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Protocol-based care: the standardisation of decision-making?

Jo Rycroft-Malone, Marina Fontenla, Kate Seers and Debra Bick

Aim. To explore how protocol-based care affects clinical decision-making.

Background. In the context of evidence-based practice, protocol-based care is a mechanism for facilitating the standardisation of care and streamlining decision-making through rationalising the information with which to make judgements and ultimately decisions. However, whether protocol-based care does, in the reality of practice, standardise decision-making is unknown. This paper reports on a study that explored the impact of protocol-based care on nurses' decision-making.

Design. Theoretically informed by realistic evaluation and the promoting action on research implementation in health services framework, a case study design using ethnographic methods was used. Two sites were purposively sampled; a diabetic and endocrine unit and a cardiac medical unit.

Methods. Within each site, data collection included observation, postobservation semi-structured interviews with staff and patients, field notes, feedback sessions and document review. Data were inductively and thematically analysed.

Results. Decisions made by nurses in both sites were varied according to many different and interacting factors. While several standardised care approaches were available for use, in reality, a variety of information sources informed decision-making. The primary approach to knowledge exchange and acquisition was person-to-person; decision-making was a social activity. Rarely were standardised care approaches obviously referred to; nurses described following a mental flowchart, not necessarily linked to a particular guideline or protocol. When standardised care approaches were used, it was reported that they were used flexibly and particularised.

Conclusions. While the logic of protocol-based care is algorithmic, in the reality of clinical practice, other sources of information supported nurses' decision-making process. This has significant implications for the political goal of standardisation.

Relevance to clinical practice. The successful implementation and judicious use of tools such as protocols and guidelines will likely be dependant on approaches that facilitate the development of nurses' decision-making processes in parallel to paying attention to the influence of context.

Key words: case study research, clinical guidelines, decision-making, ethnography, evidence-based practice, promoting action on research implementation in health services, protocol

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Introduction

In the UK, the term 'protocol-based care' was first coined by policy makers as part of the government's modernisation agenda (Department of Health 2000). The term was not defined in these early policy documents; however, The Modernisation Agency later suggested that protocol-based care provides clear statements and standards for the delivery

Authors: *Jo Rycroft-Malone*, MSc, BSc(Hons), PhD, RN, Reader in Health Services Research, Centre for Health-Related Research, School of Healthcare Sciences, Bangor University, Bangor, UK; *Marina Fontenla*, MSc, BSc, Research Fellow, RCN Research Institute, School of Health and Social Studies, University of Warwick, Coventry, UK; *Kate Seers*, BSc(Hons), PhD, RN, RCN Research Institute, School of Health and Social Studies, University of Warwick, Coventry, UK; *Debra Bick*, Professor of Evidence Based Midwifery Practice, Florence Nightingale School of Nursing and Midwifery, Kings College, London, UK

Correspondence: Dr Jo Rycroft-Malone, Reader in Health Services Research, Centre for Health-Related Research, School of Healthcare Sciences, Bangor University, Fron Heulog, LL57 2EF, Bangor. Telephone: 01248 383119.

Email: j.rycroft-malone@bangor.ac.uk

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of care locally (NHS Modernisation Agency 2002). From a policy perspective protocol-based care is a mechanism for facilitating the standardisation of practice based on best available evidence. As in other developed countries, evidence-based practice has become a policy imperative in the UK. In reality, there are many terms related to protocol-based care, such as care pathways, guidelines and algorithms, which tend to be used interchangeably. Therefore, for the purposes of this study, protocol-based care is used as an umbrella term, which encompasses a range of clinical care processes, including statements and standards as well as other approaches including care pathways, patient group directives, algorithms, clinical guidelines and procedures (Rycroft-Malone *et al.* 2004a).

Protocol-based care and decision-making

While there is an expectation that the use of protocol-based care tools lead to the standardisation of care, little is known about whether this is the case. One of the aims of protocol-based care is to simplify and streamline clinical decision-making (NHS Modernisation Agency 2002). The simplification of the decision-making process by, for example, the use of protocols is thought to be achieved by rationalising the information that is available to practitioners with which to make judgements and ultimately decisions (Thompson & Dowding 2002). They are also believed to be a mechanism to help the decision maker come to the 'best' decision (Closs & Cheater 1997). However, as yet it is unknown whether the use of standardised care approaches does, in the reality of practice, simplify clinical decision-making.

