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NURSING STUDIES: PROMOTERS AND BARRIERS FOR ADHERENCE TO CLINICAL PRACTICE GUIDELINES AMONG NURSES

ISMAILE, SAMANTHA

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PROMOTERS AND BARRIERS FOR

ADHERENCE

TO CLINICAL PRACTICE GUIDELINES

AMONG NURSES

Samantha Ismaile

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Abstract

Clinical practice guidelines (CPGs) are designed to improve the care and safety of patients in hospitals. This thesis explores the promoters and barriers for CPG adherence among nurses. The research is based on a combination of a systematic literature review, qualitative research and a quantitative study. The systematic literature review included searching three data bases, namely, the British Nursing Index (BNI), Medline and Cumulative Index to Nursing and Allied Health Literature (CINAHL). The qualitative research study included one-to-one interviews and focus groups. The quantitative study consisted of a questionnaire distributed to nurses to extend and check the findings of the qualitative studies.

The systematic literature review revealed that the attitude of doctors to any CPG is influenced most by the level of their agreement with the guideline and by its applicability in practice. The adherence of nurses to CPGs is influenced most by the support and feedback they receive and by team interactions.

A previous framework for CPG adherence by doctors has been produced by Cabana (1999) based on a literature review. This thesis extends that framework to nurses, and adapts it on the basis of my original research findings. Three principal themes emerged from the qualitative studies; namely, nurses' attitudes to CPGs, their knowledge of CPG and external factors that influence CPG adherence.

Within these, the most prominent promoters of CPG adherence were nurses' sense of their accountability, professional values and self-efficacy, as well as managerial monitoring and belief that a CPG would achieve the expected desirable outcome. The last of these depended to a large extent on nurses' trust in the credibility of the guideline authors.

The main barriers to CPG adherence were lack of knowledge about the guidelines caused by insufficient time to read them, poor presentation and inadequate dissemination of CPGs and the low priority given to training within a nurse's schedule. Other barriers included lack of staff resources to apply CPGs, the exigencies of individual patient problems and wishes, the frequent movement of nurses between specialisms and a general failure to involve nurses in drafting the guidelines. All these results were confirmed by the results of a questionnaire survey.

The revised framework presented here could help health care organisations, medical educators, policy makers and managers to develop better models for CPG development and awareness, especially among nurses, and to have a greater insight into the factors that promote or inhibit CPG adherence. Based on the framework, recommendations are made to help these groups of people, and nurses

themselves, improve nurses' adherence to CPGs. These are presented below, and are found as Table 7.1 in the thesis.

Health Care Organisations
Provide nurses with more specialised training and education to improve nurses' knowledge and skills and to keep nurses up to date with clinical practice guidelines, thus increasing nurses' clinical practice guidelines awareness and familiarity.
Increase the number of staff nurses in clinical ward settings in order to reduce the number of patients for each nurse, reduce work pressure and allow nurses more time to read and update themselves on clinical practice guidelines.
Provide nurses with all the necessary resources and funds (equipment, staff, training, and education).
Disseminate clinical practice guidelines in a variety of ways, such as internet data base, emails, face-to-face sessions and a thorough management chain.
Provide nurses with appropriate means to allow them to access clinical practice guidelines.
Provide nurses with a reminder system which provide messages designed to promote adherence to clinical practice guidelines.

Policy Makers
Involve nurses in the process of developing clinical practice guidelines
Involve patient in policy making
Provide nurses with an explanation of the scientific evidence base for adhering to clinical practice guidelines.
Reduce both the sheer number of clinical practice guidelines and length of some individual clinical practice guidelines, where possible.
CPGs to be written in a simple, clear and unambiguous, use colour rather than long documents printed in black and white.
Provide nurses with user-friendly clinical practice guidelines format such as, laminated copies, pocket sized cards and key chains with a summary of the CPGs.
Encourage guidelines to be written and developed by nurses themselves.

Nurse Mangers
Avoid moving nurses from one speciality to another unless a proper training plan is set beforehand to improve their skills and knowledge of the CPGs.
Provide a thorough orientation programme for nurses who are new to the health care organisation or to the nursing profession.
Ensure that nurses receive motivation and encouragement from their line managers and their health organisation.
Encourage senior and peer support in order to provide nurses with knowledge and emotional help.
Provide nurses with regular audit and supervision.

Medical Educators
Increase undergraduate nurses' awareness of the importance of adherence to clinical practice guidelines.
Improve nurses' communication, teamwork and leadership skills

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Declaration

The material contained in this thesis has not previously been submitted for a degree in Durham University or any other institution. All the work presented here is the sole work of the author and no-one else.

Statement of Copyright

The copyright of this thesis rests with the author, Samantha Ismaile. No quotation from this thesis should be published without prior written consent. Information delivered from this thesis should also be acknowledged.

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Finally, everyone in my family, to all my friends for their support and encouragement and for being part of my life.

Papers in review and conference presentations

The following is a list of my publications and conference presentations resulting from the work in this thesis:

> ➢ Ismaile, S, McLachlan J.C & Sawdon M. Factors promoting and inhibiting adherence to clinical guidelines: A systematic review of the literature. Proceedings of the AMEE International Meeting. Austria Reed Messe Wien Conference Centre, Vienna, Austria 26th - 31st Aug 2011. (Poster)

> ➢ School of Medicine and Health Postgraduate Conference, Durham University 18/07/2010. *Factors promoting and inhibiting adherence to clinical guidelines within the nursing profession* (poster)

> ➢ Postgraduate conference event, County Hall, Durham University 17/11/2009. *Factors promoting and inhibiting adherence to clinical guidelines within the nursing profession* (poster)

> ➢ Ismaile, S, McLachlan J.C & Sawdon M. Factors promoting and inhibiting adherence to clinical guidelines: A systematic review of the literature. To be submitted to *BMJ*.

> ➢ Ismaile, S, McLachlan J.C & Sawdon M. Adherence to clinical guidelines within the nursing profession: A qualitative study, to be submitted to a Nursing Management Journal.

> ➢ Ismaile, S, McLachlan J.C & Sawdon M. Differences between doctors and nurses in adherence to clinical guidelines, to be submitted to *BMC Medical Education.*

Chapter 1: Introduction

As the literature cited in this chapter indicates, it is widely credited that patient care and patient safety in hospitals is improved by staff adherence to clinical practice guidelines (CPGs). This thesis will explore the factors that promote or inhibit adherence to those guidelines. The research is based on a triangulation of a systematic literature review, a qualitative research study and a quantitative evaluation of the research outcomes.

Adherence to CPGs by doctors, nurses and allied health professionals (AHPs) is the basis of good patient care. Although there is a body of literature relating to these professions separately, this area has not, to my knowledge, been extensively studied on a comparative basis between the professions. Yet doctors, nurses and AHPs are best considered as one team. They all work towards one goal which is to achieve the best possible quality of care for their patients. A lack of team work among doctors, nurses and AHPs often leads to miscommunication that can affect patient care. Therefore, in order to understand nurses' views on factors promoting and inhibiting adherence to CPGs, it is important to understand doctors and AHPs views on CPGs as well. Doctors' adherence or non-adherence to CPGs could also affect nurses' and AHPs' adherence to CPGs. Failures can result in missed diagnoses, drug errors and miscommunication. All these factors could affect overall patient care. Comprehensive reviews of published evaluations of clinical

guidelines for doctors (1) have shown that adherence to guidelines can and does improve medical practice. Historically, clinical guidelines were developed mainly for doctors but, more recently, nurses, midwives and AHPs and their respective managements have become more interested in the use of guidelines as one means of facilitating evidence-based practice and ensuring higher quality care (2-4).

However, this does not necessarily mean that nurses and AHPs adhere to the guidelines (5). Evidence indicates that all health professionals, including nurses and doctors, vary in the extent to which they follow CPGs and that this causes unsafe interventions and unsafe practice (6-9). The factors that might promote or inhibit guideline adherence among doctors, nurses and AHPs is, therefore, an important field to research.

In 1999, Cabana et al (10) explored the importance of CPG adherence among doctors, and produced a framework that identifies factors for doctors' adherence to CPGs. However, this framework in turn took inspiration from Bloom's Taxonomy [1]. Drawing on Cabana's work[2], my research aims to identify factors that promote and inhibit adherence to CPGs by other health care workers, especially nurses. By identifying these factors this thesis aims to deliver a framework that will provide important and valuable assistance to policy makers,

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[1] 'Bloom's Taxonomy' is a widely used shorthand reference for the work of multiple authors over a period of time. See Bloom BS (1994) Reflections of te development and use of the taxonomy. In Yearbook of the National Society for the Study of Education. Chicago 93 (2) ISSN 1744-7984.

[2] By analogy with this use of 'Bloom's Taxonomy', I will hereafter for convenience refer to 'Cabana et al' in the singular and masculine as 'Cabana' and 'he'.

medical educators and experts in the field to enhance CPG adherence by issuing better CPGs and by creating an environment in which health professionals find it easier to be aware of them and to apply them.

1.1 Definition of Clinical Practice Guidelines

Clinical practice guidelines have been defined by Field and Lohr as "systematically developed statements to assist practitioner decisions about appropriate health care for specific clinical circumstances" (11). Similarly, Eddy defined CPGs as "preformed recommendations issued for the purpose of influencing decisions about health interventions"(12). Guidelines are used to enhance the quality of care delivery and to promote patient safety through evidence-based practice (13-15). They can also standardise clinical interventions for which health professionals may be held accountable (16-19). Inevitably, they will differ between the different health care professions.

1.1.1 Importance of Clinical Practice Guidelines

CPGs are meant to provide well-founded assistance to the clinical decision making process about patient care, thus improving patient safety (8). Ideally, the recommendations they provide for a given clinical situation are informed and supported, firstly, by evidence based research found through a systematic review of the previous literature and, secondly, by a rational and scientific approach to problems and their solutions (20). They should be developed by bringing together

appropriate experts and policy makers (20). However, some of the CPGs that are

issued are not evidence-based (21).

1.1.2 Protocols vs. Guidelines

Protocols are sometimes confused with CPGs. A protocol is defined by the

National Health Service (NHS) as "an agreed framework outlining the care that

will be provided to patients in a designated area of practice". It does not describe

how a procedure is performed, but why, where, when and by whom the care is

given" (22). Thus, protocols can be considered as rules by which nurses can

distinguish their role from that of other health care workers. These rules may have

legal implications if not followed carefully by the health care professionals to

which they apply. Examples are when to call the emergency services and who to

report to.

Within the NHS CPGs are defined as "Systematically derived statements that help

practitioners to make decisions about care in specific clinical circumstances.

These should be research or evidence based"(22). CPGs can also be seen as

flexible tools that assist health professionals to make clinical decisions, based on

procedures and clinical conditions (23). They also act as foundations of stability,

quality of care and standard practice that can be adapted to different needs and

situations. Examples are CPGs on hand washing and the care of pressure ulcers.

In summary, protocols focus on the treatment of patients by suggesting interventions for specific clinical diagnoses, whereas CPGs focus on a specific clinical circumstance.

1.1.3 Problems with current guidelines

Though the observance of CPGs is obviously important, current CPGs have some limitations that inhibit their observance by health care workers, including nurses (8, 24-26). These limitations may include doubts about the evidence that the guideline was based on (8, 27). Therefore, in some instances, current CPGs do not provide a reliable solution to clinical situations.

Guidelines are made to aid health care decisions for a particular clinical situation; therefore, they should not be considered as absolute rules or directives to nurses. Nurses also need to apply their own knowledge, experience and professional judgment in situations where CPGs do not apply (25).

Finally, in order to adhere to CPGs, nurses and other health care workers need to have a positive attitude towards them. CPGs must be followed correctly in situations where they are applicable; otherwise patient care might suffer (25, 28-31).

1.2 Clinical Guideline Development

CPGs can be developed either locally as "internal CPGs" or nationally as "external CPGs" (2, 8). Local guidelines are privately owned by the local Trust and take account of the resources, expertise and skills available within that local team. In cases where the local team lacks one of the requirements of a CPG developed at a national level, it can be adapted by a Trust to fit the local setting (32, 33).

The development of CPGs (2) can be summarised as follows:

1. Gathering information on the best evidence based research practice: from research studies about the effectiveness of different clinical practices.

