rather than academic things I think, that's the impression I get anyway.

Clinical Nurse Specialist, Medicine, Site Three

The library at Site Three had the facility to monitor the use by various clinical groups of the resources available and it wasn't the librarians perception that clinical nurse specialists made any more use of facilities than any other group. Much of the driving force appeared to come from the CPD that people were engaged in. This was reinforced in interviews with nurses.

There were some nurses who used electronic technologies and the library, and they were generally aligned with this perspective. However, what differentiated them was their utilisation of library or electronic resources were almost exclusively linked to a course or element of CPD and/or the development of discrete technologies such as patient management protocols or Trust standards manuals. Where people sought information for real time clinic problems on wards they tended to fall back on what was available on the wards:

Nurse: I've used Medline and I've used the Ovid system which is downstairs. And well I'm doing a degree at the moment, so I've used Psychlit as well...

Int: Right. When you follow things up from your course, do you ever pop down to the library or look something up that's cropped up in your work that you're not very sure about?

Nurse: Yes, I will do. If I can't find the answer by asking the doctors or anything, I would do that.

Int: Can you think of any example where you might have done that? Lately?

Nurse: *Erm, not off the top of my head, because I've been in the library doing my university work, so unfortunately that's taking precedence at the moment. To be honest, there's quite a lot of information knocking around on the unit, which I'm quite happy to pick up and read, and keep myself up to date that way. And normally you can find whatever you're looking for actually, when Hilary was supervising one of the other girls for her ECG course, we did go and look something up, because she wasn't happy with one of the changes on ECG, so we went and actually looked it up and saw what the text books say.*

Staff nurse, E, CCU, Site One.

The nurses defining this perspective also tended to be those who had a modicum of appraisal skills – or at least perceived that they did. However, these appraisal criteria were varied and not always linked to formal approaches aimed at isolating the validity, clinical significance and applicability of studies. Whilst not linked to *formal* appraisal methods, most nurses had an *intuitive* idea of bias, representativeness and adequacy in design:

Nurse: *The cross section, isn't it, you know what I mean, the population isn't it, so you're looking to make sure that you know, has the sample of people that have been chosen, is it a fair representation of the population, depending on what you're dealing with, wasn't it. Em..., so you're looking... you're basically looking at who they've used, what method they've used, what items, what er..., you know what products, if it's a product, what product they've used, and has it been fairly done, and has there been an ulterior... ah, I remember that... has there maybe been an ulterior motive for doing the research, have they been sponsored by a particular company. Do they work for a particular health authority that are promoting, or saying... look we're the best in em..., that type of thing, so you were seeing if it's a fair... fair research. Isn't it, em, so, it's basically.. hard. Just looking deeper isn't it, to see... you know, is this research real. Can we really believe that this is the best, and does this represent the best of whatever they're showing, so in case.... The product, I don't know their project, is there any biasness or has this research been carried out properly. Has it just been done fairly, isn't it.*

Int: do you think you've gained from doing it – the course?

Nurse: *Yeah! Probably, to be honest, because do you know... I think em..., you're blind, you look at something, and you think oh, I love that, that's got research written there.. and so that must be true. Because this word research is bandied round so much within nursing and chucked here and there and the latest research says, not to turn... no not to wash mattresses, you know the next person coming along says 'Oh, no.. no.. you should be doing it with such and such', and it's always been the same different things come up all the time. So if you got a piece of research and you can like say 'Look this is er... this says this', and you really believe it because I suppose you have critiqued it, you are... is that the right word, critiqued...*

Staff nurse, E, Surgery, Site Two

Associated Characteristics.

The regression modeling of Perspective Four reveals that the longer a nurse's experience in a clinical domain the less likely they were to be aligned with this perspective. This was the only perspective which attached any real utility to explicitly research based information sources (such as systematic summaries of studies and the electronic technology of online databases) and in a sense represents that view which many people trying to develop a more evidence-based cadre of practitioners would like to see. Of course, it should be pointed out however that the most clinically useful information remains that provided by clinical nurse specialists.

<i>R Square</i>	0.09	<i>Sig.</i>	.01
<i>B Length in specialty (separate)</i>	-.699	<i>Sig.</i>	.04

The potential reasons why this might be so could include the fact that those nurses with the most experience in specialties also seemed to be significantly negatively associated with a confidence in handling research based products (as revealed in Chapter Four, Perspective Two).

7:8 Conclusion.

Not only was the expertise of clinical nurse specialists the most accessible source of information in the clinical arena (see Chapter Six) it would appear that it is the most useful as well. Whilst four broad thematic perspectives emerged from the Q data, each with a slightly different relative balance of experiential and explicitly research based technologies, it was clinical nurse specialists and other human sources of information which were consistently seen as the most useful. Only in the case of the Perspective One, and its emphasis on guiding or prescriptive information, and Perspective Two with its emphasis on the role of systematic summaries of studies and electronic and library resources, was there any discernible shift away from this view.

Of course, simply because advice or guidance comes from a human source this does not mean that the messages have no basis in research knowledge. On the contrary, we found that by and large it was clinical nurse specialists who held the richest stockpile of research-based materials and often had extensive clinical, research and commercial networks to draw on. Their personal development often included conferences and seminars. They often had responsibility for teaching and the dissemination of research through the link nurse structure and a degree of ‘intuitive’ appraisal skills suggesting the ability to separate good research from bad.

However, these characteristics were variable and of course there was often no way of auditing the information provided. There were also cases (especially where practitioners had extensive knowledge themselves and so a reduced level of ‘dependence’ on expertise) where the CNS role was questioned. This represents something of a dilemma for those who would like to see nurses appraising messages for themselves, as clinical nurses specialists had the enviable ability to be able to draw on the considerable amounts of trust that was placed on their knowledge – trust borne of their clinical rather than research skills.

In terms of what was not seen as useful there were also some clear messages that emerged. No nurses viewed text books as a useful resource and equally the role of local information files was not hugely supported either. This was significant as both of these resources were very much in evidence on the wards. Moreover, in the case of local information files, a considerable amount of effort seemed to be expended in developing them – often as part

of the link nurse role. Worryingly, the internet, on-line databases and other library based resources, were not viewed as having much utility for practice. What was clear however, from the sites was that working library skills and support to enable nurses to make the most of the (extensive) resources available in each of the sites were scarce.

This chapter started with a seemingly obvious quote from Royle *et al.* (2000) stating that the success of any system must be judged by the amount of use it gets. From the interviews, observation and Q data it was clear that the systems that get the most use are those that combine clinical expertise, experience and perceived research based knowledge. Currently this sort of system appears to be most represented by the clinical nurse specialist role.

The overall conclusion then must be that it is not research knowledge *per se* that carries little weight in the clinical decisions of nurses. Rather, it is the medium through which it is delivered. Text based and electronic resources are not yet much use for nurses engaged in making decision, in real time, in real practice.