Internationally, there is a relatively limited amount of research that has focussed specifically on how protocol-based care affects nurses' decision-making. Manias *et al.* (2005) evaluated 12 newly qualified nurses' use of protocols in medication management activities using non-participant observation and postobservation interviews. They found that structured protocols enabled nurses to practise autonomously because they could make clinical judgements without having to follow up with doctors in the first instance. A similar finding is reported by other investigators (Offredy 1998, Manias *et al.* 2004a, Blackwood & Wilson-Barnett 2007). In contrast, a study exploring the perceptions of intensive care nurses to policies, protocols and guidelines found that there was a fear that protocols were 'taking the thinking out of nursing' and deprived inexperienced nurses of an opportunity to develop decision-making skills (Flynn & Sinclair 2005).

It has also been suggested that protocols are way of mediating communication between healthcare team members (Manias & Street 2000) and have the potential to enhance team decision-making. However, the evidence for this is contradictory. For example, studies have shown that using protocols can increase rather than reduce interprofessional tensions (e.g., Atwal & Caldwell 2002, Pinder *et al.* 2005) even when in theory there is a positive view about joint working and the role of protocols (e.g., Rees *et al.* 2004).

The policy imperative to streamline and standardise care using protocols assumes that decision-making (i) can be prescribed and (ii) is not influenced by factors other than the standardised care approach. However, there is evidence to suggest that several sources of information may influence clinical decision-making (e.g., McCaughan *et al.* 2002, 2005, Bucknall 2003, Manias *et al.* 2004b, Hancock & Easen 2006). In relation to the use of protocols, Hancock and Easen (2006) in a study exploring nurses' decision-making when extubating patients following cardiac surgery found that in addition to an unwritten physiologically based protocol for weaning, other sources of information were influential. These sources included person, cultural and contextual factors such as relationships, hierarchy, power, leadership, education, experience and responsibility.

Decision-making is a complex activity, particularly when studied in the reality of the clinical setting (Bucknall 2000). Research to date that has explored decision-making using standardised care approaches has been limited; in nature and focus. Furthermore, studies exploring how nurses' use information behaviour in the context of decision-making are also rare (Thompson *et al.* 2005). This paper reports on the findings of a study that explored how protocol-based care influences the decision-making processes of nurses, which was conducted as a parallel project to a larger national evaluation of nurses' contribution to and role in protocol-based care (Rycroft-Malone *et al.* 2008). We argue that developing a better understanding of the process of decision-making using protocol-based care will be beneficial in assessing the extent to which standardised care is an achievable outcome.

The study

The study was theoretically informed by realistic evaluation (Pawson & Tilley 1997) and the promoting action on research implementation in health services (PARIHS) framework (Rycroft-Malone *et al.* 2002, 2004b). Realistic evaluation acknowledges the importance of context to the understanding of why interventions work (i.e., protocol-based care), for whom, how and in what circumstances and the PARIHS framework maps the factors (evidence, context and facilitation) for the successful implementation of using

evidence (e.g., protocols, guidelines, care pathways) in practice. These frameworks underpinned the development of appropriate research questions, guided analysis processes and synthesis across data sources and sites and facilitated the interpretation of findings. Specifically, realistic evaluation facilitated an exploration and analysis of how protocols and their variants (mechanisms) impacted on the decision-making (outcome) of different practitioners (whom) within different contexts (see full report for a fuller description http://www.sdo.nihr.ac.uk/sdo782004.html).

Aim and research questions

The main aim of this study was to explore the impact of protocol-based care on nurses' decision-making. Specifically, the study set out to establish:

1 How does protocol-based care influence nurses' decision-making?
2 What other factors in addition to protocols and their variants influence nurses' decision-making?

Design

This study used a case study design, which enabled a focus on protocol-based care decision-making within a real life context and the collection of multiple sources of data (Yin 1993, 1994). This evaluation required descriptive and explanatory case study research. Within this overarching approach, data collection methods from ethnography were used. A 'case' was defined as a particular clinical setting, for example, a cardiothoracic medical unit and the 'embedded unit' the use of a particular variant of protocol-based care, for example, care pathway, algorithm.