2. Writing and developing a new clinical practice guideline: through a small group working with representatives from different medical settings.

3. Testing and examining the CPG: through consulting health care professionals about its clarity, internal consistency, and acceptability. The CPG is then tested in the health care setting for feasibility for use in routine practice.

4. Reviewing the CPG: new CPGs are reviewed within a particular period of time and amended in the light of new knowledge.

The proper dissemination of newly developed CPGs is also an important factor for their implementation (34-36). Dissemination of CPGs is the process of making

them accessible to health care professionals so that they can be used when needed (37). This includes publishing CPGs in professional journals, providing training and education and targeting CPGs to particular health care professionals.

The implementation of CPGs means ensuring that health care professionals base their clinical practice on the CPG recommendations (37)**.** Dissemination without appropriate implementation is unlikely to substantially influence health care professionals' behaviour (15, 38-40). To ensure user adoption, implementation strategies should be applied, and this includes giving health professionals easy access to the guidelines (14, 20, 34, 41-43).

1.3 Importance of Investigating Adherence to Clinical Practice Guidelines

The importance of clinical practice guidelines stems from their capacity, through evidence-based practice, to enhance the quality of care delivery and to promote patient safety. Guidelines can also standardise clinical interventions for which doctors, nurses and allied health professions may be held accountable.

Evidence indicates that all health professionals, including nurses, vary in the extent to which they follow CPGs and that this causes unsafe interventions and unsafe practice (2-6). For example there is a narrative of a patient on a strict 'soft food diet' who died after hospital nurses gave him toast because it was his 'human right' (44) and a narrative of 'Nurse gives toddler MMR jab without mother's

consent in order to meet government targets' (45). These are two potential examples of nurses' misconduct when guidelines are not adhered to. The factors that might promote or inhibit guideline adherence among nurses are, therefore, an important field to research.

1.4 Development of the Study

The researcher is a general registered nurse in the UK. She has been a nurse since 2005 and has wide experience in medical, surgical and neuro-rehabilitation wards in both the NHS and private sectors in London. During this period there has been a great deal of media attention to guideline adherence among doctors, nurses and AHPs, and specific concerns about the best way to deliver patient care and to improve patient safety. As a result, the researcher became interested in clinical guidelines and, more practically, in factors that promote and inhibit clinical guideline adherence.

1.5 Terms and Definitions

To give a clearer idea about this research, important terms that will be used throughout this thesis are defined as follows:

- Clinical Practice Guidelines Promoters: Any factor that promotes, encourages or helps complete nursing adherence to CPGs (46).

- Clinical Practice Guidelines Barriers: Any factor that inhibits, limits or restricts complete adherence to CPGs by doctors, nurses and allied health professionals (46).

- Allied Health Professionals: Clinical health care professionals, other than doctors and nurses, who work in health care teams. Examples are physiotherapists, radiologists and nutritionists.

- Registered Nurse (RN): A nurse who is registered with the Nursing and Midwifery Council (NMC) and who holds an active Personal Identification Number (PIN). The NMC is a nursing organisation which was set up by parliament to protect the public by ensuring that their health and well-being is maintained. The NMC releases a PIN card which has a Personal Identification Number (PIN) to its members every year after nurses renew their membership or when they register with the professional body (47).

1.6 Thesis Aims

The general aim of this thesis is to improve patient care and patient safety by investigating factors that promote or inhibit nurses' adherence to CPGs.

1.7 Thesis Objectives

To address the general aim of this thesis, a triangulation of research methods were implemented, namely, a systematic literature review, a qualitative study and a quantitative study.

The main aims of the systematic literature review were as follows:

- ➤ To explore the promoters of and barriers to CPG adherence among doctors, nurses and AHPs

- ➤ To identify which barriers and promoters of adherence to clinical guidelines occur most frequently among doctors, nurses and AHPs

- ➤ To investigate whether there are any differences in CPG adherence among doctors, nurses and AHPs

- ➤ To compare the findings for the adherence barriers and promoters for doctors, nurses and AHPs in order to explore their similarities and differences.

The aims of the qualitative study, using one to one interviews and focus groups, were as follows:

- ➤ To explore nurses' views, feelings and insights about guideline adherence through individual interviews and focus groups.

- ➤ To form a conceptual framework from analysis of the collected data from the interviews and focus groups.

- ➤ To evaluate and validate the literature findings and provide recommendations for increasing CPG adherence and suggestions for future research work.

The aim of the quantitative study, using a questionnaire, was as follows:

- ➢ to evaluate the results gained from the qualitative methods
- ➢ To explore the generalisability of the results obtained from the qualitative study, given the inevitably limited size of the qualitative sample.

1.8 Research Contributions

The main contributions of this study to the corpus of research in this field are as follows:

- ➢ A unique systematic review of the literature on CPG adherence identifying which promoters of and barriers to CPG adherence occur most frequently among doctors, nurses and AHPs, and whether there are any similarities and differences in CPG adherence among doctors, nurses and AHPs.
- ➢ Qualitative research exploring the insights, experiences and views of nurses regarding their feelings about the factors that promote and/or inhibit adherence to clinical practice guidelines.
- ➢ The production of a framework for promoting adherence to clinical guidelines by nurses. This will, to the best of my knowledge, be the first such framework to be developed specifically for nurses. This framework could assist policy makers in writing new guidelines, and in updating the current guidelines. It is also hoped that the framework, in identifying the promoters of and barriers to guideline adherence, will help health care organisations to develop better models for clinical guideline development

and awareness, especially among nurses, and to have a greater insight into the factors that promote or inhibit adherence to them.

1.9 Thesis Outline

This is the first of seven chapters in this thesis. The others are outlined below.

Chapter 2 provides an overview of the research methodology. It describes the three research methods used, namely, a systematic review of the published literature, a qualitative research study using both one-to-one and focus group interviews and a quantitative study using an online questionnaire. It also explains the reasons for choosing these methods.

Chapter 3 describes a systematic literature review which explores relevant previous studies in order to identify and compare reported promoters of and barriers to adherence to CPGs by doctors, nurses and AHPs. In particular, this review aims to identify factors that explain the reasons behind both adherence and non-adherence across health-care disciplines. The results of this review informed the design of the qualitative research, although this was based on a grounded theory approach.

Chapters 4 and 5 report the results of the qualitative study which is based on a grounded theory approach to explore nurses' insights and feelings about factors that promote and/or inhibit adherence of clinical guidelines. Chapter 4 reports on the data collected in individual, one-to-one interviews and Chapter 5 reports on the data collected in group interviews. The main aim of the individual interviews was to obtain detailed information about nurses' experiences on CPG adherence,

while the main aim in the focus groups was to allow nurses to share, interact and discuss the factors promoting and inhibiting CPG adherence. Both chapters will show that an analysis of the collected data enabled several main themes and various sub-themes for CPG adherence to be identified and thus provide a thematic framework for the study.

Chapter 6 reports the results of the online-questionnaire used to further explore and evaluate the results of the literature review and the qualitative studies in order to find the most influential promoters and barriers for CPGs adherence among nurses.

Chapter 7 discusses the overall results of the systematic literature review qualitative studies and the questionnaires. It also presents the conclusions of this research and considers recommendations and the future work that could be developed based on these research findings.

Chapter 2: Methodology

2.1 Introduction

This chapter describes the research methods used to conduct this research, namely a systematic review of the published literature, a qualitative research study and a final questionnaire to evaluate the factors of nurses' adherence to CPGs suggested by the qualitative data. It also explains the reasons for choosing these methods.

The study design itself has been influenced by the work of Cabana and it can be considered as an extension and re-examination of Cabana's analytical framework (10). The choice of Cabana's framework was based on the fact that it was the first framework developed to address factors for CPG adherence. However, during the course of the research both differences and similarities emerged, perhaps because this study focuses on nurse adherence to CPGs, while Cabana's work focussed on doctors. I have established that there are significant differences in promoters and inhibitors of CPGs between doctors on the one hand and nurses and other health professionals on the other. In addition, Cabana's study (10) was only based on literature reviews that discussed doctors' adherence, while my research framework is based on qualitative and quantitative research, as well as literature reviews. An approach of constant comparison and reference to Cabana's framework was followed, which allowed similarities and differences to emerge spontaneously, and these are summarised in the Conclusions. In general therefore,

Cabana's framework provided a valuable starting point, but also enabled me to identify clearly where the approach and the study subjects led to differences in conclusions.

Cabana's work (10) does not represent a Grand or middle range theoretical framework in the philosophical meaning of these terms, as described by Illing (48) . My theoretical framework is outlined below, and draws on the published work of Illing (48) and unpublished work by McLachlan, as explored in round table discussions with my supervisors.

Grand Theories represent the highest level on theoretical analysis. The term may overlap with that of ontologies (where an ontology is a theory of being). In general I will consider three major ontologies: positivism, which assumes that there is an objective reality amenable to study; post-positivism, which assumes that there is an objective reality but that its study is challenging; and anti-positivism which questions the existence of that objective reality outside social constructs.

Grand Theories do not particularly help with experimental design. Instead they lend themselves to the selection of epistemologies (where an epistemology is a theory of knowledge). In this thesis, I have chosen a constructivist epistemology, in that the factors influencing adherence to guidelines are likely to be strongly influenced by social and environmental factors, but still operating within a post-

positivist ontology, in that I believe that the results are applicable outside the immediate context of study.

A post-positivist and constructivist rather than a positivist or purely social constructivist approach was also taken because (a) positivist data is generally lacking in this field – for instance, I found no example of a randomised controlled trial in this area - and (b) while adherence to guidelines is a complex social phenomenon, in which understanding is constructed and behaviour mediated through complex interactions between participants - between staff and patients, between staff and peers, and between staff and management - it is also not solely socially constructed. It is strongly influenced by non-social factors such as resources and equipment.

As will be seen, a grounded theory approach was selected as the practical application which informed the study design in the analysis of the qualitative data.

2.2 Systematic Literature Review

2.2.1 Introduction

A rigorous systematic review of existing literature provides information about previous researchers' findings and the methods used to obtain them. It can also enable a researcher to identify gaps in the evidence base. It is, therefore, an invaluable activity prior to embarking upon new primary research (49).

In this research, the systematic review aimed to explore relevant previous studies in order to identify and compare reported barriers and promoters for adherence to clinical practice guidelines by doctors, nurses and allied health professionals.

2.2.2 Search Strategy

The search for literature relevant to promoting or inhibiting adherence to CPGs by health professionals was conducted within three online databases; the British Nursing Index (BNI), Medline, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL). Time limitations were placed on the selection of articles for review and the period from January 1994 to December 2012 was chosen. In addition, a manual search was made of the bibliographies of all the studies identified as potentially relevant during the search of the BNI, Medline, and CINAHL databases: these included studies that were included in the analysis and those that were eventually excluded because they were not sufficiently closely related to the topics under investigation.

2.2.3 Eligibility Criteria

The criteria for the selection of previous studies to be used in any meta-analysis must be stated and must be clear. Such eligibility criteria are needed to provide strong evidence to support the research methods used and to ensure that the literature selected is directly related to the research subject (50). Three main criteria were identified for selecting previous studies to be considered and

analysed in this review. These are the types of studies, the types of participants and the types of outcome measures. They are described in the following sections.

2.2.3.1 Types of studies

The type of the study relates to the language used to present the findings, the field of study and the research methods used. For this research, this included articles that were written in the English language, articles related to nurses, doctors and AHPs, articles related to adherence to clinical guidelines and qualitative, quantitative and triangulation studies. No limitation was placed on any specific setting (e.g. medical, surgical), type of intervention (e.g. hand washing) or provider (e.g. hospital). This was intended to ensure that all potential eligible studies were included in this review.

2.2.3.2 Types of participants

The type of participants refers to the age and jobs of participants. In this research, participants were defined as adults between 16 and 64 years of age since this is the typical employment age in countries worldwide (51), and either nurses, doctors or AHPs.

2.2.3.3 Types of outcome measures

The type of outcome measures refers to the results and conclusions of studies that included factors that promoted and/or inhibited adherence to CPGs. Articles that discussed clinical guidelines and which examined at least one factor that inhibited

or promoted clinical adherence among doctors, nurses and AHPs were identified for inclusion in this review.