Chapter Eight – Conclusions And Discussion—The Potential For Evidence Based Nursing

Key points

- Evidence based nursing depends on being able to balance patient preferences, the available resources, clinical expertise and the best available research evidence.
- It was clear that nurses have the potential to convert clinical decisions (some of which were associated with clinical uncertainty) into formats that were suitable as a start point for the evidence based - searching, appraisal, implementation and monitoring - process.
- Ward based facilities for providing information fit for the purposes of reducing clinical uncertainty were limited. However, nurses did not always have the knowledge and skills to make effective use of the information that was available.
- It is unlikely that without formal and innovative training in basic skills for evidence based practice (searching, appraisal and implementation) many nurses will not be able to maximise the opportunities afforded by the new technologies and initiatives such as the National Electronic Library for Health (NELH).
- Those who embody the clinical nurse specialist position have a key role to play in the translation of research based messages for practice. They are also powerful change agents in their own right and their development, in respect of the evidence based healthcare agenda, should be addressed rapidly if unacceptable variability in performance is to be discouraged.
- Specialisation per se (in clinical domain, role or position) exerted some effect on information use. More research is required regarding this effect and its relationship to clinical decision making.

A Reminder.

This project has explored and described nurses' use of research information in clinical decision making. It has used a variety of data collection methods to address four research questions:

- to what extent do nurses make clinical decisions which require research evidence
- how do nurses perceive barriers and obstacles to the access and use of research based information in clinical practice
- how do nurses access research based information in practice
- how do nurses perceive the need for research based evidence to support their clinical decision making.

In answering this series of questions we aimed to arrive at an answer to the question, 'what is the potential for evidence based approaches to nursing?'

With regard to these aims (and the research questions underpinning them) the results of our data collection and analysis yield a number of conclusions.

8:1 The Extent To Which Nurses Make Clinical Decisions Which Require Research Evidence.

Chapter Four outlined a six-fold taxonomy of generic decision types which we developed from the interviews, observed practice, and decisions reported by nurses in the Q sorting exercise associated with establishing the ‘usefulness’ of information sources. This sort of exercise has not been conducted amongst nurses in the past and suggests that nurses make discrete types of decisions:

- *Intervention/effectiveness decisions*, where the aim is to choose which one of two or more options is the one most likely to deliver the desired outcome
 - *Targeting decisions*, where the intervention may not be the choice. Rather, it is *who* should receive the intervention in order to gain the maximum amount of benefit or reduction in harm.
 - *Timing*, where again the intervention to be employed may not be at issue but *when* it should be deployed. For example, all patients post-myocardial infarction in a CCU are expected to have some form of cardiac rehabilitation; the decision to be made is, at what stage in a patients progress should one begin it?
- *Communication*, where the decision revolves around choosing modes of delivering or handling information from patients, relatives or other professionals. Sometimes these sorts of decisions involve modes of communicating specific kinds of information such as risk, benefit or harm. For example, the episode in the CCU in Site Three where the staff nurse was asked by the relative what the chances of a stroke were if her mother had thrombolytic therapy for a second time in a week.
- *Service organisation, delivery and management*: where the aim is to choose between options concerned with the optimal balance of available scarce service resources such as staff, funding, time or beds. Sometimes these decisions were reactive as in bed management and sometimes the decision was concerned with a future state – for example, the purchasing of pressure area relieving devices or heart monitors.
- *Experiential/understanding or hermeneutic*, where the nurse has to choose between competing explanations for how a patient may be experiencing a particular intervention or episode. For example, what exactly may be going through a patient’s mind after having watched the patient in the bed next to them have a cardiac arrest?

Quite clearly, research information could contribute considerably to the uncertainty associated with each of these decision types. For example:

- a quality systematic review of randomised controlled trials could help establish which one of a range of intervention options might deliver the best outcomes for a patient.

- a report of a well designed cohort study might help establish the risks of stroke associated with repeat administration of anti-thrombolytics in elderly women.
- qualitative research may reveal those elements of the patient experience of watching a fellow patient have a cardiac arrest.

Whilst the types of decisions nurses make appear amenable to the benefits that research evidence might offer, the volume of decisions, their (frequently) short timelines, and other barriers to information use and access prevent such material entering the decision making process in a transparent and ‘real time’ sense.

8:2 The Barriers To Nurses’ Use Of Research Evidence.

We found there were four broad perspectives expressed by the nurses interviewed, observed and whose views we modelled via Q methodological approaches:

- problems with interpreting the products of research and associated low level of confidence, which led to difficulty handling information presented as research evidence. These individuals were found in all the clinical areas examined and across the boundaries established by clinical experience, educational levels, and mode of professional preparation. Statistical information and the language of science and research were particularly problematic for these practitioners. Nurses defining this perspective wanted to use research in their clinical decisions. However, their perceptions of a low level ability to translate research into practice and a lack of confidence was a real block on them doing so.
- a lack of organisational support for, and access to, research based information. The nurses defining this perspective saw their organisation (its structural components and elements of its culture) as a primary block on their use of research material. They were obviously motivated towards using research and perceived they had the skills to be able to do so. It would be wrong to think that that by ‘organisation’ these nurses referred to management or the central administrative apparatus of the Trusts involved. Some of these nurses felt that their close colleagues were a major block on the use of research based information. We found that the more clinical experience a nurse had in a clinical specialty the less likely it was that they were aligned with this perspective.
- a lack of direction in the messages for practice resulting from research information. These nurses, as in the previous perspective, recognised that their colleagues were not always a positive influence on the implementation of research findings. We found the perspective was most likely to be associated with those nurses from an undergraduate background and that the defining stance was the perceived lack of direction in research products and an associated lack of clinical credibility in the producers of and disseminators of research. Nurses defining this perspective were, however, motivated towards research use in their clinical decisions.

- low skills, personal motivation and a desire for third party involvement. The nurses who exemplified this perspective were those who expressed low levels of skill in searching for, handling and interpreting research information. They saw, however, that research was very much ‘doing the right thing’ and perhaps for this reason saw themselves as facilitators of others’ use of research based information. They also expressed a preference for other – more informed professionals – to pass research based messages to them in a language they could understand. We found that traditionally (SRN) trained nurses were most likely to be associated with this perspective whilst graduates (from any background) were least likely to be linked to this approach.

8:3 How Nurses Access Research Based Information In Practice

Nurses in the acute settings examined in this study almost universally accessed research based information for practice through *human* sources; that is, from experienced colleagues within nursing or other professional groups and, most prominently, the clinical nurse specialists (or less formally, those staff who embodied the essential qualities of the role, viz: trusted, clinically credible and up to date). Where nurses came into contact with the technologies of evidence based healthcare such as journals, computerised information sources and librarians, this was usually in the context of non-decision making situations such as continuing professional development or ‘courses’. We isolated three distinct perspectives amongst practitioners on the accessibility of various information sources. These three perspectives were each different but shared a common characteristic: the dominance of human sources as the most accessible route to clinical information. Specifically, we found those human sources which combine an extensive clinical remit with a perceived responsibility for research use were seen as the most accessible. The embodiment of these qualities seemed to reside in the clinical nurse specialist role. Interestingly, where a research-into-practice role was separate from that which nurses perceived as ‘clinical’ (for example, the clinical audit function or the practice development team in Site One) then these were viewed as less accessible. The overwhelming feature of accessible clinical information sources was that they were all linked directly to ward life. The technologies associated with evidence based healthcare such as electronic information resources, the librarian as a source of expertise and reports of studies were all seen as relatively inaccessible.

Wards themselves proved to be rich repositories of text-based information in the form of textbooks, journal articles, locally developed information files, and protocols or guidelines. There were over 4000 documents (around a 1000 of which were journal articles) in the 14 wards or units audited. Most of these resources were out of date (the mean age was more than 5 years old), not referenced and poorly organised and despite their close physical location to the workplace most were seen as relatively inaccessible in the Q sort exercise. Perhaps reflecting their lack of organisation and often chaotic state.