Sites

Two sites were purposively sampled to maximise rigour in relation to applicability and transferability (Lincoln & Guba 1985, Morse & Field 1996). Sampling criteria were developed to maximise the opportunity of studying decision-making using protocol-based care in the reality of the clinical context and included:

- Funder's requirement to focus on UK Clinical Research Collaboration's priority topics; in this study diabetes and cardio-vascular disease,
- A reported active involvement in the development and use of protocol-based care,
- Sites were using a variety of different types of standardised care approaches typical of those being used more widely in the National Health Service (NHS).

Data collection

Within each site, the following methods were used:

- *Participant observation* of nursing and multi-disciplinary activities at various times of the day and night. The researchers took on the role of observer as participant (Burgess 1984, Robson 1993, after Gold 1958), which enabled them to ask questions, have discussions and probe into decisions and care delivery and the way in which protocols may be influencing these processes. Where appropriate these observations and discussions were audio-recorded, but consistently all were recorded in field notes.
- *Semi-structured interviews* with the practitioners that were involved in observations. These interviews were focussed around particular incidents and issues that arose during observation as well as the exploration of views in general about decision-making and protocol-based care. Interviews lasted between 15–75 minutes and took place in a quiet and private environment. In keeping with ethnography, the focus of these interviews evolved as the study progressed.
- *Interviews* with patients who had participated in observations, which when appropriate, took place either immediately or within 24 hours of the observation. Interviews lasted between 10–45 minutes and took place in a quiet and private environment away from the immediate context of care.
- *Non-participant observation* of general ward/unit/clinic 'life' to capture information about the clinical context.
- *Comprehensive field notes* were written during and after being present in the clinical settings.
- *Feedback sessions* in sites following preliminary analysis allowed the participants to reflect on findings as well as allowing the researchers to fill any gaps in the knowledge or understanding which existed.
- *Documentation* was collected in each site where available in relation to (i) the particular type of protocol care being evaluated and (ii) the clinical context(s).

  Data were collected between September 2006 and April 2007.

Analysis

Consistent with ethnography some analysis took place in the field, whereby the researcher was constantly thinking about the larger meanings behind what they were seeing (Hammersley & Atkinson 1995). To complement this, data were analysed inductively whereby data were 'made sense' of through coding, developing themes and discovering relationships (Huberman & Miles 1998, Yin 1994). These themes were then fed into 'data tables', which synthesised data across

data sources and then across sites. The development of these tables remained flexible throughout the analysis period to allow the data to inform their structure rather than a structure being imposed upon the data. While data in this form may appear to be structured, it nevertheless remains true to ethnography by not favouring any particular thematic area and not forcing data into codes, but rather creating new codes (of equal importance) right through to the end of the analysis process.

Ethics

The study was approved by a multi-site ethics committee and its conduct guided by research and governance framework requirements and codes of ethics (RCN 2004; Association of Social Anthropologists http://www.theasa.org/ethics.htm). Written consent to participate was obtained from practitioners and patients.

Findings

A diabetic and endocrine unit and a cardiac medical unit agreed to participate in the study (see Table 1 for site descriptions). A variety of participants took part in data collection (Table 2). Because of the nature of the study, participants generally took part more than once in data collection activities. Several findings emerged about decision-making and protocol-based care, which are described below. To provide a context to these, a general picture of the nature of nurses' decision-making is first outlined.

Decision-making activity

Data show the number and type of decisions made by nurses in both sites were large and varied according to many different and interacting factors. Broadly, decisions varied from medication and treatment decisions (e.g., changing doses of insulin) to time management decisions (e.g., using time saving heuristics such as 'tried and tested' approaches to organising routine procedures such as phlebotomy). Decisions could be a complex interaction of multiple elements, including knowledge of the patient and family, health and social factors and the use of communication and clinical skills. The distribution of decisions that nurses made was uneven. For example, in quiet periods very few (obvious) decisions were made, in contrast to busy times when it appeared that multiple decisions were being made in a relatively short period of time.