It was noted during the literature review that some similarities and differences in barriers and promoters could be observed within and between professions. Once a typology of barriers and promoters had been established, it proved possible to indicate their relative frequency in the different professions as percentages, thereby enabling their relative importance within each profession to be characterised. This in turn enabled comparisons between the professions to be drawn. As far as I am aware, this semi-quantitative approach is unusual if not unique with the literature. It also enabled emergent themes within each profession to be prioritised in accord with these frequencies.

The themes that emerged in interviews and focus groups in Chapters 4 and 5 of this thesis were found to correspond to the broad themes of Cabana's previous work on doctors (10). However, different detailed sub-themes emerged through the frequency of discussed issues with nurses' interviews, and they were prioritised based on these frequencies. This method of prioritising differs from Cabana's methodology (10). Cabana prioritises his themes in the sequence of knowledge, attitudes then behaviour, according to his belief that *"Before a practice guideline can affect patient outcomes, it first affects physician knowledge, then attitudes, and finally behaviour"* (10).

Definitions for barriers and promoters have been developed for this review; see section 1.5.

2.2.4 Exclusion Criteria

The criteria for the exclusion of previous studies from the literature review were studies that were not presented in English; those that did not deal with nurses, doctors or AHPs; those that did not discuss clinical practice guidelines or clinical policies; and those whose conclusions did not present at least one promoter or barrier to adherence to CPGs.

Table 2.1, below, summarises the results of searching the BNI, MEDLINE and CINAHL databases and shows the number of previous studies that met this study's search criteria.

Table 2.1: Literature databases and total number of relevant references

Data base	Relevant references
BNI	87
MEDLINE	278
CINAHL	28
TOTAL	393

Chapter 3 will describe in detail the search strategy developed for searching the BNI database and adapted for the search of the Medline and CINAHL databases (see section 3.2.2). This strategy was also adopted for data collection and extraction (see section 3.3.1 and 3.3.2).

The next section will describe the qualitative methodology used in the fourth chapter of this thesis.

2.3 Ethical Approvals for Conducting Qualitative and Quantitative studies

Both Durham University and the NHS require every researcher to obtain ethical approval for his or her research design before starting any experiment. Research committees need to satisfy themselves that the subjects involved in or affected by the study will not be harmed, and that all the participants will receive fair treatment. The research proposals to conduct interviews and focus groups and a follow up questionnaire for this research were submitted to, and approved by, the following institutions and procedures:

➢ School of Medicine and Health Ethics Sub-Committee, Wolfson Research Institute at Durham University (see Appendix 1a);

➢ National Research Ethics Service, County Durham & Tees Valley Research Ethics Committee (see Appendix 1b);

➢ Research and Development Research Ethics Committee, South Tees Hospitals NHS Foundation Trust (see Appendix 1c);

➢ Research passport from Research and Development, South Tees Hospitals NHS Foundation Trust (see Appendix 1d);

➢ Tees, Esk and Wear Valleys NHS Foundation Trust, Research and Development Office, Middlesbrough (See Appendix 1e);

➢ South Tees Hospitals NHS Foundation Trust, Research and Development Office, Middlesbrough (See Appendix 1f).

An extension to increase the number of participants in the study and to use a questionnaire to evaluate the research results was also approved by the previously listed ethics committees.

All the applications for approval by the ethics committees were written by the researcher herself with support and advice from her academic supervisors to review and validate the required information before submission.

2.3.1 Participant Consent

The informed consent (see Recruitment sections 2.4 and 2.4.1) of each participant is also a necessary condition of conducting any research and a signed consent form should be obtained from each participant before he or she takes part in a study. In this research, each individual and group interviewee and each questionnaire participant was asked to sign a consent form (Appendix 2a). Verbal and written consent was also obtained from each participant at the beginning and the end of his or her individual or focus group interview. Consent was also obtained from nurses who took part in the questionnaire. Nurses were reassured that non-participation or withdrawal from the study at any stage without giving an explanation would not incur any negative consequences and that it would not affect their roles and jobs.

2.3.2 Setting

The setting of this research study was the North East of England. Participants were recruited from the South Tees Hospitals NHS Foundation Trust and Tees, Esk and Wear Valleys NHS Foundation Trust.

2.4 Participants and their Recruitment for Qualitative and Quantitative Methods

2.4.1 Qualitative Recruitment

To obtain the qualitative research data, data were collected over the two-year period from 2009 to 2011 at South Tees NHS trust, UK. A total of 38 nurses took part in the qualitative study. These nurses were recruited through the help, support and encouragement of their line managers to take part in the study. There were 12 nurses (9 females and 3 males) interviewed individually, and 24 (15 females and 11 males), took part in focus groups. The participants came from different wards and specialities (i.e. theatre, pain management, oncology, ITU). However, nurses were mainly from surgical backgrounds. This was not the choice of the researcher, but determined by those who volunteered to take part in the interviews.

Table 2.2 summarises nurses' demographics that took part in one-to-one interviews.

Table 2.2: Demographics of participants in one-to-one interviews

Years of experience	Gender	Current Speciality
28	Female	Cancer Nurse
4	Female	Theatre Nurse
22	Female	General Surgery
17	Female	Surgical Admissions
12	Female	Orthopaedic Trauma
24	Male	Training and education
20	Female	Theatre Nurse
7	Male	Pain Management
9	Female	ITU
3	Female	General Surgery and Medicine
11	Female	Theatre Nurse
10	Male	Research and Development

A total of 24 nurses took part in the focus groups. There were 4 focus groups and each focus group had six participants. This number is usually recommended as it enhances group interaction and allows a greater contribution from each individual participant (53). Nurses who were interviewed were also invited to take part in focus groups. In total, two nurses who were interviewed also took part in focus groups.

Focus groups participants included nurses who are known or not known to one another. When participants know one another, they will usually prod one another to tell their own stories: in one sense, the prodders become the assistants to the facilitator. However, if the subject matter being discussed is particularly sensitive, respondents may feel more comfortable sharing their points of view among relative strangers. At times, people are more willing to reveal personal behaviours, or events that have occurred to them if no one present can repeat the story back to neighbours or friends (54).

Table 2.3 summarises nurses' demographics for the focus groups.

Table 2.3: Demographics of participants in focus groups

Focus groups	Years of experience	Gender	Current Speciality
1	31	Female	Theatre
	5	Female	Theatre
	10	Female	Surgical Admissions
	30	Female	Orthopaedics
	23	Female	Training and education
	5	Female	Theatre
2	14	Female	Theatre
	30	Female	Theatre
	27	Female	Theatre
	30	Male	Anaesthesia and recovery
	7	Female	Theatre
	3	Female	Theatre
3	5	Female	Theatre
	3	Female	Anaesthesia and recovery
	10	Male	Pain Management
	1	Female	Theatre
	26	Female	Anaesthesia and recovery
	14	Female	Theatre
4	2	Female	Theatre
	12	Male	Anaesthesia and recovery
	12	Male	Anaesthesia and recovery
	1	Female	Pain Management
	5	Female	Orthopaedic Trauma
	4	Male	Orthopaedic Trauma

Participants in the focus groups were recruited using an opportunistic sample method with a range of nursing specialities (55). The recruitment process started by inviting the targeted population to volunteer to take part in this study. Invitations to participate were sent by email, and through presentations, posters and notices on boards within the departments of the hospitals. The researcher also made direct contact with key people in the hospitals, such as nurse mangers, matrons and charge nurses. This is also known as a snowballing process (56) . Snowballing also proved to be a successful recruitment strategy, with initial respondents suggesting advertising in their local newspaper, training courses and workshops (56). The invitations were sent through their line managers rather than directly to nurses. Thus, there is a chance that not all the mangers passed on the

invitations, even though frequent reminder emails were sent to the mangers to encourage their nurses to take part in the study. This could be due to lack of interest in the study or not wanting their nurses to take time from their normal duties to participate in interviews or focus groups. This could have contributed to the fact that the data collected from interviews and focus groups contains a bias towards surgical nurses' views. In my opinion, the fact that a larger number of nurses from a surgical background, compared to other backgrounds, participated in the study may particularly be due to the fact that I had a good connection with head nurses in surgical wards. This may have encouraged them to promote and support their nurses to take part. As I sent the invitation to line managers, and not directly to nurses, I suspect it could be possible that non-surgical line managers did not pass on the invitation to their nurses to participate even though frequent reminder emails were sent to the mangers to encourage their nurses to take part in the study.

As will be described later, a follow-up questionnaire was therefore sent to a large group of nurses covering all other specialities such as community, mental health, paediatric and women's health nurses to explore the generalisability of the findings arising from the speciality bias in the interviews and focus groups.

Nurses who responded to the invitations to take part in this study were provided with information sheets which included details about the aims and objectives of the study, consent, study design, confidentiality, ethical approval, data collection, data storage and dissemination. The information sheets also included details about

actions that would be taken if any disclosures of professional misconduct or potential breaches of the criminal law were made during the one-to-one interviews and focus groups. (See Appendix 2b).

2.4.2 Quantitative Recruitment

An online questionnaire-based survey was conducted to obtain the required quantitative data from nurses. A total of 61 nurses completed the questionnaire. These volunteers came from different wards and specialities (i.e. medical, surgical, mental, paediatric and woman health).

The use of purposive sampling in the collection of the quantitative data aimed to address the limitations of the population used in the qualitative study. Most of the latter came from surgical backgrounds. Therefore, the use of purposive sampling aimed to provide more sample generalisability by including nurses from a greater variety of backgrounds, wards and specialities. More specifically, many of these nurses came from medical, mental health and paediatric backgrounds

2.5 The Qualitative Study

2.5.1 Introduction

This section describes the qualitative aspect of this research study. It explains the choice of this research method for exploring the results obtained from the

systematic literature review described above. In addition, it was anticipated that the results of the qualitative study would provide a deeper understanding of the factors that might promote or inhibit adherence to CPGs by nursing professionals.

2.5.2 Why a Qualitative Study?

A qualitative study was chosen as the initial research methodology because this study seeks to understand and explore nurses' behaviour, attitudes and feelings about their adherence to clinical practice guidelines. Unlike quantitative studies which seek "causal determination, prediction, and generalization of findings" (57), qualitative studies seek instead "illumination, understanding, and extrapolation to similar situations" (57). It is exactly such illumination and understanding that this research seeks to provide. A quantitative method using a questionnaire was also used at the end of the study to triangulate the analysed results of the qualitative study and the systematic review. In conjunction with the results of the systematic literature review undertaken in the first part of this research study, it is expected that the level of adherence by nurses to CPGs will be more thoroughly comprehended not only through their organisational and environmental factors but also at an individual and personal level.

2.5.3 Qualitative Methodology

This qualitative study uses two main data collection methods, which are individual, one-to-one interviews and group interviews, otherwise known as focus groups.

Interviews are probably the most commonly utilised method in qualitative research (56). The qualitative data interview "attempts to understand the world from the subjects' point of view and to unfold the meaning of people's experiences" (58). Interviews allow researchers to explore and expand their understanding of participants' feelings, experiences and insights into the phenomena under investigation and to enable a more detailed exploration of the topic. In this research, individual interviews are used not only to collect data on participants' feelings, experiences and insights into nurses' adherence to CPGs but also to signal issues that might be explored further in focus groups. The one-to-one interviews also provide participants with a private and confidential environment in which to reflect on their experiences and to encourage them to raise any sensitive issues that they did not wish to share with others. The main disadvantage of using interviews as a source of information is that they do not allow participants to interact with each other and to share their views and insights. However, this drawback was addressed by also carrying out focus groups.

Focus groups are used to facilitate communication and interactions between the participants. This allows for the exploration of different thoughts and ideas and may reveal important information not divulged in individual interviews. However, focus groups also have their disadvantages. The range of opinions generated from different participants may be difficult to record and analyse and time constraints for both participants and the researcher may limit the number of questions that can be covered. Also, as Silverman in 2004 suggested, because focus groups tend to

generate and discuss major themes, they are often not suitable for identifying subtle differences in opinions (59).