8:4 The Need For Research Based Evidence To Support Clinical Decision Making.

Of course, accessing research based information is only of benefit if that information has the capacity to reduce some of the uncertainty associated with the clinical decision concerned, i.e. it is actually useful. We found four perspectives amongst nurses regarding the usefulness of clinical information sources:

- the *guiding or prescriptive role* of useful information, in which that information seen as useful offers clear guidance or prescriptive messages for practice. The most common form of this kind of information was local guidelines or protocols.
- the *experiential*, in which clinical information derived from the clinical experience of trusted sources is seen as the most useful. Graduates (in any subject) appeared to be less likely to hold this perspective.
- *structurally supported experiential*, in which information provided by the central ‘machinery’ of Trust R&D support structures is seen as useful. However, most of the utility associated with these roles seemed to lie in the inclusive and ‘hands on’ development processes of technologies such as guidelines, which brought practitioners into contact with research. The products of advice from Practice Development Teams and clinical audit staff were often mediated by trusted clinical sources such as clinical nurse specialists and so it is unclear whether it is these roles or the products of those roles which are the source of any utility for practitioners. We found clinical nurse specialists and coronary care nurses the least likely to hold this perspective. This could perhaps be explained by their view that reports of single studies and systematic summaries of research were useful. It was our experience that, qualitatively at least, it was the focussed and specialised role of the CNS and the environmentally ‘special’ nature of CCU which brought practitioners into contact with research.
- *research and technology derived*, in which technology (in the form of computerised databases) and systematically presented research findings begin to have an impact in terms of usefulness in clinical decisions. We found that the more clinical experience in a single clinical domain a nurse had, the less likely they were to be aligned with this perspective.

Despite their marginal differences it should be stressed that the central strand running through all these perspectives was it was the *advice of those who embodied the role of the clinical nurse specialist that was most valued.*

The interaction between looking at issues of access and the utility of information sources for clinical decision making highlighted some interesting contradictions. Firstly, that the resources which dominated ward-based stocks of information tended to be those which were seen as least useful: textbooks, reports of studies and

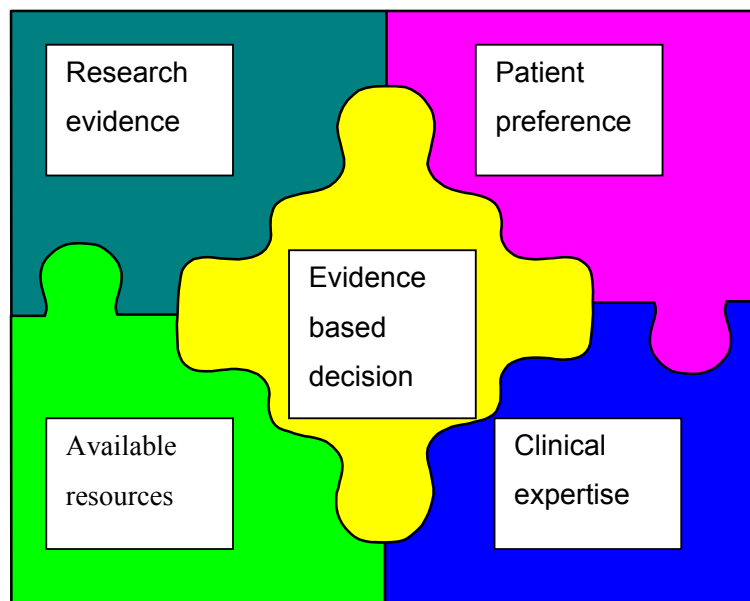
information files. These resources often required considerable effort or the nurses' own money to be expended in order to develop and maintain them.

Secondly, that the technologies conventionally associated with making life easier for clinicians, the organisation of information a realistic proposition, and which offer the potential for rapid access and internationally derived results (such as the Internet, online databases and library based resources) were not seen as particularly useful for clinical decisions. However, it was also clear that the skills and support necessary to maximise the opportunities such technologies offer were often no more than rudimentary.

8:5 Towards Evidence Based Nursing (EBN)?

In order to explore the potential for nurses working in acute care settings to exploit the potential of research based knowledge it is important to clarify what we mean when we refer to *evidence based nursing*. Our conceptualization of an evidence based clinical decision is one in which the complementary (and occasionally competing) influences of clinical experience, patient preference, available resources and research evidence are successfully combined (Cullum *et al.*, 1998). Figure 6 represents this relationship graphically:

Figure 6: An Evidence Based Decision



8:6 EBN The Process

The end point of an evidence based decision can be seen as the result of a five stage process:

- recognising the uncertainties that accompany clinical problems or dilemmas; and the conversion of this uncertainty into a **focused clinical question**. This acts as a cognitive ‘waymark’ for revisiting later to see if we have addressed our original uncertainty
- using the clinical question as a framework for **searching** for the most appropriate evidence with which to answer our clinical question. Often this will be research evidence and the appropriateness of this evidence is determined by its ability to provide answers which are fit for the purpose of reducing uncertainty
- establishing this ‘fitness for purpose’ by **critically appraising** the evidence for validity, the meaning of its results and its applicability to patients and the clinical decision you are making
- considering **implementation** if the results are valid, clinically significant and able to be applied to your patient
- **monitoring** (through clinical audit or similar mechanisms) any impact as a result of the changed practice or decision taken.

8:7 Knowledge Inputs And Decision Making.

We need to be clear that not all knowledge required for making an evidence based decision can or should come from research evidence. Moreover, evidence based decisions vary across situations:

‘successful clinical decisions, like most human decisions, are complex creatures...In making them, we draw on information from many sources: primary data and patient preferences, our own clinical and personal experience, external rules and constraints and scientific evidence... the mixture of inputs to clinical decisions varies from moment to moment and from day to day, depending on the decisions and the decision makers.’

(Mulrow, Cook, & Davidoff, 1997)

Wulff and Gotzsche (Wulff & Gotzsche, 2000) suggest that in making decisions people draw on scientific and humanistic kinds of thinking:

Scientific thinking

- The deductive component: inferences from theoretical knowledge about disease, health, and disease mechanisms – sometimes called first principles.
- The empirical component: inferences from experience gained from the study of previous patients
 - uncontrolled experience (reflection on one’s own patients)
 - controlled experience (the evidence of other patients gathered from research)

Humanistic thinking

- The empathic-hermeneutic component: inferences from an understanding of the patient as a fellow human being
- The ethical component: inferences from ethical norms.

Clearly, it is the first form of knowledge (specifically, empirically derived, controlled experience) that research knowledge contributes to and with which this project is primarily concerned. If this model and the EBN process within it represents the end point to which we aspire then what does this study tell us about where we are now, and the potential for delivering evidence based nursing practice

8:8 Recognising Uncertainty, Clinical Decisions, And Clinical Questions.

The obvious first point to make is that nurses make clinical decisions. This point may seem so obvious as to be banal. However, the evidence based approach to decision making rests on the premise that clinicians have information needs as a result of the consideration of decision options. We found that the ‘clinical dilemmas’ used by other researchers to map the decisions and clinical questions of doctors (Wyatt, 2000), (Ely *et al.*, 1999) were replicated to some extent in nurses. Nurses have to select choices concerning therapy or interventions, the timing and targeting of interventions, the communication of risks and benefits of interventions, modes of imparting information to patients, relatives and colleagues, how best to configure services and the scarce resources within them for optimal care delivery, and competing models of understanding the experiences of patients. Very often, nurses find themselves in situations with no personal experience to draw on.