In both sites, there were a variety of available standardised care approaches that could be used in decision-making (Table 3). These were either identified by staff as available resources or were found in site documentation. In reality, nurses also referred to 'informal' protocols, local 'rules of thumb' and ways of working. While access was negotiated on the basis of the site's reported use of various protocols in practice, data shows that across sites nurses were rarely

Table 1 Site descriptions

Diabetic and endocrine unit

The diabetic and endocrine unit is situated in a large city teaching hospital, which contains several small, independently functioning units. The busiest of the functions is that of a 'normal' diabetes clinic where patients come to be seen either by doctors or specialist diabetic nurses. In addition, the unit contains a four-bed ward that accommodates patients who have come in for day-long tests administered by the endocrine team. The unit also houses a diabetes eye complication screening service, dietician clinics, erectile dysfunction clinics, podiatry clinics, lipid clinics and diabetic antenatal clinics. The busiest part of the clinic is the preassessment clinic in which patients have their blood-pressure, weight, height and blood-glucose measured.

The vast majority of the patients visiting the unit were diabetic out-patients attending their regular six-monthly (or other periodic) check-up. The unit ran two separate clinics each day: a morning and an afternoon session. Patients came by appointment (although patients familiar with procedure would often arrive without appointment to go through preassessment procedures before the time of their appointment with the specialist nurses or doctors).

Cardiac medical unit

The cardiac medical unit is part of a large cardio-thoracic hospital in the UK. Once a specialist and referral hospital, it recently became a primary service and since then, the number of admissions to the unit has increased.

The specialism is in caring for patients who require cardiac investigations and interventions such as angioplasties, patent foramen ovale closures, pacemakers and internal cardiac defibrillators. Patients who have heart failure and need medical therapy or the support of an intra-aortic balloon pump are also treated. The unit can provide invasive cardiac monitoring and has a well-established primary angioplasty service, which also provides learning opportunities for new staff.

The unit is divided into two wards. The first ward is for seriously ill patients, high-dependency patients and the second ward for patients having routine procedures and shorter hospital stays.

Access and building rapport

In both sites, access was negotiated over a period of approximately two months. This involved meetings with senior staff in the first instance and following agreement to proceed, discussing the project with groups of staff and then individuals with the specific clinical sites.

The researchers began the data collection process by spending time in the clinical environment and informally talking to staff about the project and about their role in it. When invited by staff, the researchers also spent time with staff in informal contexts such as break times. The researchers considered that they had built up a rapport to facilitate data collection when staff began to approach them to ask about being involved in data collection activities.

Table 2 Study participants

Participant	Diabetic and endocrine unit	Cardiac medical unit
Nursing staff		
Healthcare assistant	4	4
Staff nurse	7	12
Senior/charge nurse	2	5
Specialist nurse	7	0
Medical staff	2	4
Patients	13	4
Data collection	50 days present (four to six hours per shift)	50 days and nights present (up to eight hours per shift)
Total number of participants observed and who were informally questioned	35	29
Number of participants formally interviewed	14	12

observed actively referring to 'formal' standardised care approaches such as those listed in Table 3. These issues are described further in the following sections.

Sources of information informing decision-making

Interview and observation data showed that nurses' decision-making was informed by a variety of information sources, which were melded in the real time of practice. These included interaction with colleagues, available standardised care approaches, 'instinct' and patients.

Interaction with colleagues

The primary approach to knowledge exchange and acquisition in both sites was person-to-person. Decision-making was a social activity, especially during a shift with nurses of mixed experience and knowledge. Nurses tended to discuss decisions with each other to confirm appropriate decision-making; as a type of 'informal audit', for example:

> Tina for example, will often explain a problem she has had after the event using the various medical terms and names for the procedures and what she can and can't do. Winnie [clinic support worker] will often listen and though she doesn't always pick up exactly what Tina says – nonetheless there has been a level of common understanding about the event – in other words it is like a constant monitoring and constant updating of knowledge. A confirmation of practise and procedure all the time – which is done in a far more socially acceptable way than say pieces of paper and audit. (Field note 4 – diabetic clinic)

Generally, nurses referred to more senior and/or experienced nurse colleagues for information rather than available standardised care approaches, for example:

> *…probably the more newly qualified nurses will tend to come to the more senior nurses and ask their advice rather than go to the policies and things like that*. (Georgia, senior nurse on cardiac medical unit)

However, some nurses suggested that experience may not necessarily mean safe or appropriate care and that practice should be more informed by protocols.