For the individual interviews, a general interview guide was developed and utilised in order to ensure that information on the same general areas was collected from each participant, while also allowing for a degree of freedom and adaptability in getting the information from the participants (58). The same approach was used for the focus groups, though the actual content of the guide was intended to be partly determined by the results of the individual interviews. In both methodologies a semi-structured interview approach was chosen in order provide more flexibility for both the participants and the researcher (60). This enabled participants to lead the discussion when they wished to do so, and build an argument around their understanding of the issues and events, as well as enabling the researcher to explore unexpected issues as they arose. The topics included factors encouraging and inhibiting adherence to clinical guidelines, why some guidelines were not used and what would be the most appropriate way to encourage nurses to follow guidelines. (See Appendix 2c for the full interview and focus group question guidelines).

There were two groups of focus groups in which nurses knew each other and the remaining two groups were nurses who did not know each other. The researcher was the moderator of all the focus groups, and all the focus groups were audio recorded. All participants were informed that they are allowed to have a copy of

the recording upon request. All the interviews took place in the Educational

Centre at the local hospital which was comfortable, and the room was arranged in

a circle seating layout.

2.5.4 Qualitative Data Collection

Each interview and focus group took approximately 30-60 minutes. On arrival at

the interview or focus group, participants were given a full briefing on the purpose

of the study, the format of the session, and issues of confidentiality. They were

also asked to sign the consent form (see Appendix 2a).

Regarding thematic saturation; "the number of required subjects usually becomes

obvious as the study progresses, as new categories, themes or explanations stop

emerging from the data" (61) . Thematic saturation in this study was achieved

after conducting 12 one to one interviews and 4 focus groups with no new themes

appearing and themes repeating. Data saturation was confirmed with the author's

academic supervisors.

I acknowledge that this thematic saturation may have occurred by engaging with

the majority of nurses from a surgical background only, hence the follow up

questionnaire to make the research findings more representative of all nurses.

The other aim of the questionnaire was to attempt to confirm the results obtained

from the qualitative data. Data collection and analysis of the results was carried

out primarily by me. However, support, advice and agreement about the process, results and analysis were obtained from my academic supervisors.

Transcriptions were carried out by both an administrator (thoroughly experienced in interview transcription) and the researcher. There was no identification of participants' details during the transcription process. Participants were given a unique identifier to maintain anonymity, thus if upon data analysis it is required to re-interview a particular participant the code can be broken by the author and the participant can be re-contacted. The code was not broken in other circumstances and anonymity was preserved. The list of unique identifiers against names was kept on a spreadsheet and saved on a secure, password protected computer within the university. This is to ensure the anonymity of participants. All nurses were given the opportunity to approve transcripts before publication.

2.5.5 Qualitative Data Analysis

NVivo software, Version 8, was used as an instrument to structure, store and organise the collected data and thus aid the conduction of the grounded theory methodology (62). This is discussed in the following sections before the actual data analysis process is described.

2.5.6 NVivo Software Package

Data analysis in qualitative research involves exploring issues, understanding phenomena and answering questions. It uses unstructured information, such as

interview transcripts, to generate key themes and sub-categories. In this study, NVivo, a computer-assisted qualitative data analysis software (CAQDAS) package, was used to organise the large amount of raw data that emerged from the data collection methods outlined above (62). This enabled the researcher to manage, shape and make sense of the gathered information quickly and effectively, as well as providing security for the stored data.

As Bryman in 2001 notes, this

> "takes over the manual tasks associated with the coding process including the physical task of writing marginal codes, making photocopies of transcripts of field notes, cutting out all chunks of text relating to a code and pasting them together" (63).

Thus, the use of NVivo helped the researcher to conduct the manual data analysis and it allowed her to concentrate on the primary task of interpreting the data. Indeed, NVivo is a software package that was developed specifically to assist researchers in organising and storing data and to ease the manual analysis process.

2.5.7 Grounded Theory Approach

A grounded theory approach (64-68), was used to analyse the interview and focus group transcripts.

Grounded theory was first described by Glaser and Strauss in 1967 (69). It is a qualitative approach, focused upon moving beyond description to "generate or discover a theory" (68). Creswell (2007) extends this description in saying that,

"Participants in the study would all have experienced the process, and the development of the theory might help explain practice or provide a framework for further research. A key idea is that this theory development does not come off the shelf, but rather is generated or grounded in data from participants who have experienced the process" (68).

Lingard in 2007, Glaser in 2007, Lingard in 2008 and Vanderstoep in 2009 (64-67), likewise, identified it as an inductive approach to discover a theory rather than working with theories that have been specified before starting a study.

Thus, the grounded theory approach includes both gathering the views of a large number of participants and attempting to generate a general explanation or some hypotheses about the phenomena under investigation. It is particularly applicable to the data analysis in this research study for the following reasons:

1. In order to produce a general framework, some theoretical insights are needed to explain and understand why nurses do or do not adhere to clinical guidelines.

2. There are no theories available in the current literature to explain adherence to clinical guidelines among nurses and to answer my research questions.

3. The frameworks, models and theories available in the literature do not specifically address nurses.

This inductive approach depends on moving back and forth between data gathering and analysis (70). Charmaz in 2011 emphasised the importance of such concurrent data collection and analysis in grounded theory (71), saying that it is

> "a systematic yet fixable method that emphasizes data analysis,
>
> involves simultaneous data collection and analysis, uses comparative
>
> methods and provides tools for constructing theories" (72) .

Creswell in 2007 had earlier referred to this as a "zigzag" process. He visualised the researcher going out to the field to gather data, coming back to the office, analysing the collected data and repeating this process until no new data is added: a phenomenon known as "saturation" (68).

Despite the conclusion that grounded theory wass the most appropriate method to conduct this qualitative research it can be argued that other options are available. Ethnographic approaches, for example, could have been used in conducting this research. Ethnographic methods rely on personal experience and possible participation by the researcher, as opposed to remote, passive observation (73). This was difficult to do due to time restrictions and limited funds for this research. However this could be carried out as future work.

2.5.8 Qualitative Data Analysis Process

Using grounded theory helped in organising the process of coding in this study. Coding is "the process of applying a shorthand label of data that takes this datum

apart and defines what it means" (74). Coding data also helps to group data into themes, to define processes in the data and to make comparisons between data.

Coding of interviews and focus groups transcripts were conducted using three stages as follows:

1. Open coding: a procedure for developing categories of information with an open mind about what might be found in the data, and being open to ideas.
2. Axial coding: a procedure for interconnecting the categories.
3. Selective coding: a procedure for building a story that connects the categories and producing a constructive set of theoretical propositions. These are the categories which are central for developing any theory and explanations.

Before starting the data analysis and coding process, the first few transcripts were read to gain a general idea and insight about the data. Open coding, as described above, was then performed on the first transcript by reading carefully through the text, highlighting each relevant passage and giving it a code within the NVivo software (70, 72). Each new transcript was handled in the same way but if a new code emerged, all the previous transcripts were reread for material relating to the new code. This "constant comparison" (75) was done throughout the data analysis. After the entire transcript data had been treated in this way and a check had been made to ensure that nothing had been missed, axial coding was performed to explore possible relationships between the categories. These processes (open, axial and selective coding) were primarily conducted by the researcher herself. Her academic supervisors assisted by approving the coding

process and results of the analysis, following study of the raw data, including independent coding of parts. Moreover, throughout the data analysis process, the researcher and her academic supervisors conferred frequently about codes and themes. This process of reflecting on the meaning of the results of the axial coding in order to enhance their interpretation is known as "analytical coding" (60).

The final data analysis stage was selective coding. Here, the core themes were decided upon, and illustrative quotations selected. At this point the evidence to support the theory was also collected (68).

In accordance with guarantees given to participants (see Section 2.3), where quotations from interview transcripts have been included in the chapters of this thesis, they are not linked to personal information and identity.

2.5.9 Grounded Theory Challenges

Two main challenges emerged from the use of grounded theory in this study:

1. It was not easy to start researching the issues inherent in this study without pre-existing theoretical ideas and assumptions about them.
2. It was difficult, in practice, to decide when data saturation had been reached. This was resolved by discussion with the academic supervisers.

2.5.10 Reliability in Qualitative Research

Joppe in 2000 (76) argued that, in quantitative research;

> "The extent to which results are consistent over time and an accurate
>
> representation of the total population under study is referred to as
>
> reliability and if the results of a study can be reproduced under a
>
> similar methodology, then the research instrument is considered to be
>
> reliable." (76).

Measuring reliability for qualitative research is challenging. The main reason is because human nature, opinions and behaviours are not static and consistent. Reliability in qualitative research was referred to by Creswell (2007) as "the stability of responses to multiple codes of data sets" (68). The reliability of the qualitative data in this study was addressed in the following ways:

1. In the data analysis stage, the researcher analysed the data in each transcript independently and then approved her conclusions about the codes and themes that emerged with her academic supervisors.

2. Participants were contacted to confirm the researchers' guesses or feelings related to the transcripts. For example, if the researcher was forced to make a guess about what was meant in an individual or group interview, the participant concerned was contacted to check for accuracy.

3. Each transcript was checked several times against the digital recording from which it had been made.

4. The researcher and a member of the administrative staff made independent transcriptions of the digital recordings and these were then compared.

5. The researcher's experience and background in nursing enabled her to understand the meaning of some interview responses that might have been difficult to understand otherwise.

2.5.11 Validity in Qualitative Research

The validity of research findings usually refers to their generalisability, that is, the extent to which those findings can be applied to other situations (64). However, generalising the findings of a qualitative study is difficult, as the sampling process itself is often purposive and the findings largely contextual. According to Merriam (2009), the validity of a qualitative study must therefore come from the transferability of its findings (60). The best way to achieve transferability is, therefore, to paint as full a picture as possible of the context and findings of the study (77). Another aid to transferability is careful selection of the study sample. Maximum variation is a sampling method (60) which is likely to allow for the application of the study to a wider audience. This variation is achieved by increasing the sites used for a study, choosing a larger number of participants or selecting a typical sample of participants, and purposefully seeking a wide range of variation within the sample (60).

Validity in this study was attempted to be addressed by inviting a relatively large sample of participants from a variety of ward specialities, and by recruiting

participants from two different hospitals. However, there was a lack of variation in the sample of volunteers, which were mainly nurses from surgical background, thus, as indicated, a follow up quantitative questionnaire was used to confirm the findings of the qualitative research. Validity can be also addressed post publication by exploring the resonance of the findings with relevant health care professionals and possibly managers.

2.6 Quantitative Methods

2.6.1 Introduction

Sections 2.2 and 2.5 describe, respectively, the systematic literature review and the qualitative aspects of this research study. They explain the choice of these research methods and the methods used. This section will describe the third and final research method used in this thesis, namely quantitative research using an online questionnaire. This was designed to explore and evaluate the results gained from the qualitative study and to highlight the most influential factors for CPG adherence among nurses.

2.6.2 Why a Quantitative Method?

The use of a quantitative research instrument in the form of an online questionnaire aimed to collect data to evaluate the factors for CPG adherence gleaned from the literature review and the qualitative results obtained from the individual and group interviews. Analysis of the literature and the interviews produced a clear list of the factors that are likely to promote or inhibit adherence

to CPGs. This list was posted to nurses in the form of a survey (online questionnaire) that asked participants to identify which of the list items were, for him or her, the most important barriers and promoters to CPGs adherence. Analysis of the data from this survey would enable the construction of an up-to-date framework for CPG adherence for nurses in the UK National Health Service.

2.6.3 Use of Questionnaires

According to Burford et al. (2009), a "questionnaire allows responsive research to changes in policy and the working environment, from populations of trainees and educators which may be geographically and demographically disparate, and can also provide a useful snapshot of opinions over a short period of time" (78). The use of a questionnaire in this thesis aimed to evaluate nurses' opinions about the qualitative research findings. In addition, it also aimed to make the research findings more representative of all nurses by increasing the number of nurses taking part and the range and variety of their backgrounds and specialisms.

The triangulation of the results of the systematic literature review, the qualitative research and the questionnaire would enhance the validity of the thesis outcomes.

An anonymous questionnaire enables nurses to give their honest views and reduces the pressure to provide positive or negative opinions. Participating nurses were able to log into the questionnaire website and give their answers without

meeting the researcher herself or having any geographical limitation, or time constraints with regard to work patterns. It was anticipated that the quick, easy and self-administered online questionnaire with no time limit for its completion would boost the response rate.