We also found that given the opportunity to try and convert decisions into clinical questions (see Chapter Seven) nurses seemed more than able to grasp the basic idea. In many cases they spontaneously specified the outcome to be desired, the intervention or option being considered, and the patient or population involved.

However, nurses do not always recognise the uncertainty present when making decisions – indeed sometimes did not even recognise that they were making decisions at all - and so opportunities for evidence based approaches to reducing any uncertainty remain unaddressed. For example, we saw a staff nurse and a junior doctor in Site Three recognise that they were both unsure as to how to pass a nasogastric tube, and despite the presence of a procedure-specific protocol less than 3 metres away, they preferred to ‘muddle through’ with a combination of guess work and severely limited experiential knowledge. Similarly, we saw a patient with a pressure sore in Site One which gradually grew and deteriorated over three days and despite prompts from the researcher to try and encourage a decision on the part of the nurse involved (‘isn’t there anything you could consider for the patient?’) no decisions were made and the patient ended her days with an open pressure sore. A third example concerned a patient with MRSA who had taken a bath. The nurse was unsure which product to use to clean the bath and how to apply it. She chose not to look at the MRSA-specific protocol for cleaning the bath attached to the patient’s care plan.

This study was limited to an exploration and description of some of the decisions faced by nurses in acute care settings in three NHS Trusts. There is a need to develop our understanding of the kinds of decisions and clinical

questions that arise in other clinical areas and locations. For example, in primary care, in non-clinical locations and in areas such as mental health and learning disability nursing.

This study suggests that nurses require development and training in the recognition of decision opportunities, the associated uncertainty and the clinical questions that could arise. As far as we know no one has mapped the decisions that nurses routinely face and there is a need for more work on the clinical focus of decisions as well as the 'clinical dilemmas' which characterise them.

Methodologically, we found that it is not sufficient to rely on self reported information seeking behaviour and accounts of decision making (as most research looking at research utilisation has done in the past). Without the observation component none of the three examples highlighted above would have come to light and the data would have been considerably weakened. There is a need to develop the science of observing clinical choices in action and tracking the links with both cognition and any information seeking behaviour that may result.

We found that inter and intra professional boundaries were flexible, variable and often negotiated. There is a need for research into the rationale behind, and impact of, these boundaries on clinical decision making. Clinical specialism and a clinically respected specialist role seemed to impact positively on the boundaries within and between professional groups with shared decision making and a more 'self contained' nature to information seeking behaviour.

Given that nurses make decisions, and that there is an associated and concomitant need for training and development if they are to recognise and convert them into information seeking strategies, then a clear educational research agenda can be identified. Specifically, we recognise that research into the best ways of training nurses to better recognise decisions and convert them into clinical questions. Moreover, where information strategies include decision support, then research should be conducted into the impact that such technologies have on nurse decision making per se. It is feasible that nurses may see such technologies as a substitute for, rather than an aid for improving, decision making.

Given that many of the decisions nurses make involve communicating information to, and translating cues and information from, patients, then there is a need for research into the most effective ways in which nurses can promote the role of patients in clinical decisions. In the pilot site we observed a ward sister and staff nurse dedicate half an hour to asking the patient and his wife about the dressings they used at home for his leg ulcer and why he preferred them. The patient relayed his satisfaction with the community treatment he had received and that the ulcer appeared to be healing. This was then ignored with the riposte that 'this will work better'. The Sister

then proceeded to initiate a new form of treatment which ‘she liked, because I’ve seen some good results’. The relative weighting of the patient-derived information in this case was clearly not that high.

It has been said in the past that “*we train nurses for certainty rather than uncertainty*”¹⁷ and to some extent the results of this study reflect this sentiment. This assertion leads to a significant question which needs to be asked of policy makers: what sort of nurses do we want? The use of research-based knowledge is implicit in the UKCC’s (1996) vision of the relatively autonomous nurse who acts in an informed way to safeguard and promote patients interests:

“As a registered nurse, midwife or health visitor you are personally accountable for your practice and, in the exercise of your professional accountability, must...

Always act in a manner as to promote and safeguard the interests and well-being of patients and clients;

Ensure that no action or omission on your part, or within your sphere of responsibility, is detrimental to the interests, condition or safety of patients and clients;

Maintain and improve your professional knowledge and competence;

Acknowledge any limitations in your knowledge and competence and decline any duties or responsibilities unless able to perform them in a safe and skilled manner” (UKCC, 1996)

It is by no means clear that we are promoting this vision in nurse education or practice. There is a need to explore the ways in which we prepare nurses for practice: if nurses cannot convert their decisions into clinical questions they cannot identify their information needs, because these needs are then unfocussed or vague then there is a high chance that they will not retrieve the most appropriate evidence, they will not be able to answer their original question (because it doesn’t exist) and therefore cannot give the necessary due weight to the evidence and exploit the potential knowledge gains which research could offer.

There are strategies which could be employed in practice to attempt to encourage the development of clinical questions:

- The approach to ‘handovers’, where nurses pass on patient information to each other, did not appear to encourage questioning or question development. The care was often *prescribed* by the person delivering the information in the form, “patient X, a 56 year old man post chole[cystectomy], got some pain, you need to keep an eye on his fluids and he’s written up for diamorph[ine] and he’s due some at 2’o clock, you need to phone the SHO cos his IVs tissue[d] and he’s to start on clear fluids later – find out what they want us to do”. Research needs to be undertaken to explore ways in which nurses can maximise the

¹⁷ Comments made by Professor Karen Luker whilst Chairing the 1st UK Nurse Decision Making Symposium, Stirling University, June 1999.

opportunities for developing areas for information seeking that this culturally ingrained feature of ward life represents.

- Those with responsibility for training and managing nurses in practice need to encourage nurses to view questioning around decision making, and the information seeking behaviour that can arise, as valid activities in ward life. The example of the nurse asked to give nitrates for raised blood pressure presented earlier in the report in which her information seeking approach to dealing with the uncertainty associated with the task was clearly a source of irritation to a more senior colleague was an illustration of this need. Similarly, the nurse who encountered the full weight of the bureaucratic machine as part of the very simple decision whether to carry a chemotherapy patient's urine down the ward to the sluice to be measured or to place a jug in the toilet in the patient's room was illustrative of the fact that nurses need to be 'allowed' to make decisions once equipped with the tools to do so.
- Clinical question development as part of the decision making process could do much to challenge the role of uncontrolled experience as the dominant currency amongst professionals seeking to reduce uncertainty in decisions. Wulf and Gotzsche (2000) and Reason (1998) highlight the fact that reliance on such experience alone leaves the decision maker prone to all the classical biases and error-types that will impact on judgement of which hindsight, anchoring, primacy and recency effects are four. The only counter to these flaws in reasoning is the controlled experience that research based knowledge offers.
- Clinical question development will also combat the potential for de-skilling (in terms of decision making) that may accompany the development of technologies such as protocols or guidelines. A number of interviewees raised the issue that these forms of technology in conjunction with the increasing pressure for specialisation amongst practitioners meant that nurses' ability to make decisions was compromised. Question development as a part of the implementation and use of clinical guidelines will help put their deployment in perspective: as an aid to, not a substitute for, clinical decision making.