Standardised care approaches

While protocols and guidelines were mentioned in interviews as informing decisions and practice, it was rare to see these being physically referred to during periods of observation. Observations and informal interviews in the cardiac medical unit suggested that nurses recognised that protocols were there to guide decision-making, but they felt they did not have enough time to refer to them while carrying out procedures.

Some nurses described the mental processes during decision-making as following steps or a mental flowchart or checklist, not necessarily linked to a particular guideline or protocol. However, there were examples of nurses, particularly in the diabetic unit, using resources such as drug formularies and demonstrating their knowledge of what was contained in protocols, such as glucose tolerance tests and in national guidance:

Table 3 Examples of the types of available standardised care approaches

Cardiac medical unit	Diabetic and endocrine unit
Integrated care pathway	Guidelines for the treatment of hypoglycaemia
Cardiac mobilisation programme	Guidelines for glucagon tolerance test
Diabetic care plan for cardiology/medical patients	Guidelines for glucose tolerance test
Radistop protocols (arterial access closure)	Sick day rules (approach to maintaining blood sugar when not well)
Additive information for MRSA care plan	Screen for abnormal glucose tolerance in pregnancy
Cardiac rehabilitation primary angioplasty sheet	Guidelines for the treatment of diabetic foot ulcer
PTCA/STENT care plan	Diabetes clinical preassessment sheet

A nurse consultant (Millie) explained to a group of doctors how insulin was available in inhaler format and that the decision to provide that treatment option was based on strict criteria *there are very strict NICE guidelines around it and its about needle phobia, they have to be assessed by a psychologist…*

However, even when standardised care approaches were being used to inform decision-making, it was reported that they were used as 'guides' because of the need to use them flexibly and particularise them to patients and/or situations. For example, in the diabetes clinic, the hypoglycaemia protocol dictated the amount of lucozade to give a patient with low blood sugar, but it did not account for those patients who had their own food or methods of raising blood sugars. In these cases, the decision became whether or not to use the protocol, not how much Lucozade^{TM} to give. Nurses reported using standardised care approaches to support rather than prescribe decision-making.

Instinct

Some nurses referred to relying on their expertise to make decisions as using their 'instinct':

Instinct definitely. Definitely instinct. Instinct, knowledge, experience and also support…Most of our experienced nurses will say 'I have a bad feeling here… (Di, nursing sister, cardiac medical unit)

As this nurse indicates, the reliance on 'instinct' was something that reportedly came with experience.

In the medical cardiac unit, an interesting perception emerged during informal discussions, whereby nurses felt that protocols existed to encourage adherence to a standard not necessarily best practice and that best practice evolved from daily decision-making. In this site, protocols were perceived as impersonal and, therefore, they appeared to have little authority.

Patients

In the diabetic clinic, nurses were also using information gained from patients in joint decision-making. Patients, in most cases, were not visiting the clinic for acute or immediate needs and were being cared for in the context of an on-going and sustained relationship. As such, interactions between nurses and patients primarily focussed on information gathering and sharing. Data consistently showed that patients' experience was used as one piece of evidence in decision-making and that patients wanted to participate in their care:

I will educate myself…in ways that I can understand as a non-medical person.…really it's up to me as a patient. Louise has done everything that she can to make it clear….so I would then back it up with my own research. (Bob, patient in diabetic clinic)

Usefulness of protocol-based care

Nurses in both sites reported situations where standardised care approaches may and did have use. Generally, it was believed that protocols and guidelines could be helpful teaching aids or information resources for new and/or inexperienced staff and for handling non-routine procedures. For example:

…if you don't do it repetitively or you haven't done something for a long time you forget…so it's handy to have something that you can sort of refer to. (Di, sister, medical cardiac unit)