2.6.4 Major Advantages and Possible Disadvantages of Online Questionnaires

Online questionnaires have numerous advantages and possible disadvantages, as argued by many researchers in the literature (79-82). The most positive factors for using an online questionnaire are that it can reach participants without any geographical boundaries, and its flexibility and convenience. Online questionnaires can be administered either by sending an email with the questionnaire in an attached file, or by sending an email with a URL link to the questionnaire (83). The simplicity of this administration can help the researcher to recruit more participants and thus increase the size of the research sample. Online questionnaires can be accessed and answered at a time that is convenient for each participant and they are free to answer the questionnaire without any time, location or power restraints (83). Moreover, an online questionnaire is cost effective for the researcher, as it does not require using the postal services or interviews (83).

However, online questionnaires have some potential disadvantages, such as the email being labelled as 'spam', unclear answering instructions, their impersonal nature, and privacy and security issues (84). An online questionnaire is more likely to be considered as 'spam' email if it is sent to a large number of participants at once. Participants who are unclear about how to answer the questions are unable to ask for help as the researcher is not physically available. Moreover, participants may question the confidentiality of their answers and how they will be used. This research attempted to overcome these disadvantages. An email was sent to participants with an information sheet about the study. The questionnaire was validated and piloted (see below) before it was sent to participants to test the clarity of the answering instructions. Finally, all participants received an information sheet which explained the study and the confidentiality of its results before they received the questionnaire.

2.6.5 Questionnaire Design

The most common sub-themes from the qualitative studies were reworded into statements and incorporated into a survey with a five-point Likert scale. The questionnaire consisted of two sets of questions (Appendix 3d). The first set aimed to identify the most influential promoters of CPGs adherence while the second set was designed to find the most influential barriers to CPGs adherence. This approach was used because it was important to have feedback from a large group of nurses on the factors promoting and inhibiting CPG adherence suggested by the results of the systematic literature review, interviews, and focus groups. This evidence when analysed statistically would support or challenge the findings

from the other two main parts of the research. For each questionnaire item, participants were asked to rate their agreement or disagreement with a statement using a five-point Likert scale. They were also given the option of writing comments about their answers; however, none of the nurses did this.

The structure, content and language of the questionnaire were validated by eight health professionals, including doctors and nurses, within the School of Medicine, Pharmacy and Health at Durham University. This validation process aimed to ensure that the questionnaire was presented as a clear, simple and easy to understand document (78).

2.6.6 Questionnaire Validity

Validity can be defined as "the degree to which an assessment measures what it is supposed to measure" (78). The types of questionnaire validation used for this quantitative instrument were face and content validity, which entails the evaluation of a predesigned questionnaire by professionals who have expertise in the field of the research itself (78). In the context of this research, it is very important that the questionnaire provided a valid assessment of nurses' opinions and experience.

Feedback received from the evaluators of the questionnaire was used to enhance the quality and clarity of its content and design. It also enlightened the researcher about the perceptions that participants might have about the questions and the meaning behind each question. Moreover, the results of the research were also fed back to nurses to check the validity of the findings.

2.7 Confidentiality

The Data Protection Act was adhered to with regard to interviews, focus groups and questionnaire results, as described in Section 2.5 and elsewhere.

2.8 Physical Security Arrangements for Storage of Personal Data

All personal information about the participants was collected directly from the participants themselves. The raw data were kept in secure storage (i.e. a locked filing cabinet) within the School of Medicine, Pharmacy and Health, Holliday Building, Durham University. All participants were given a unique identifier to maintain his or her anonymity. The only circumstances in which this code could be broken was if, after the initial data analysis, it was necessary to re-interview a particular participant; then the code could be broken by the researcher so that the participant could be re-contacted.

Only the researcher (and her academic supervisors in principle, though this was never required in practice) had access to the participants' personal information,

such as name, telephone number and email address, and this was anonymised during entry into the spreadsheet. To ensure the anonymity of the participants, as already described, the list of unique identifiers against names was kept on a spreadsheet and saved on a secure, password protected computer within the university and the researcher was the only person who had access to it.

2.9 Risks, Burdens and Benefits

Risks, potential hazards or adverse effects on participants were considered and it was concluded that these were unlikely to occur. Participants could be embarrassed by revealing guideline breaches; however, because these would not be reported to the employer except in the cases outlined below, no harm could come to individuals.

All participants were informed that the results of the interviews, focus groups and returned questionnaires would be anonymous and would not be fed back to their employer on an identifiable basis. However, prior to the interviews and focus groups, the participants were invited to describe any failures to adhere to guidelines which they had observed or had become aware of, and to indicate the possible reasons for these.

In some cases, participants choose to describe an incident in which they were involved, but in the third person. Alternatively, they described breaches as theoretical situations, rather than as actual ones. Participants were informed that any accounts in the first person which involved potential breaches of professional conduct or the criminal law (e.g. the deliberate administration of a lethal overdose) would have to be reported to the hospital's senior management, in accordance with the universally enjoined practice in health care. However, since the purpose of this research was to identify factors promoting and inhibiting guideline adherence, it was essential to give participants the opportunity to describe breaches of guidelines in a safe and confidential environment, without automatic retribution for honest reporting.

2.10 Reflexivity

Reflexivity refers to "recognition of the influence a researcher brings to the research process. It highlights potential power relationships between the researcher and research participants that might shape the data being collected" (75). Therefore, it is important to address reflexivity and possible biases and how these problems might be avoided or minimised.

Based on Finn's 2010 explanation of reflexivity, this section will be written to reflect the researcher's own views and how they may have influenced the study (70).

I have conducted both the one-to-one interviews and the focus groups as a nurse registered with the NMC, so nurses were able to discuss their work using medical and professional terminology. This language was easier to use and understand for both the participants and for myself. However, while conducting the interviews, I approached participants as a researcher and not as a nurse. This reduced the effect of any perceived power or location relationship that may have influenced the conduct of the interview and its results (85). I explained to the interviewees that I was a nurse from the outset of the interviews and focus groups and my role whilst carrying out the interviews was that of a researcher and not that of a nurse. Platt in 1981 (86) highlighted a possible ethical dilemma that might arise by interviewing colleagues working in the same setting; this might affect the research process in terms of institutional pressure and confidentiality. It was important, therefore, to ensure that a relationship of trust and ethical sensitivity relating to any disclosure existed both during and after the interviews (86) and this was achieved throughout.

My experience as a registered nurse provided a wide knowledge of clinical guidelines and their importance in the health care setting. My understanding and experience of how effective clinical guidelines can improve the quality of care and promote patient safety gave me a unique insight and invaluable prior knowledge, which helped to focus and guide this study.

In addition, my status as a qualified and experienced nurse and my ability to empathise with nurses' experiences is likely to have strengthened my interaction with the nurse participants and resulted in higher quality data. Of course, this could have led to bias within the study, but I was clear throughout the study that my role was that of an investigator, and that it was essential to maintain neutrality. In spite of this, it is acknowledged that I had previously formed the view that time and work pressure might be important barriers to adherence to CPGs. This means that there is still a chance of reflexivity or bias in the themes that emerged from the interviews and focus groups. In addition, my previous knowledge of Cabana's framework (10) may have biased the analysis of the data. Moreover, my background as a registered nurse not only had the potential to impact on how participants engage with me, but also how the collected data was interpreted. As this study employed content analysis using grounded theory, this choice of method acknowledged that I may have presuppositions of which I am not aware (68). I used grounded theory as an inductive process by which I sought to gather data to build a theory, rather than deductively testing a hypothesis, therefore potentially reducing the bias to which data may be subject.

Chapter 3: Systematic Literature Review

3.1 Background

Chapter 2 outlined the methodology used to conduct a systematic review of the existing literature to find factors that promote and inhibit adherence to clinical practice guidelines among doctors, nurses and AHPs. This chapter presents the results of that review; firstly the barriers to CPG adherence, and then CPG adherence promoters. It will also compare the results obtained for doctors, nurses and AHPs to examine whether there are any differences between these three groups with regard to CPG adherence barriers or promoters.

3.1.1 Systematic Literature Review Aim and Objectives

The main aim of this systematic review is to identify and compare barriers and promoters for CPG adherence among doctors, nurses and AHPs.

The objectives are:

a) to identify which barriers and promoters for CPGs occur most frequently among doctors, nurses and AHPs;

b) to analyse the findings in order to identify the similarities and differences in CPG adherence by doctors, nurses and AHPs

3.2 Methodology

An introduction to the systematic literature review methodology was outlined in Chapter 2 section 2.2. The search strategy, with inclusion and exclusion criteria, was also outlined. This section and also Section 3.3 will re-introduce and expand on this methodology.

3.2.1 Types of Clinical Practice Guidelines

Adherence to clinical guidelines had slightly different meanings across the articles that have been reviewed. For example, some articles related adherence to a specific clinical guideline (hand washing), some relate it to treatment of a clinical condition (pneumonia) and others relate it to a collective number of guidelines on patient care and other clinical conditions. Thus, if a study did not state its specific target group, regardless of whether it was a specific guideline or a collection of clinical guidelines, it was placed in the category of articles that covered all health care professionals (see section 2.2.3.1). In most of the studies reviewed, doctors seemed to be the main target group.

3.2.2 Search Strategy

Cabana's (10) search strategy was adopted and updated to suit the search strategy of this thesis. The databases used were the British Nursing Index (BNI), Medline and Cumulative Index to Nursing and Allied Health Literature (CINAHL). To find articles that describe factors promoting and inhibiting adherence to clinical guidelines, two searches were conducted within the BNI database (see Table 3.1).

Cabana's main themes for CPGs adherence among doctors were knowledge, attitudes, and behaviours. All barriers abstracted from the included articles were categorised into common themes, and then further classified into groups based on whether not or they influenced doctors. The organisation of these groups was based on a model that describes an ideal, general mechanism of action for guidelines, the knowledge, attitudes, behaviour framework .

My reasoning for making use of Cabana's initial search strategy was because his work proved to be very suitable for my research aims and objectives. However, this was expanded in my research as Cabana's work was based only on doctors and my literature added nurses and AHPs.

In the first search, the descriptors used were *clinical practice guidelines* and *practice patterns*. The second set of descriptors were *behavior/behaviour*, *knowledge* and *attitudes*; *practice*, *attitude of health personnel*, *guideline adherence*; and the text words *behavior/behaviour change.* Subsequently, a manual search was made of the bibliographies of all the studies revealed by these two searches, including those studies eventually excluded from the analysis but still closely related to the research topic. This same search strategy/terminology was then applied to the Medline and CINAHL databases.

Table 3.1: Search strategy in BNI and then adapted for Medline and CINAHL

database search, adding 'doctor*' and 'allied health professional' as options.

Search strategy in BNI
#1. clinical practice guidelines.mp.
#2. practice patterns.mp.
#3. behavior and behaviour.mp. [mp=title, abstract, full text, caption text]
#4. knowledge.mp. [mp=title, abstract, full text, caption text]
#5. attitudes.mp. [mp=title, abstract, full text, caption text]
#6. practice attitude.mp. [mp=title, abstract, full text, caption text]
#7. guideline adherence.mp. [mp=title, abstract, full text, caption text]
#8. behavior change and behaviour change.mp. [mp=title, abstract, full text, caption text]
#9. 1 or 2 or 3 or 4 or 5 or 6
#10. 1 or 3
#11. 9 and 10
#12. guideline adherence.mp. or exp Guideline Adherence/
#13. exp nurses/ or exp nursing staff/
#14. 10 or 11
#15. 9 and 13 and 14
#16. limit 15 to (English language and humans)

3.2.3 Inclusion Criteria

For ease of reference, the eligibility criteria previously described in Section 2.2.3

are reintroduced in this section. The following three main criteria were used to

identify and include studies in this review: the types of studies, the types of

participants and the types of outcome measures.

3.2.3.1   Types of Studies:

Articles had to be written in the English language, relate to medical, nursing, or

allied health professionals and deal with adherence to clinical guidelines.

Qualitative, quantitative and triangulation studies were all included.

The selection of articles was not limited to any specific setting (e.g. medical, surgical), intervention (e.g. hand washing) or provider (e.g. hospital). This ensured that all potential eligible studies were included in this review.

3.2.3.2   Types of Participants:

Articles had to deal with adults of working age, that is, those between 16 and 64 years old since this is the typical employment age in countries worldwide. Also, the study's participants had to be doctors, nurses or AHPs since these were the focus for this systematic review. AHPs are defined as clinical health care professionals, such as physiotherapists, radiologists and nutritionists, who work in health care teams.