8:9 Seeking Information.

Like others who have tracked the interface between clinical decision making and information seeking behaviour of clinicians we found that many of the questions raised (or implied) in the decisions that nurses made went unaddressed and hence unanswered (Covell *et al.*, 1985), (Wyatt, 2000), (Ely *et al.*, 1999). Where nurses did seek information it was most probably in the form of asking advice from an experienced colleague or human source of specialist advice; again, mirroring what we know about the information seeking behaviour of other clinicians (Coiera & Tombs, 1998), (Covell *et al.*, 1985). Unfortunately whilst these routes to clinical information have several advantages: cheap, rapid, tailored to your needs and easily assimilated with the minimum of appraisal, they also have some major disadvantages as a route for research based messages. Specifically, the source of the knowledge imparted may be vague, the data may not be up to date, messages may be based on an inappropriate

model of underlying research, and the colleague or 'expert' may be prone to the same biases and heuristics in delivering the message as the person making the decision.

In terms of using computerised or electronic means of searching for the best available research evidence with which to contribute to decisions the picture there were some key messages from the study:

- The use of electronic resources takes place away from the ward environment, often in libraries which may be situated some distance away. This is significant as other commentators have found that amongst trained clinicians a ward based computerised resource can meet sixteen information needs for every one in an on-site but distant library (Sackett & Strauss, 1998).
- The searching process is often divorced from the clinical decisions which merit information. Indeed, searching often takes place in the context of CPD where the focus may not even be a clinical decision, but a course objective or an academic problem. Despite there being relatively good computerised resources available in the sites most nurses cannot make proper use of them as they lack the skills and support necessary to do so. Even those nurses that professed a modicum of skills in searching admitted that their skills were never more than rudimentary. As searching was not considered a legitimate activity (in comparison to the demands of the wards) by most nurses it was difficult to combat the perceived time pressures which the ward placed on them.
- It appeared that many nurses having undertaken Project 2000 diplomas and degrees had encountered searching skills training during their basic training and had then lost the skills acquired when in practice.
- Nurses' experiences of unsupported use of libraries encouraged poor library skills. Limited electronic search skills meant that often a process of 'grazing' the journals or textbooks was perceived to generate more worthwhile material than computerised databases.
- Nurses lacked any idea of the relative merits of different sources of research based information with only one person (out of more than 100 nurses) referring to her use of the Cochrane Library (as part of the generation of clinical guidelines).
- There is a need for research into which information formats are most likely to appeal to nurses in practice. If it is decided that pre appraised reports of studies and systematic reviews are important then the modes of delivering these results to practitioners need to be evaluated. Nurses consistently spoke of the need for direction in messages for practice, wanting up-to-date material, written in an easy to understand language with the minimum of statistical information. In the main they were not aware that such resources already existed in the form of evidence based journals such as *Evidence Based Nursing* and compendia of reliable evidence such as *Clinical Evidence* (which mirrored the format of the much-used BNF)

If it is decided that nurses need literature searching skills then a number of policy questions emerge:

- Which nurses? It was clear that nurses in certain roles – for example, clinical nurse specialists and the associated link nurse role – were more likely to engage with searching for material related to clinical problems.
- Having decided which nurses to train, how to train them? At present most of the training takes place in the context of basic professional preparation and on CPD courses. This is often separate from the clinical decisions which most nurses encounter. The link between decisions, questions and searching should be reinforced in training methods, and work-based training programmes could be developed and evaluated.
- What role for Trust librarians? Many of the new breed of librarians are moving towards models of work which reclassify them as ‘information brokers’ (this was beginning to be discussed in Site Three). Their roles extend into clinical areas, in routines such as ward rounds, and ward meetings. It was clear that sources of advice with a ward presence such as pharmacists, dieticians and members of the therapy team were used by nurses trying to reduce uncertainty in decisions. A similar role for librarians could result in a change in the ways that clinicians view research based information.
- What impact will the National Electronic Library for Health have on the ways that nurses engage with research based information? Without adequate skills training and support it may be that nurses will not make the best use of this potentially valuable resource.

Nurses need to be encouraged to look beyond what is immediately available on the wards. Most existing resources were unreferenced, out of date, and of an inappropriate research type to answer the clinical dilemmas which nurses were addressing.

8:10 Appraising Research Based Information.

Nurses often used informal approaches to appraising the research based information that they encountered. Criteria such as ‘who wrote it’, ‘whether it’s a nurse or not’, ‘has it got numbers in’ and ‘is it a local academic’ were as important as notions of bias, sampling and clinical significance for many nurses.

Most nurses had little in the way of formal appraisal training with no-one making reference to the work of organisations such as the Critical Appraisal Skills Programme (CASP). Often ‘critiquing’ research was a stand alone activity that occurred in the context of CPD or basic professional preparation. Ways need to be found that make appraisal of ward based information a legitimate activity. Where people had tried to initiate fora which might help in this process (such as the journal club on the CCU in Site Two) then these had been frustrated by a lack of organisational support in the relatively simple form of funding for photocopying. Nurses primarily met their CPD needs by funding themselves and undertaking training (including lengthy degree programmes) on their

days off. Often this CPD was seen almost as ‘compulsory’ in the service environment and for remaining competitive in their careers.

Many nurses had an intuitive sense that not all research was good research. They also recognised the need to judge research through criteria which were transparent. Probably one of the biggest blocks on developing this intuitive sense of needing to appraise research was the context in which it was applied: without a clinical question, and a sense of having already used good search skills to have a fighting chance of having tracked down something appropriate, most appraisal was divorced from clinical practice. Appraisal needs to be introduced as part of a broader process of question development, searching, implementation and monitoring.

More research needs to be conducted on the level and style of critical appraisal teaching appropriate for ward based practitioners. Whilst a generally positive effect is attached to critical appraisal skills training generally (Taylor *et al.*, 2000), it is clear that nurses may have different needs to doctors and therefore appropriate models of appraisal teaching may need to be developed.

As well as how to teach critical appraisal, policy makers need to consider who should benefit from it. Again, it was clear from our study that certain key roles and qualities (the qualities of the CNS) could add value in terms of passing the benefits of any appraisal training to the wards to which they are attached. Their qualities (clinically credible, trusted, a source of expertise) mean that their messages for practice carry extra weight in clinical decision making.

There is a need for nurse educators to consider the kinds of research introduced as the basis for clinical decisions in basic preparation and CPD. Specifically, there is a high weighting attached to qualitative research. This is not necessarily a problem if the questions that nurses ask merit the qualities that such research exemplifies. However, it is clear from the decisions outlined that this is not necessarily the case. Moreover, it has the effect of reinforcing the ‘fear of numbers’ which many (if not all) the nurses in this study expressed.

The level and type of appraisal required of ward based nurses could be shaped by the producers of research themselves. By including nurses in the production and dissemination formatting of results the messages could be tailored to the needs of the end-users. The Cochrane Collaboration’s Wounds Review Group, for example, use a group of clinical nurses (the end-users of the reviews) as a part of their peer review process, to ensure that the evidence produced is both accessible and relevant.

8:11 Implementing Research Evidence.