Interestingly, the use of standardised care approaches were also viewed as a way to protect nurses should their judgement be questioned; so that they could 'prove' they had followed the standard procedure. Nurses reported consulting protocols and guidelines *after* procedures to check their decisions fell within their directives:

There would be repercussions if we have undertaken something that should have been done a certain way and we haven't done it and there is…an adverse incident or something…they are going to come back and say this is the protocol, what happened? (Georgia, senior nurse, cardiac medical unit)

Decision-making between nurses and doctors

Nurse–doctor decision-making was also observed. Within each site, this took a different form. In the cardiac unit, observation indicated that the 'nursing' team consisted of nurses and to some extent junior doctors. The decision-making process with teams of relatively new doctors and experienced nurses emerged organically from their interactions and developing relationships. According to the nurses, decisions about patient care tended to be made collaboratively, for example:

our decisions would be made in collaboration with the medical teams…they will ask us about the patient…what we think…the doctors may decide that they don't agree with us, but nine times out of ten they do… (Pippa, senior practice educator, cardiac medical unit)

However, in emergency or high risk situations such as cardiac arrest, decision-making was based on hierarchy and authority; a doctor usually took on the leading role and nurses provided support.

In contrast, in the diabetic clinic, decision-making tended to be more individualised but also collaborative. The clinic nurses appeared to have more decision-making latitude than those in the cardiac medical unit because of the nature of their role (e.g., clinical nurse specialist) and relative autonomy. For example:

Researcher: I went into the appointment with Dr David…..who said that it basically was your (the nurse's) decision and that he was approving that. Which one of you actually makes the decision…?
Monica: Well I'd already made the decision. But because David had initially referred him to me, purely to get the medications right and get him established on the Testo gel, it's a kind of courtesy to say actually I don't think this is the right thing and I want to put him on the injection. Are you happy with that? (Monica, endocrine specialist nurse, diabetic clinic)

However, there were also examples of joint decision-making between doctors and nurses in this site. Nurses and doctors described having open discussions about patients in which they would use each other for advice, describing decision-making as a 'mutual thing'. In both sites, while nurses were making decisions independently or with medical colleagues, there was little evidence of standardised care approaches *overtly* informing decision-making.

Influences

Several individual and contextual factors appeared to influence how and whether standardised care approaches were being used.

Internalisation
As nurses became more experienced, they described the internalisation of procedures and protocols and then relied on their memory and/or experience, for example:

…when I first started I would go like into the [protocol] and I would look up initiating insulins, so they have things like initiating insulins, what a different insulin does and at the time set, how they do work. Over a period of time you look at other patients coming to see you, because I used to work on a ward previously…so you know the protocol of the insulin, how it works and you know what it would do. (Florence, diabetes nurse specialist, diabetic clinic)

It seems that as the protocol becomes practised, it becomes engrained and intertwined with experience so that the nurse no longer considers they are following a protocol. Several senior nurses also reported that they would refer to a protocol in new situations, or for something they had not performed for some time.

Scope
In both sites, it was reported that the available standardised care approaches only had the potential to cover a small number of the decisions that need to be made about patient care:

…we have lots of different problems…you certainly couldn't lump it all together and try and come up with a tool to satisfy every problem…and you are dealing with individuals… (Georgia, senior nurse, medical cardiac unit)

Standardisation was also seen as a challenge to individualisation; particularly in the case of patients living with a chronic condition where their issues tend to be complex and wide ranging.

Accessibility
Where protocols and algorithms were embedded in existing systems or routinely used paperwork they were more likely to be referred to. For example, in the diabetic unit the diabetic pregnancy and glucose tolerance protocols were embedded within patient forms and/or onscreen algorithms. In contrast, in many cases, protocols, guidelines and procedures tended to be kept in binders in cupboards away from where patients were cared for and hidden from view.