3.2.3.3   Types of Outcomes Measures:

Articles had to have primary outcome measures dealing with factors which promote or inhibit adherence to CPGs. Articles were selected if they discussed at least one factor that focussed on clinical guidelines or clinical policies, or which examined at least one factor that inhibited or promoted clinical adherence among doctors, nurses or AHPs.

. Table 3.2 summarises the results of the searches of the BNI MEDLINE and CINAHL databases.

Table 3.2: Total number of potential articles found in databases

Data base	Relevant references
BNI	87
MEDLINE	278
CINAHL	28
TOTAL	393

Section 3.3 will give a brief overview of the data collection, including study selection and data extraction, followed by a detailed description of the selected studies in section 3.4, and an analysis of the findings in section 3.5.

3.3 Data Collection

3.3.1 Study Selection and Retrieval Process

The selection process took place in two steps as follows:

1. Screening by articles' title and abstract

The title and abstract of all the publications identified by the searches described in section 3.2 were screened for relevance to the aims of this research. Identification and screening was performed primarily by the researcher. If it was difficult to make a selection decision based on the title and abstract alone, the full text of the article was screened.

2. Full text review

For those articles selected on the basis of title and abstract, the full text was then reviewed in order to exclude articles that did not fulfil the inclusion criteria.

3.3.2 Data Extraction

The data extraction methods used in this thesis was designed to extract only the necessary data from the selected studies, and ensure that it was done accurately and without bias. As advised by Clarke and Oxman in 2000 (49), such data extraction is best done by using a data extraction form, which has three main functions. First, it bridges the gap between the included studies and the systematic review itself; secondly, it creates a historical record of the search process and acts as the repository for the data from which the analysis will be made; and finally, it provides the information tables that are needed to summarise the articles that relate to the research subject.

The data extraction form used in this research (see Appendices 3a and 3b) was designed to gather both general information about the selected publications, and some specific information about each study that was directly linked to the review question, the quality assessment checklist and the planned descriptive analysis (49). It included the following information:

a. Year and date

b. Name of the author/s

c. Name of the journal and the date of publication

d. Study design

e. Target group

f. Main findings including the type of barrier and/or promoter

Each study was given a unique identification number. All the data extracted from the selected studies were organised in spreadsheets (see Appendices 3a and 3b). Data were then categorised into two main groups: CPG promoters and CPG barriers and then divided into three sub-categories in addition to the comparison group:

1. Promoters/ barriers among doctors
2. Promoters/barriers among nurses
3. Promoters/barriers among AHPs.
4. Comparison between the three groups

All the processes of the systematic literature review, including the criteria for inclusion or exclusion and the extraction methods were approved by my academic supervisors.

Included articles were scanned first for their titles and abstracts before the full articles were ordered. All included and excluded articles were examined by supervisors to check their eligibility for the study, and any doubt or possible discrepancy was resolved by reference to the original article. Then, the selected studies were doubled checked against the inclusion criteria (types of studies, participants and outcome measures; see section 3.2.3). If abstraction differences arose, these were resolved through discussion with the academic supervisors and reference to the original study. However, the involvement of the researcher's academic supervisors was only through discussion and agreement on the

processes of selection, extraction, arriving at definitions, data analysis and detailing the results. Double checking and re-checking with the supervisors took place at all stages of the systematic review.

3.4 Results and Discussion

Traditionally, discussion of the data follows the results. However, as this is a qualitative study, it is difficult to separate the two. In this section, data gleaned from the literature review are presented and discussed in parallel with the results.

The initial screening process for the BNI, Medline and CINAHL databases identified 393 studies that were potentially relevant to this research topic and the manual search of the bibliographies of these studies produced an additional 33. An initial investigation, based on title and abstract, of these 393 studies reduced this number to 282 articles, of which 20 articles were found to be duplicates and a further 69 were excluded because they did not meet the inclusion criteria. The resulting 226 studies were then subjected to a full text and abstract review. Table 3.3 summarises this selection and filtering process and Appendices 3a and 3b shows all the studies finally selected for the systematic review.

Table 3.3 The selection and filtering process of BNI, Medline and CINAHL databases

	BNI	Medline	CINAHL	Total
Total number of potential articles	87	278	28	393
Selected articles based on the title	39	223	20	282
Articles selected from bibliography	7	26	0	33
Remove Duplicate articles	4	14	2	20
Excluded articles based on the abstract and full article	13	49	7	69
Total number of included articles	29	186	11	226

Table 3.4, below, summarises the three main participant groups featuring in the

studies included in the systematic literature review.

Table 3.4 The number of selected studies dealing with doctors, nurses and allied health professionals.

Study group	Total Number of papers
Studies featuring doctors	119
Studies featuring nurses	26
Studies featuring AHPs	81
Total	226

It is interesting to note that most (119) studies on adherence to CPGs concerned

doctors, whereas only 81 dealt with AHPs and 26 dealt with nurses.

The analysis of the 226 articles identified 12 CPG adherence promoters and 43

CPG adherence barriers. Each promoter and barrier was classified into common

themes, which were then described and defined independently. Tables 3.5 and 3.6

summarise the categories and the description of the barriers and promoters found in the included studies.

Table 3.5: Categories and definitions of the barriers of doctors', nurses' and allied health professionals' adherence to clinical practice guidelines

Factors		Description
ENVIRONMENTAL FACTORS		
Patients		Patients' clinical condition and characteristics
	Patient condition	Patients' clinical condition not meeting the guideline recommendations.
	Patient choice	Patient choosing not to accept a specific guideline, especially when he/she is used to a treatment that is no longer recommended.
Guidelines		The guideline itself, including lack of consistency, an evidence-base or dissemination; ambiguity; applicability; and disagreement among policy makers who actually wrote these guidelines.
	Consistency	Lack of consistency across health organisations, regionally, nationally or internationally.
	Evidence base	Lack of evidence-base to support guidelines.
	CPG dissemination	Lack of dissemination of CPG.
	Reminders	Lack of reminders and memos.
	CPG ambiguity	Lack of clarity or not explaining the scientific evidence about why health care professionals should implement a guideline.
	Applicability	Difficulty of applying CPGs to specific clinical situations.
	Rigidity and inflexibility	Guidelines failing to meet all patients' conditions and clinical situations due to rigidity.
	Policy makers	Experts who are responsible for developing clinical guidelines (e.g. nurses prefer guidelines written by nurses).
Organisation		Organisational constrains, such as lack of team work, communication, training and education, accessibility, resources, funds, staffing and time; and ward speciality.
	Team Work	Lack of team work across health care professions.
	Communication	Lack of communication across health care professions.
	Training and Education	Lack of training and education to keep up to date with guidelines and to improve knowledge and skills.
	Accessibility	Lack of access to clinical guideline, including providing accessibility means for guidelines.
	Resources	Lack of resources, such as equipment and tools necessary to implement the guidelines.
	Funds	Limited funds due to insufficient allocation or cost-cutting.
	Staffing	Insufficient staff on the ward.
	Time	Lack of time to read and implement CPG.
	Ward speciality	Demands of particular work setting or speciality.
PERSONAL FACTORS		Doctors, nurses' and AHPs internal factors can be influenced by their attitudes, intentions, knowledge and skills.
Attitude		The way health care workers behave, as shown by saying or doing something.
	Autonomy	Decrease autonomy.
	Disagreement	Not agreeing with a specific guideline or lacking confidence in policy makers.
	Awareness	Lack of awareness.
	Belief	Simply not believing in the guidelines even when faced with the best of evidence that a therapeutic option is highly recommended. Also beliefs that implementing a CPG will increase cost or even reduce cost.
	Outcome Expectancy	Belief that adhering to a clinical guideline will not lead to expected outcome.
	Familiarity	Familiarity of implementing guidelines
	Habit and routine	Frequent routines of behaviour that are repeated regularly and tend to occur subconsciously.
	Resistance to change	Refusing to change and constantly adopting the old practice.
Intention		Doctors, nurses' and AHPs intended actions to achieve a certain aim and goal.
Knowledge		Lack of knowledge and information about CPG.
Skills		Lack of skills competence and experience.

As shown in Table 3.5, the possible barriers to CPG adherence revealed by the systematic review were categorised as relating to either environmental factors or personal factors. Environmental factors were issues related to patients, the guidelines themselves or organisational features. The personal factors related to the health care professionals themselves, including their attitudes, intentions, knowledge and skills. The results were further sub-analysed according to doctors, nurses and AHPs independently, based on these themes (see tables 3.7, 3.8 and 3.9).

The same approach was applied for promoters of guideline adherence and the results are shown in Table 3.6.

Table 3.6: Categories and definitions of promoters of adherence to clinical practice guidelines

Factors	Description	
ENVIRONMENTAL FACTORS		
Guidelines	Promoters related to the guidelines themselves.	
	Applicability	Easy to use and practical in practice
	Clarity	Easy to understand and containing relevant information. Also stating and explaining the scientific evidence for the guideline.
	CPG format	Presentation in multiple formats, such as short pamphlets, short summaries and pocket cards.
Organisational factors	Promoters related to the organisation.	
	Reminders	Providing more reminders and memos.
	Decision support	Providing decision support for health care workers.
	Support and encouragement	Providing psychological support and encouragement to adhere to clinical practice guidelines
	Audit and feedback	Audit and feedback.
	Supervision	Providing supervision while health care workers are implementing guidelines.
	Team work	Teamwork and sharing knowledge and skills.
PERSONAL FACTORS		
Attitude		
	Agreement	Agreeing with the specific guidelines and also having confidence in the policy makers.
	Outcome expectancy	Believing that a clinical guideline will lead to expected outcome.
	Belief	Belief that it will improve knowledge
Knowledge	Improve knowledge, good educational tool.	

The promoters of CPG adherence were categorised according to the same environmental and personal factors as the barriers to guideline adherence, to allow direct comparison.

So far, section 3.3 has identified the barriers to and promoters of CPG adherence among doctors, nurses and AHPs as separate groups of health care professionals. The following sections will investigate whether there are any differences between these three groups. It will deal with the barriers to guideline adherence first and then with the promoters.

It is important to note that there are marked differences between nurses and doctors with regards to factors that promote and inhibit adherence to CPGs, but there appears to be only a slight difference between nurses and AHPs (see Figures 3.4 and 3.8). This can be due to many reasons. There are major differences in the roles, years of study, salary and responsibilities of doctors compared with nurses and AHPs, despite the fact that they work side by side to deliver the best care for patients. The Nursing Online Education Database (87) indicates the main difference between nurses and doctors is in their job descriptions. A doctor's main role is examining and diagnosing patients while nurses have a more hands-on role with physically and emotionally treating a patient based on the doctor's diagnosis. Both have essential roles in delivering better quality of care but their different roles may influence differences in their CPG adherence. Role difference may also explain some of the differences between both doctors and nurses and AHPs.

3.4.1 Barriers to Guideline Adherence by Doctors

The barriers to CPG adherence by doctors varied according to the particular guideline, with each key recommendation having a unique pattern of barriers. These are summarised in Figure 3.1.

The derivation of percentages on all the listed tables below are based on the frequency of promoters or barriers for adherence (%) of occurrence in the total number of reviewed articles, and the emerging themes were prioritised based on these frequencies. Based on Table 3.7, and summarised in Figure 3.1, doctors perceived that the main barriers to CPG adherence related to environmental factors, of which the dominant ones were organisational factors (28.4%) and guideline related factors (24.5%)

Also shown in Table 3.7, within the organisational factors, lack of training and education (6.1%) and lack of time (4.6%) were the barriers to CPG adherence most commonly cited. Ward speciality (0.4%) was rarely mentioned.

Interestingly, within the guideline related factors, the most common barriers cited were a lack of evidence-base in the CPG (6.6%), disagreement with the policy makers (4.4%) and lack of CPG dissemination (4.1%). Lack of consistency (1.7%), ambiguity of CPG (1.7%) and lack of reminders (1.5%) were the least important.