The clinical nurse specialist role seemed to be a crucial component in the selling of research based messages to nurses on the wards. However, it was not always those nurses who held the official title of the clinical nurse specialist who embody this role. Occasionally, these nurses were nominated by their peers and recognised as such (for example the E Grade on CCU in Site One with her knowledge and experience of diabetes management, or the Ward Manager on Surgery in Site Three with her extensive knowledge of oncology nursing). Previous research has highlighted the large variations in role contained under the banner of clinical nurse specialist (McGee *et al.*, 1996). More work needs to be undertaken to identify the qualities of these individuals in the context of dissemination of research based information. Specifically, answers are needed to the question what is it about these individuals that makes them such powerful change agents?

There is clearly a role, and an identified need, for prescriptive messages for practice derived from research evidence. Some nurses (notably and perhaps surprisingly, graduates) expressed a clear preference for more direction in the products of research. The application of directive technologies such as clinical guidelines or protocols does not appear to preclude clinical judgement but there is a danger that if not accompanied by an awareness of their role as a support for professional decision making that some degree of de-skilling could occur. Moreover, these kinds of technologies were seen as a powerful tool for uniting the work of different professional groups around (mainly medical) conditions, for example, the management of myocardial infarction, and pre operative preparation for bowel surgery. What was also clear was that where these technologies were supported by doctors then their influence was much stronger. Similarly, those guidelines which took on the appearance of 'official' directives – which were just as poorly referenced – but sponsored by the central management structure of the Trust (for example, blood transfusion or drug round policies) were also often introduced relatively easily. As the science of clinical risk assessment and the evidence based application of research grows then the role of the various manifestations of power in helping get research into practice should be explored further and empirically.

There seemed to be something around the notion of specialist focus (induced either by virtue of a nurse's role the or the clinical domain) which made the application of research findings easier. It was often difficult to separate the effect of specialism from the impact of autonomy. Specifically, many of the practitioners in these two environments (the clinical nurse specialist and coronary care) seemed to be more comfortable with the relatively autonomous evaluation of decision choices and the relative weighting of research evidence within them. Obviously, there is a potential tension for policy makers to be aware of here. There appears to be a greater emphasis towards specialisation in nursing but clearly not all nurses can be specialists. There needs to be an informed policy debate asking, "which nurses do we want to do what?" If all nurses are to be expected to

autonomously plan, implement and evaluate research based intervention strategies (and at least at the level of nursing's statutory body this is the vision being developed) then clearly we need a greater awareness of the balance between specialist and generalist knowledge and what the specialists in nursing should look like. Some of the nurses expressed concern over the role of specialism in nursing; specifically linking it to deskilling of those 'left behind' and also that specialism discouraged people from providing 'holistic care'. However, from our observation we believe that it was the clinical nurse specialist role which most encompassed the principles of holistic assessment, planning and service delivery. The ability to correctly balance patient preference, research evidence, resources and their own expertise ensured that people tended to receive a more rounded input from these professionals. However, it should be remembered that the CNSs involved were *relatively* free from the constraints of ward routine, pre-determined tasks, the formal power hierarchies of the wards and competing demands on their time.

Many of the nurses recognised as research implementers by their peers were also those seen as 'good nurses'. However, in at least two of these cases in our study these were the same nurses leaving the profession. These nurses were characterized by a commitment to life long learning in the form of CPD and had a track record of trying to change their own and others practice. However, like many nurses, they expressed the opinion that colleagues and the organisation (including some medical colleagues) were primary blocks on the implementation of research findings. Certainly, their commitment to CPD was laudable given the significant personal and financial costs involved with uncertain career benefits as a result. Without addressing the cultural factors which act to demoralise nurses in this position then it is clear that at least some will wish to move to service environments, and occupation choices, which allow them to use their skills and qualities. Information use in clinical decisions has to be viewed in the context of a service environment in which nurses are prevented from developing their decisions by the competing demands made on their time and skills by the sheer volume of workload. It is little wonder that nurses see clinical information use in routine decision making as a fairly low priority.

This study has highlighted some of the demographic links between nurses and perceptions of the barriers to using, access to, and usefulness of, research evidence. These links could be explored further and larger scale work undertaken to help develop our understanding. The aim of such work would be to aim the focussed 'targeting' of the components of change interventions which we know is so important in attempting change professional practice and incorporate evidence into their work (NHS Centre for Reviews and Dissemination, 1999).

8:12 Monitoring And Auditing Evidence Based Clinical Decisions

The first point to make here is that our analysis was primarily inductive and data driven. In truth, there was not a great deal of clinical audit information evident in the day to day practice of the nurses interviewed or observed.

Audit, like information seeking, was something which many nurses saw as separate from mainstream daily practice and clinical decisions.

Again, the clinical nurse specialist role was key in driving the application of clinical audit techniques in the ward areas. Perhaps because of the specialist role and their links with the audit function, successful clinical audit was focussed in several discrete areas. Pain and infection control, oxygen administration, pressure area care and monitoring were all examples in which the clinical nurse specialist or link nurse role had been involved and the results found their way back into practice. Conversely, audits which were seen as irrelevant and not useful included audits into the standard of record keeping amongst nurses.

There is a clear role for Trust policy to 'steer' the development of audit activity. Some nurses felt that the products of Trust clinical audit departments were a useful source of clinical information. However, the defining characteristic of this information was that it was seen as clinically relevant and centrally sponsored. As in the other stages of evidence based decision making, there is a significant skills and training agenda associated with the development of monitoring and audit strategies. Most nurses in our study expressed a fear of statistics and many actively avoided statistical information in the products of research. Clearly, this is not conducive to quality audit which often relies on the use of statistical techniques to make sense of patterns of practice and changes over time. Many generic components of an 'evidence based toolkit' of skills would benefit more than one area of the process of evidence based decision making. For example, the development of clinical question and appraisal skills, would benefit the audit process as well as those elements in the EBN process.

8:13 Conclusions – The Potential For EBN.

This chapter has revisited our findings in respect of the barriers and access to, and usefulness of, research evidence in nurses' clinical decision making. We outlined the perspectives isolated and related the findings to our vision of what an evidence based decision might look like and the process by which they are constructed.

It is clear that nurses have some degree of potential for participating in evidence based decision making but that there is much work to be done if this potential is to be exploited. Nurses need to be better able to recognise the decisions they make and to understand the uncertainties associated with them. They need to be given the skills to construct focused clinical questions and to effectively and efficiently search for the best available research evidence with which to answer these questions. The study reveals that each of the Trusts had relatively rich IT resources to draw on (although not on the wards themselves) but that the impact of these resources on practice was minimised by the absence of the most basic skills and support (even at the rather prosaic level of providing funding for training and photocopying). In terms of implementation, clinical nurse specialists, the 'focus' offered by the CCU domain, and multi-disciplinary sponsorship of research based technologies such as guidelines,

seemed to be facilitators for the process. We need to better understand the nature of these effects in order to harness the potential increases in understanding implementation they offer. Useful and clinically relevant audit was a relatively small part of ward life and played an even smaller part in the clinical decisions of nurses. Nurses' lack of skills in handling statistical information and audit's stand-alone nature divorced from a broader, and coherent, process of evidence based practice weakened its impact.