Local ways of working

A few nurses pointed out that the culture of a clinical environment may influence whether or not protocols and guidelines were used; instead working on the basis of 'the way things are done around here':

…its just culture sometimes, you know, this works, patients don't come to any harm if we do it…sometimes it is like we have always done it like this so we are going to continue…some cultures are good, some cultures are not so good… (Dora, nurse, medical cardiac unit)

Study limitations

As an exploratory study relying on self-report and observational data, findings should be considered in the context of limitations. The study included only two sites and decision-making was informed by information sources other than protocols and their variants. There is the possibility that participants' behaviour changed because they were being observed and they provided socially desirable accounts. These potential threats to credibility were limited by data triangulation and researchers spending a considerable amount of time in the clinical settings building up a rapport with staff before observations occurred. Interview transcripts and findings indicate that participants reported their experiences in an open, considered and balanced way. Readers should consider the transferability, rather than generalisability, of these findings.

Discussion

This study set out to explore decision-making using various standardised care approaches rather than judge the quality of decisions reached. As a policy initiative, the intention is that protocol-based care leads to the standardisation of care by rationalising information. Practitioners in this study, particularly those with more experience, either did not (obviously) refer to them or used them flexibly. Furthermore, they tended to privilege their own experience, or the experience of others instead of referring to available standardised care approaches. These findings are considered in the context of previous research and decision-making theory. The implications for decision-making as a context for using evidence in practice are also explored.

Decision-making and protocol-based care

While protocols, care pathways, guidelines and algorithms are technologies that have the potential to inform decision-making, our findings are consistent with Berg's analysis of protocol use in which he suggests such technologies are 'often circumvented, tinkered with and interpreted' (Berg 1997, p. 1082). Rarely were available standardised care approaches explicitly referred to either in individual or doctor–nurse decision-making. As McCaughan *et al.* (2002) found in their study of nurses' use of clinical information (rather than the use of protocols etc. *per se*) that while nurses made many decisions about varied issues, they rarely used formal sources of information such as guidelines or protocols.

Primarily nurses in this study, if unsure, referred to human sources of information, such as more senior nursing colleagues or doctors. Decision-making was often a social activity in which 'informal audits' would be used to ensure appropriate decision-making. The reliance on colleagues for information and deliberate communication is consistent with the findings from others' decision-making research (e.g., Bucknall 2000, Thompson *et al.* 2001, McCaughan *et al.* 2002, Estabrooks *et al.* 2005). In contexts where time is a scarce resource, colleagues are a more easily accessible source of information than guidelines and protocols.

Alternatively, nurses reverted to their clinical experience, or what they referred to as 'instinct.' Bucknall (2007) suggests that decision-making behaviour may change over time. Subsequently, as nurses become more experienced, familiar and confident, they refer to protocol-based approaches less and less. This may explain the findings that showed more senior nurses tended not to refer to standardised care approaches. Nurses described an assimilation of the information contained in available guidelines and protocols such that they did not need to refer to them because they had become internalised. The ability to see 'the whole' is viewed as a characteristic of expertise (Benner 1982, 1984). That is, 'experts' do not make decisions in incremental ways, but assimilate knowledge holistically. Intuitive-humanist models of decision-making suggest that intuitive judgement distinguishes the expert from the novice; the expert does not rely on analytical principles to act: 'Nursing appears intuitive to the outside observer and feels internalised within the practitioners; clinical decisions are the result of an almost unconscious level of cognition' (Thompson 1999, p. 1224). Arguably, however, while experiential knowledge is important in clinical decision-making, it cannot be solely relied upon. Additionally, previous research shows that using clinical experience is not predictive of high-quality decision-making (Thompson *et al.* 2009) and experienced nurses do not necessarily make better decisions than less experienced nurses (Hoffman *et al.* 2004).

The blending of different sources of evidence in decision-making is necessary, yet complex and poorly understood (Rycroft-Malone *et al.* 2004c). While there is still much to learn about 'good' decision-making, these findings indicate that it might be difficult to separate out the role standardised care approaches specifically play. Assuming that they have at some point been referred to, the information contained in them becomes intertwined with other sources of evidence, including in the case of our study, with patients' experience. Hammond's (1988) cognitive continuum theory may be helpful in better understanding what is involved in these thinking processes. He argues that thinking is neither completely analytical nor completely intuitive, but lies on a continuum. As such, thinking modes will vary according to the task properties (e.g., complexity), uncertainty of the task content and presentation of information. If we can better understand decision-making processes from a theoretical perspective, this could inform the development of interventions designed to enhance the impact of standardised care approaches.