Figure 3.1: Barriers to guideline adherence among doctors
(Refer to Table 3.7 for a further breakdown of each category).
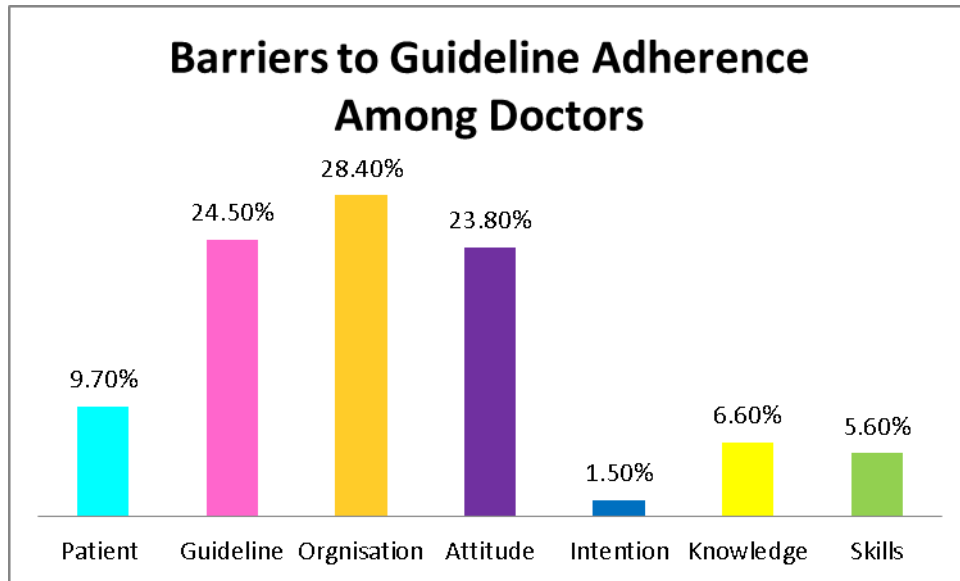
Personal factors were also barriers to CPG adherence among doctors, with attitude

accounting for (23.8%); this included resistance to change (5.8%), doctors'

disagreement with particular CPGs (4.6%), lack of familiarity with the CPG

(3.3%), habit and routine (3.2%). The least common barriers were factors related

to lack of awareness (1.9%) and lack of outcome expectancy (0.7%). Doctors

believed that guidelines decreased autonomy (2.2%). The least common group of

personal factor barriers were lack of knowledge (6.6%) and lack of skill (5.6%).

Table 3.7 summarises the total number of themes of barriers to guideline

adherence amongst doctors and the frequency of occurrence in the reviewed

studies.

Table 3.7: Barriers to guideline adherence among doctors.

The total number of themes of barriers to guideline adherence amongst doctors and the frequency (%) of occurrence in the reviewed articles.

Organisation	Training & Education	Time	Accessibility	Resources	Support	Communication	Staffing	Funds	Team Work	Ward Speciality
28.4%	6.1%	4.6%	3.6%	3.6%	3.2%	2.2%	1.5%	1.5%	0.7%	0.4%

Guideline	Evidence base	Policy Makers	CPG Dissemination		Rigidity & flexibility		Applicability	Consistency	CPG ambiguity	Reminders
24.5%	6.6%	4.4%	4.1%		2.7%		1.9%	1.7%	1.7%	1.5%

Attitude	Resistance to change	Disagreement		Familiarity	Habit &Routine	Autonomy	Belief	Awareness	Outcome Expectancy
23.8%	5.8%	4.6%		3.3%	3.2%	2.2%	2.1%	1.9%	0.7%

Patient	Patient Choice	Patient Condition
9.7%	7.3%	2.4%

Knowledge
6.6%

Skills	Skills	Competence
5.6%	3.3%	2.3%

Intention
1.5%

3.4.2 Barriers to Guideline Adherence by Nurses

Interestingly, the reviewed studies showed that, like doctors, nurses perceived organisational issues as the most common barrier to CPG adherence, with (45.6%) of the relevant articles citing this (see Figure 3.2). Within these citations, lack of training and education (11.7%) was the single most influential barrier to adherence, followed by lack of time needed for implementing the CPG (6.7%). See Table 3.8.

Barriers to CPG adherence relating to attitude (16.2%) were of similar importance to guidelines related factors (14.7%). Lack of outcome expectancy (4.7%) and nurses' resistance to change (4.4%) were slightly more influential barriers than disagreement with the guideline (1.3%), belief (1.2%) and lack of autonomy (0.1%). See Table 3.8. Within the guideline category of barriers to clinical guideline adherence, lack of evidence base (4.0%) was a stronger barrier to adherence than CPG consistency (2.8%). CPG ambiguity, rigidity and lack of reminders and dissemination were all equally unimportant barriers to CPG adherence, with only 1.5% of articles reporting them as barriers. Nurses' intention was not considered as a barrier for adherence. See Table 3.8

Figure 3.2: Barriers to guideline adherence among nurses
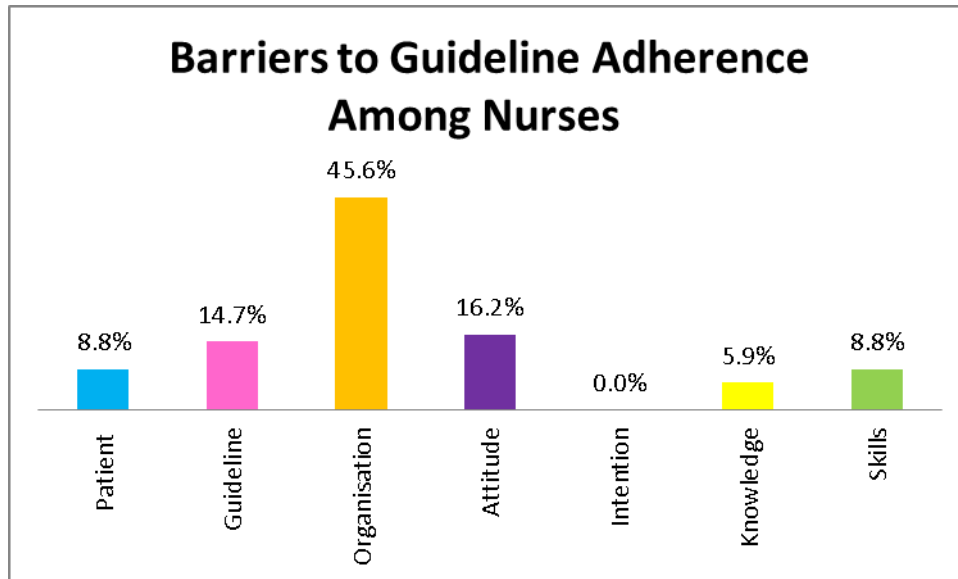
Barriers posed by patients (8.8%) were not as influential as those caused by attitudes (16.2%) and the guidelines themselves (14.7%). Barriers relating to lack of skills (8.8%), and knowledge (5.9%) were the least common barriers for CPG adherence among nurses. Table 3.8 summarises these results of the review for barriers to CPG adherence for nurses and their frequency within the identified categories.

Table 3.8: Barriers to guideline adherence among nurses.

The total number of themes of barriers to guideline adherence amongst nurses and the frequency (%) of occurrence in the reviewed articles.

Organisation	Training & Education	Time	Resources	System	Staffing	Access	Ward Speciality	Communication	Team work	Support	Funds
44.4%	11.7%	6.7%	6.3%	5.4%	3.8%	2.5%	2.5%	2.5%	2.1%	0.8%	0%

Attitude	Outcome Expectancy	Resistance to change	Awareness	Habit and Routine	Familiarity	Disagreement	Belief	Autonomy
16.2%	4.7%	4.4%	1.5%	1.5%	1.5%	1.3%	1.2%	0.1%

Guideline	Evidence base	Consistency	Applicability	Reminders	CPG ambiguity	CPG Dissemination	Rigidity and flexibility	Policy Makers
14.7%	4.0%	2.8%	1.5%	1.5%	1.5%	1.5%	1.5%	0.4%

Skills	Competence	Skills
8.8%	5.0%	3.8%

Patient	Patient Choice	Patient Condition
8.8%	4.4%	4.4%

Knowledge
5.9%

Intention
0.0%

3.4.3 Barriers to Guideline Adherence by Allied Health Professionals

As for doctors and nurses, organisational barriers (43.7%) were considered as the most influential barrier to CPG adherence among AHPs (see Figure 3.3). Within this category (see Table 3.9), training and education (9.7%) followed by lack of time (7.8%) and resources (6.8%) were the most commonly cited barriers. The least common barriers within this category were lack of communication (2.4%), lack of support (1.5%) and lack of funds (0.8%). Among the personal factors, attitude (18.4%) was the most influential barrier to CPG adherence. The most influential attitudinal barrier was lack of awareness (5.3%) followed by lack of belief (3.9%) but AHPs resistance to change (0.5%) was rarely cited as a barrier to guideline adherence.

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Figure 3.3: Barriers to guideline adherence among allied health professionals
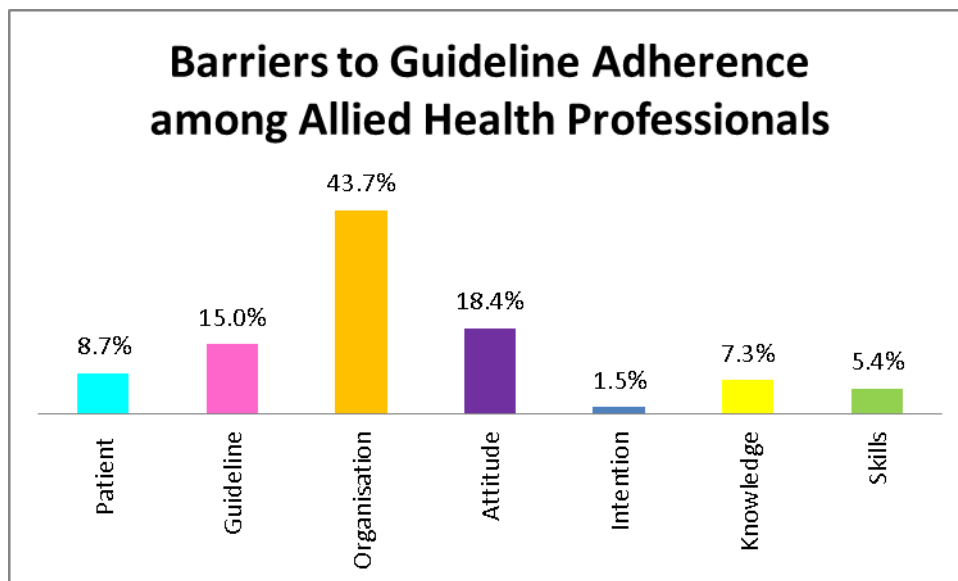
Interestingly, none of the reviewed studies that applied to AHPs mentioned CPG ambiguity as a barrier to CPG adherence. However, lack of an evidence base (3.9%), inapplicable guidelines (2.9%) and lack of guideline dissemination (2.4%) were all considered as barriers. Patient factors (8.7%), including patient choice (4.4%) and patient condition (4.3%), were

considered stronger barriers than personal factors, such as knowledge (7.3%), skills (5.4%)

and intention (1.5%). Table 3.9 summarises the themes and the frequency of occurrence of

barriers to CPG adherence among AHPs.

Table 3.9: Barriers to guideline adherence among allied health professionals

The total number of themes of barriers to guideline adherence amongst AHPs and the frequency (%) of occurrence in the reviewed articles.

Organisation	Training & Education	Time	Resources	Accessibility	Staffing	Team Work	Ward Speciality	Communication	Support	Funds
43.7%	9.7%	7.8%	6.8%	4.4%	3.9%	3.9%	2.5%	2.4%	1.5%	0.8%

Attitude	Awareness	Outcome Expectancy	Belief	Agreement		Habit and Routine	Familiarity	Autonomy	Resistance to change
18.4%	5.3%	3.9%	2.9%	1.9%		1.9%	1.0%	1.0%	0.5%

Guideline	Evidence base	Applicability	CPG Dissemination	Rigidity & flexibility	Consistency	Policy Makers	Reminders	CPG ambiguity
15.0%	3.9%	2.9%	2.4%	1.9%	1.5%	1.5%	1.0%	0.0%

Patient	Patient Condition	Patient Choice
8.7%	4.4%	4.3%

Knowledge
7.3%

Skills	Competence	Skills
5.4%	2.9%	2.5%

Intention
1.5%

3.4.4 Comparison of All Types of Barriers to Guideline Adherence among Doctors, Nurses and Allied Health Professionals

There are many barriers to CPGs adherence among doctors, nurses, and AHPs. According to Colo et al. in 2007 (29), lack of communication between team members and nurses themselves as well as the lack of training ware considered as one of the main barriers for adherence (29). This is also evident in the work of Roe et al. in 2001 (88) and Clarke in 2005 (89) where the lack of supervision from senior nurses, and the necessity of acquiring computer skills to study and implement new guidelines, were identified as barriers (88, 89). Moreover, a patient's clinical condition which sometimes does not accord with the CPG can be considered as a barrier to following CPGs, according to nurses who participated in a study by Miller et al. in 2008 (90).