8:14 Recommendations:

- An empirically informed policy debate needs to ensue regarding the best means of actualising the UKCC's vision of an autonomous practitioner as one who is accountable for her decisions and drawing on the most appropriate forms of evidence to inform those decisions.
- A greater recognition of the potential for teaching decision making skills and models needs to occur in basic and continuing education and training. Any increase in teaching such techniques needs to be accompanied by a commensurate level of robust evaluation.
- Nurses teachers and lecturers need to be given the skills and knowledge to teach these skills.
- There is a clear multi-level organisational agenda associated with the development of EBN:
 - Efforts to increase evidence based decision making in nursing need to recognise the roles of other stakeholders – most notably the role of medicine, management and patients in clinical decision making
 - Management at local and national level needs to develop and implement techniques designed to combat an occupational culture in which questioning and acknowledgement of uncertainty are discouraged.
 - The process of bringing information technology closer to the work environment is an urgent priority if evidence based literature searching is to be a reality. This needs to be accompanied by validated methods of training and support – possibly using the experience of information brokers (healthcare librarians).
- There is a need to explore and map the qualities of the clinical nurse specialist role in the context of evidence based practice. Related to this, the impact of nurse consultants on getting research into practice needs careful and thorough evaluation.
- Practice development nurses need to ensure that their work is clinically relevant and seen as useful. Specifically, they need to:
 - Act as a bridge between the state of the art in evidence based practice and mainstream nursing activity by fostering skills in EBN as a process as well as just clinical skills
 - adopt a more generic role in services perhaps using a range of their skills to address questions from outside narrow clinical remits. This would potentially increase the demand for their services.

- Adopt a more reactive role to complement their proactive function based around skills development. In this way their valuable expertise could be applied to the clinical decisions and questions which clinicians need answers to
- Market the products of their efforts more effectively. At present PDNs were not universally valued but people often failed to note their key role in the production of technologies that were, such as local guidelines or protocols.
- The link nurse role is a potentially valuable resource but we need a better understanding of the national picture. Trusts need to ensure that these nurses have the resources available to allow them to carry out the role effectively: time, financial support for acquiring resources and commitment from above to aid implementation.
- In the absence of any kind of adequate appraisal baseline amongst clinicians, there needs to be a research and policy emphasis on the development and dissemination of reliable sources of pre-appraised research to practitioners.
- A national resource, easily accessible to practitioners and researchers, should be established to record, maintain and disseminate the decisions and clinical questions of practitioners. This resource could feed the research and clinical audit agendas nationally and locally. This would also enable the *mapping* of decisions and questions from nurses in areas other than acute adult care.
- The effectiveness of decision support initiatives needs to be established through robust research studies.
- The characteristics and impact of opinion leaders in nursing and on-going research into methods to promote the implementation of research findings in nursing needs more research.
- There is a need for more systematic reviews of *existing* research evidence in nursing as the knowledge base is mainly unexploited and nurses need reliable, valid overviews to combat the selective and poorly organised resources that exist on wards at the moment.
- We need to better match nursing's primary research agenda to the uncertainties of clinical nurses. This can be done by using systematic reviews of existing evidence and the knowledge of the clinical decisions nurses make to highlight the disparity between clinical decisions and the primary research agenda in nursing.

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Appendix A: The Screening Questionnaire

Dear colleague

This short questionnaire is to help us learn more about the nursing workforce employed in your Trust. We need to build up a profile of the nursing staff employed in order that we talk to the right people as part of our research study which seeks to better understand the ways in which nurses use information in their daily lives.

The information you provide will not be given to anyone outside the Trust or the immediate research team and the questionnaires will be destroyed once the information has been processed. One of the things that has been suggested to us in the course of the project is that sometimes it is difficult to place people with similar educational and professional backgrounds in touch with each other for projects such as those in clinical audit. We would like, therefore, to give the clinical audit team at the Trust basic data on the nursing population's experience and qualifications so they can help any networking efforts in the Trust. If you feel that you would rather not have this information passed on to the Trust in this way then simply tick this box

We realise that filling in a questionnaire can be a tiresome task but:

*This is your chance to inform national policy on the information available to help nurses in their day to day work
A pre-paid envelope is enclosed so it won't cost you anything! Just seal the questionnaire in the envelope and pop it in the post*

Every person who replies with a filled-in questionnaire gets entered into a free draw for a colour television – there's only four hospitals involved so its better odds than the lottery!

Simply circle the answer that applies to you

code	<i>Office Use Only</i>
1: What is your post on the Ward/Unit Nursing Team?	
Staff nurse	1
Senior staff nurse	2

Ward Manager/Sister/Charge nurse	3
Clinical Nurse Specialist	4
Nurse Manager	5
Other (please specify).....	6
<p>(If yes to either then go to question 3 If no then go to question 4)</p> <p>2: Does your post have any research or management involved ?</p> <p><input type="checkbox"/> y <input type="checkbox"/> n</p>	1
<p>3: please briefly describe the research or management role</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	2
<p>4: What is your age?</p> <p><input type="text"/></p>	
<p>5: How long have you worked in your current clinical speciality? (in years; if less than one year then the number of months)</p> <p><input type="text"/></p>	
<p>6: How long have you been registered as a General Nurse? (in years; if less than one year then the number of months) <u>NB this question applies equally to enrolled nurses</u></p> <p><input type="text"/></p>	

<p><u>7: What form did your professional training take?</u></p> <p>SEN – school/college of nursing</p> <p>SRN – school/college of nursing</p> <p>RGN – school/college of nursing</p> <p>Project 2000</p> <p>Diploma in Nursing</p> <p>Degree in Nursing</p> <p>Other (please detail).....</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p>
<p><u>8: Please circle the non-professional qualifications that you hold?</u></p> <p><i>Circle all that apply</i></p> <p>5 O levels or GCSEs of grade C or above</p> <p>A levels</p> <p>Diploma other than nursing</p> <p>Vocational qualifications (e.g. Btec)</p> <p>Undergraduate Degree (e.g. BA or BSc)</p> <p>Post Graduate Degree (e.g. MA, MSc or M.Phil.)</p> <p>Doctorate (e.g. PhD or D.Phil.)</p> <p>Other (please specify).....</p> <p><i>9: What other professional qualifications do you have? (please indicate which are specific to your current clinical speciality with an asterisk e.g. ENB 998, ENB 931*)</i></p> <p>.....</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p>

<p>10: We are interested in the numbers of nurses involved in research; how have you come into contact with healthcare/nursing research in the past? <u>Circle all that apply</u></p> <p>As a subject in medical/health research</p> <p>As a subject in nursing research</p> <p>As a data collector for medical/health research</p> <p>As a data collector for nursing research</p> <p>As someone with responsibility for utilising a specific piece of research in your speciality</p> <p>Other or comments (please add anything else you would like to tell us)</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p>
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Thank you for taking the time to fill in the questionnaire.

Seal the questionnaire in the enclosed pre-paid envelope and pop it in the post

Appendix B: The Interview Schedule

WHAT ARE THE PERCEPTIONS OF NURSES REGARDING THE NEED FOR RESEARCH-BASED EVIDENCE TO SUPPORT CLINICAL DECISION MAKING?

- (i) What does nursing mean to you?
- (ii) What influences have affected this view over the years?
- (iii) Where do you get your knowledge about nursing from?
- (iv) How do you make decisions about care? What do you base your decisions on?
- (v) When did YOU last feel the need to access information to help with a decision? Describe the circumstances. Describe the type of information and where you got it from.
- (vi) Have you ever introduced a change in your practice as a result of any information you have read or heard about? Please describe this process.
- (vii) Do you think some nurses need information more than others? If yes, who and why?