Standardisation and evidence-based practice

Harrison (2002) suggests that the logic of guidelines is algorithmic; that is, practitioners will be guided towards particular courses of action based on what ought to be performed, thus relegating clinical experience in favour of standardised, research-based approaches to care. Certainly, from a political perspective, this is the goal of protocol-based care. However, our findings imply that the political assumption, i.e., standardisation, may be misguided. In the real

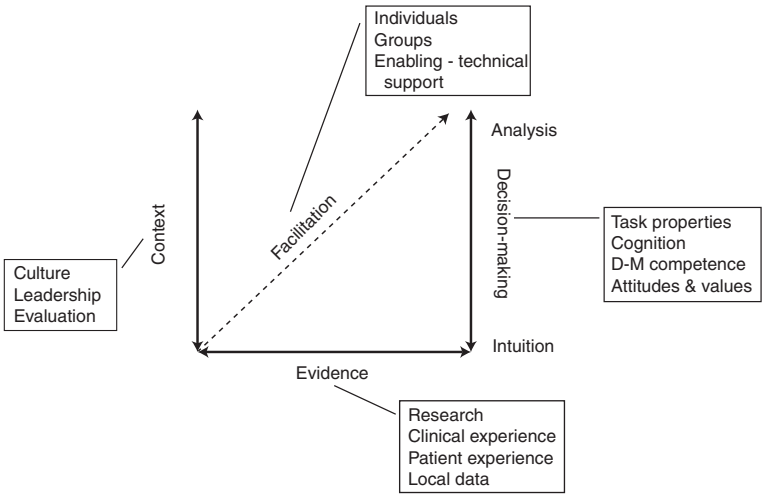

Figure 1 Decision-making and the PARIHS framework.

world of practice, standardised care approaches are not being used in the way they were originally intended. As previously described other factors influenced decision-making, standardised care approaches can only cover particular aspects of patient care and when they are used they tend to be tailored. Lawton and Parker (1999) suggest that the successful implementation of protocols and guidelines depends on achieving the right balance between standardising practices and allowing professionals to use clinical judgement. Indeed, in the reality of the clinical context which is complex and unpredictable, such tools will need to be and arguably should be, adapted for use. However, with the increasing emphasis on evidence-based practice there is also pressure to limit the variability of decision-making. There is a clear tension between the standardisation demanded of evidence-based practice and individualising decision-making. From a policy perspective complete standardisation is likely to be impossible. Judicious use of standardised care approaches may be a more realistic expectation.

The perspective of practitioners as 'rationale agents' capable of searching for, appraising and subsequently using research in practice has dominated approaches to encourage the use of evidence in practice. Recently however, there has been a shift to recognise that the use of evidence in practice is mediated by several factors, including context (McCormack *et al.* 2002, Dopson & Fitzgerald 2005). The findings from this study show that while contextual factors, such as accessibility of standardised care approaches, influenced whether or not they were more likely to be used, how individuals made decisions was also critical. Specifically, it is how decisions are made in the real time and context of practice. Combining evidence-based practice models and frameworks with decision science theory may lead to a more comprehensive understanding of how individuals screen, filter, process and apply evidence in the reality of the clinical setting (Bucknall 2007). Figure 1 shows how aspects of Hammond's decision-making theory might be integrated with the PARIHS framework used in this study. In this example, the facilitation of evidence-informed decision-making, which lies on a continuum ranging from analysis to intuition, is influenced by individual factors and the properties of the particular task, but mediated by other factors including the context of practice, which itself can also be influential.

Conclusion

The findings show that while there were several standardised care approaches that could be used, nurses' either did not obviously refer to them or used them flexibly to support decision-making processes. Other sources of information tended to be privileged and decision-making was a social activity. These findings have implications for the political goal of protocol-based care in the context of evidence-based practice, which is about standardisation. The judicious use of standardised care approaches inevitably limits standardised decision-making. As such, further research and theoretical consideration is required to develop a better understanding about how individual decision-making links to the implementation of evidence-based practice and to the goal of standardisation.

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Contributions

Study design: JRM, DB, KS; data collection and analysis: MF, DB, JRM and manuscript preparation: JRM, DB, MF, KS.

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