HOW DO CLINICAL NURSES CURRENTLY ACCESS RESEARCH-BASED INFORMATION?

- (i) Describe how you would access information if you needed it?
- (ii) Which is/are the most commonly used sources in your decisions?
- (iii) Why do you use some sources more than others?
- (iv) Have you read any articles recently related to your practice? Please describe any and say where you found them.
- (v) What information is available to you on the ward?
- (vi) What do you think of the hospital library? How easy is it for you to find the information you need there?
- (vii) Do you refer to colleagues? If so, who in particular? How do you go about this eg formal or informal contact?
- (viii) What about research co-ordinators/clinical specialists? How much and what kind of contact do you have with them? (if any)
- (ix) Do you have policies or protocols on the ward? How are they formulated? Describe any that you have. Do you use them? How do you feel about them?
- (x) Do you have opportunities to attend study days? Do you find them relevant to the decisions involved in your practice? How are they paid for?
- (xi) Do you have any contact with audit in relation to decision-making and/or use of information on the ward?

WHAT ARE THE PERCEPTIONS OF NURSES REGARDING THE BARRIERS AND OBSTACLES TO ACCESS AND USE OF RESEARCH BASED INFORMATION?

- (i) Do you think nurses use research findings routinely? If not, why not?
- (ii) What problems do you think nurses face in trying to implement research findings?
- (iii) How easy or difficult is it for you to get hold of research information to assist you in making decisions about your practice? What are the main problems?
- (iv) Have you ever been involved in a change of practice based on research findings? Please describe any problems you had.

Appendix 1 – The Barriers to Research Information Use Q Sample

No.	Statement	Perspectives			
		1	2	3	4
1.	Research information is too academic	5	-5	2	-3
2.	Research information is too complicated	4	-4	1	-1
3.	Research information uses complex language and is just a tool for academics to show how clever they are	2	-4	2	-1
4.	I read a paper if it is written by a nurse rather than a Professor as they are more relevant	1	0	3	-2
5.	The authors of research are just not credible to most nurses	-2	0	3	-2
6.	Research is often not compatible with what I believe as a nurse	0	-2	-1	-3
7.	Research often says we shouldn't do stuff that I personally know was good when we did it anyway	-1	0	1	-2
8.	My experiences with doing research in the past make me really sceptical of research findings	0	-2	0	0
9.	Research is just done for its own sake its not practice related	-2	-5	0	0
10.	There is no need for research. The experience of daily ward life means that you get enough experience to make most decisions	-4	-3	-4	-5
11.	Implementing research is just unrealistic because of time pressures	-1	2	3	5
12.	Nursing practice is so busy that there is no time for implementation	-2	3	5	5
13.	Written kinds of research information are too slow to read and use; its better to have a human person to get the messages across	4	1	2	4
14.	The problem with research information is that it takes too long to learn the skills necessary to use it	1	-1	0	2
15.	Its unrealistic using research information in clinical decisions as most patients can't, or don't want to, handle it	-3	1	-1	0
16.	I have no real confidence in reading research	3	-4	-4	-2
17.	Statistics put me off research papers or other kinds or research information	5	1	1	3
18.	Most kinds of research don't give me enough direction in my practice to be useful	1	1	4	1

19.	I think that knowledge gained through experience is more useful than research	2	0	0	1
20.	Research is only limited to a small bit of nursing practice – mainly procedures and we do much more than that	0	-1	1	0
21.	Policies and procedures are unwieldy and once you work here a while you get to know them anyway	-3	-1	1	0
22.	Whenever I have tried to use research in the past it costs me too much money, time or commitment – like getting papers from the library or whatever	0	4	1	0
23.	I have worked with people with responsibility for implementing research but you don't get any feedback so its not worth it in the long run	0	2	0	1
24.	Implementing research is not often led by nurses who are good practitioners	0	1	4	-4
25.	I don't know enough about what is available to help me implement research in the hospital	2	3	-2	4
26.	The people in the hospital – like practice development or research – who are supposed to be helping us implement research are more of a hindrance than a help	-3	0	-1	-1
27.	There is no real commitment on the part of management to help us get to grips with using research in our work	0	3	3	3
28.	My own professional education hasn't really prepared me for using research in my decisions	3	-1	-5	3
29.	Research is often unrealistic in practice because its not based on practical things	-1	0	2	-1
30.	Its better to have time out and reflect on your practice than try and understand research	1	0	0	2
31.	All the facilities which would help me use research based information are off-site and so difficult to access	2	5	-4	1
32.	The library is not geared up for nursing here	-1	2	-3	-4
33.	The age of the nurses I work with is a real block on implementing research	-1	1	-2	-5
34.	We try and implement research but the Drs block it and its really frustrating	-1	2	0	-2
35.	Other nurses themselves are often a block on using research	3	5	5	-3
36.	Using research is a gender thing. If we try and implement stuff its like women nurses telling the men (Drs) what to do – and they don't like it	-5	-1	-3	-4
37.	Research never says anything its too wishy-washy in its findings	-1	-4	-2	-3
38.	The research information we get bombarded with is just too overwhelming	3	-1	2	3
39.	I don't have the necessary computer skills to access and use research properly	4	1	-3	4
40.	I don't have any research-role included in my job and that's a real pain when it comes to using research	0	0	-1	2

41.	The decisions I make are really complicated and research is often too simple to be of any use	-3	-2	0	-1
42.	There are people and resources available here to help implement research but you can never get hold of them when you need them	0	3	-1	-1
43.	Journals are difficult to read and there are better ways of presenting information than that	1	0	0	1
44.	The research we get presented with is often related to American work which isn't that appropriate for nursing	1	3	1	1
45.	I don't really have any motivation to use research in my practice	-2	-3	-5	1
46.	We don't have the facilities to use research in the ward itself. It would be better to have computers and CD-ROMS on the wards rather than somewhere else	3	4	-2	-3
47.	Its better to have somebody else pass on the research-based messages for practice rather than try and do it yourself	1	-1	0	4
48.	Its easier for senior staff to implement research as they have more power with other nurses and the Drs	2	4	4	2
49.	The culture of my unit isn't really geared up for using research, we're more practical	-4	-2	-3	1
50.	Research is more for managers than practising nurses	-4	-3	-2	-1
51.	Patients are all individuals and research tends to ignore that! I find it hard to relate it to my patients	1	2	2	0
52.	We need research built into the tools we already use like the Waterlow scales and stuff if it's going to be used by everyone	4	4	4	3
53.	Using research just means more paperwork	-2	-2	3	2
54.	Using research in the past hasn't resulted in noticeably better care in my experience	-3	0	1	0
55.	Using research is best left to nurses coming out from college who know how to use it	-5	-3	-4	-4
56.	Using research won't actually help in my career – there is absolutely no incentive for me to use it	-4	-3	-3	-2
57.	Research is always out of date it can't keep up with our practice	-1	-1	-1	2
58.	Being able to use research doesn't make you a better nurse	2	1	-1	-1
59.	I find the research published in medical journals more use than that in the Nursing Times and the other nursing journals	0	2	-1	0
60.	I make better decisions without using research. Practice is better dealt with in the here and now	-2	-2	-2	0