All groups agreed that organisational factors were the most common barrier for adherence to CPGs and, within this, that lack of education and training was the most important issue. However, differences were observed between doctors on the one hand, and nurses and AHPs on the other. Doctors emphasised patient choice as a barrier to GPG adherence (Table 3.7), whereas nurses and AHPs considered lack of training and education as the most important barrier for adherence and lack of time as the second most important barrier for adherence (Tables 3.8 and 3.9).

Figure 3.4: Comparison of all types of barriers to guideline adherence among doctors, nurses and allied health professionals
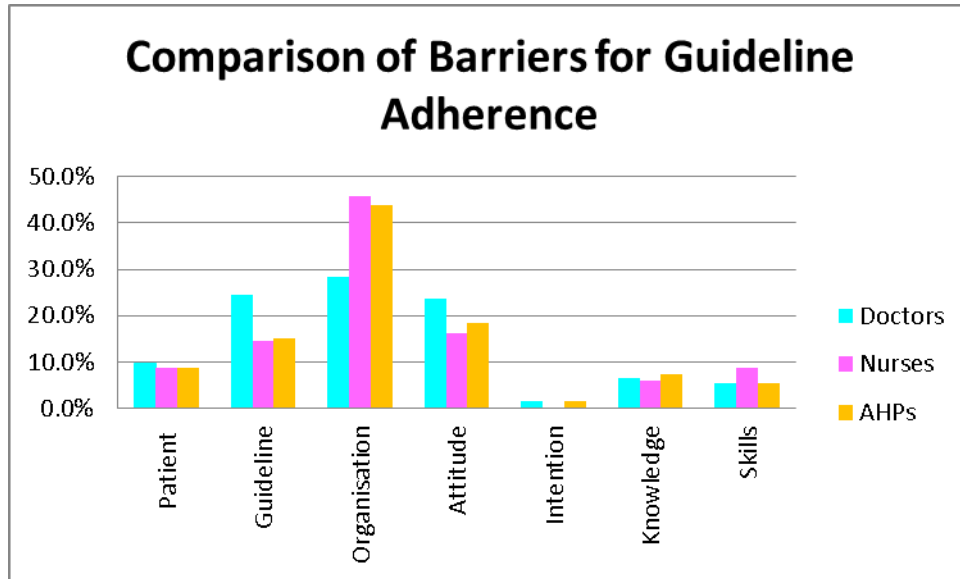
In addition, there was a difference between doctors on the one hand and nurses and AHPs on the other hand in the importance they attached to the CPGs themselves as barriers to CPG adherence.

3.4.5 Promoters to Guideline Adherence for Doctors

As shown in Figure 3.5, the most common promoters for CPG adherence among doctors related to environmental factors. This included both organisational factors (37.1%) and factors related to the CPGs themselves (30.3%).

Figure 3.5: Promoters for clinical practice guideline adherence among doctors
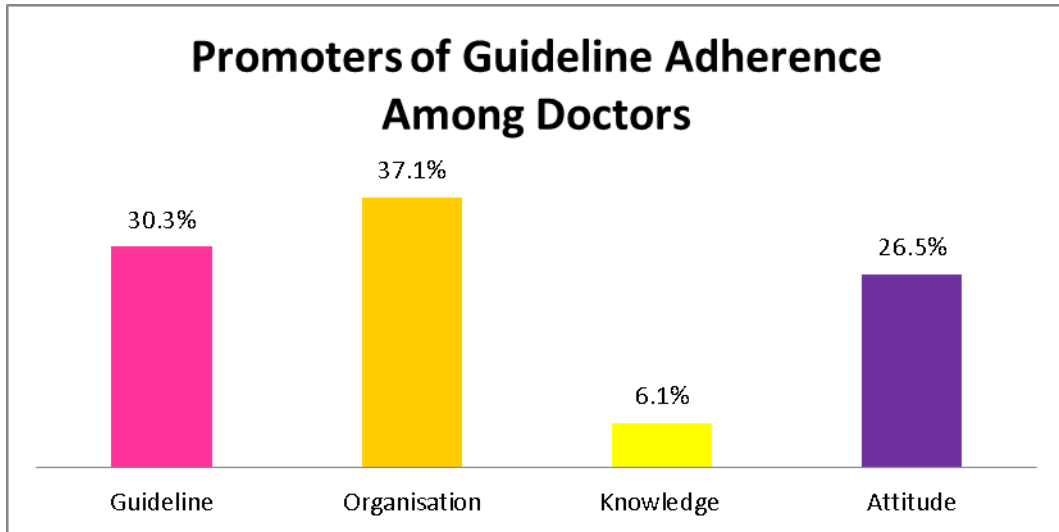
As shown in Table 3.10, within the organisational category, providing audit and feedback (11.4%) and supervision (8.3%) were the most influential CPG adherence promoters among doctors. Providing decision support and team work (2.3%) were both the least cited promoters.

Table 3.10: Promoters of guideline adherence among doctors

Organisation	Audit & Feedback	Supervision	Reminders	Support & encouragement	Decision Support	Team work
34.8%	11.4%	8.3%	4.5%	3.0%	2.3%	2.3%

Guideline	CPG Format	Applicability	CPG Clarity
30.3%	18.9%	6.8%	4.5%

Attitude	Agreement	Outcome Expectancy
26.5%	23.5%	3.0%

Knowledge
6.1%

Within the guidelines category, the most common CPG promoter was guideline format (18.9%), followed by its applicability (6.8%) and its clarity (4.5%). Personal factors in total were considered less important promoters for adherence among doctors. Interestingly, the most influential promoter was doctors' personal agreement with the guideline (23.5%). Only 6.1% of the studies cited, as a promoter, having the knowledge to implement the guideline. See Table 3.10.

3.4.6 Promoters to Guidelines Adherence for Nurses

Promoters for CPG adherence among nurses appear to differ from those for doctors. As shown in Figure 3.6, the majority of reported promoters were environmental factors, including organisational promoters (89.3%).

Figure 3.6: Promoters of guideline adherence among nurses
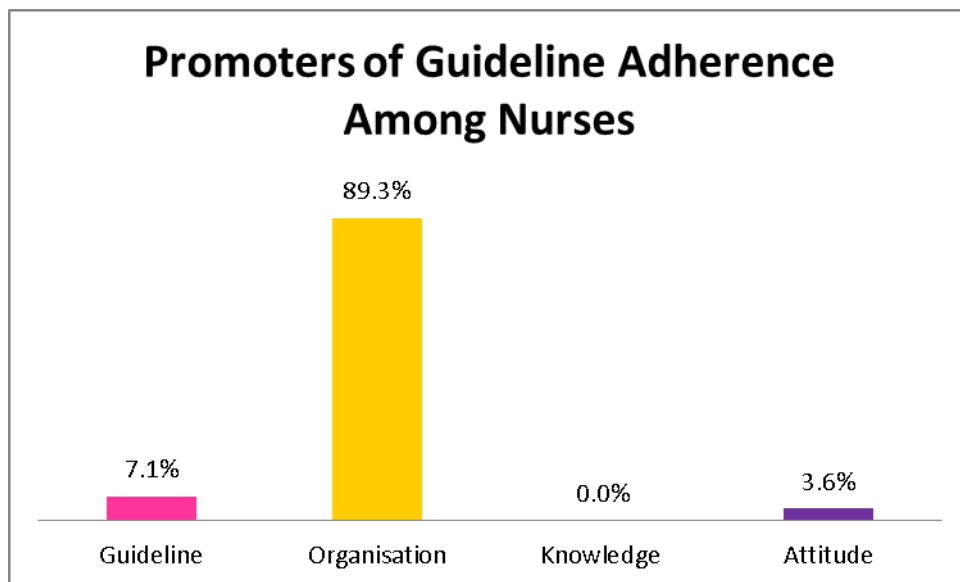
As shown in Table 3.11, the provision of decision support (28.6%) was the most important promoter for CPG adherence among nurses, followed by audit and

feedback and supervision (21.4%). Team work across the organisation (10.7%) was considered more important than providing reminders (7.1%). According to the reviewed studies, psychological support and encouragement was not considered as a promoter of adherence.

Table 3.11: Promoters of clinical practice guideline adherence among nurses

Organisation	Decision support	Audit & feedback	Supervision	Team work	Reminders	Support & encouragement
89.3	28.6%	21.4%	21.4%	10.7%	7.1%	0.0%
Guidelines	CPG format	CPG clarity	Applicability			
7.2%	3.6%	3.6%	0.0%			
Attitude	Agreement	Outcome expectancy				
3.6%	3.6%	0.0%				
Knowledge						
0.0%						

With regard to guidelines factors (7.1%), the way the guideline was formatted (3.6%) was considered as important as CPG clarity and simplicity (3.6%). CPG applicability was not considered as a promoter for adherence among nurses. Interestingly, there was little mention of personal factors in the reviewed studies. Having the knowledge to implement a guideline was not mentioned as a promoter for CPG adherence (Table 3.11). Likewise, lack of knowledge was not seen as an important barrier to CPG adherence either (Table 3.8).

3.4.7 Promoters to Guideline Adherence for Allied Health Professionals

Of the total of 226 studies reviewed 81 applied to AHPs. Environmental factors were the most commonly mentioned promoters for CPG adherence among AHPs and, of these, the most important were seen to be organisational factors (60.4%), followed by the guidelines themselves (22.9%). See Figure 3.7.

Figure 3.7: Promoters of clinical practice guideline adherence among allied health professionals
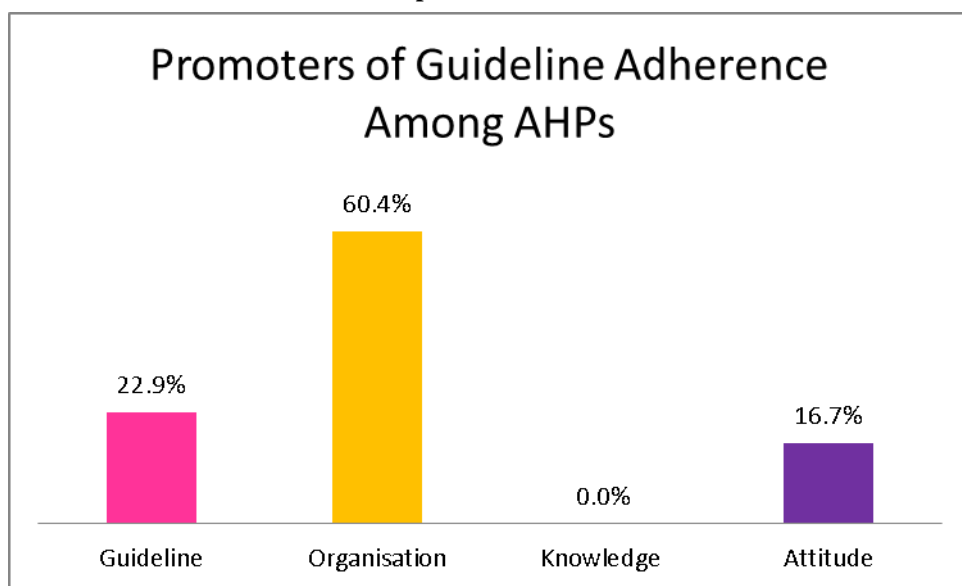
As outlined in Table 3.12, decision support (18.8%) was the major promoter of CPG adherence in the organisational category. Audit and feedback (12.5%) and team work (10.4%) were also considered to be important. Providing reminders and psychological support and encouragement (both 4.2%) were less frequently perceived as CPG adherence promoters.

Table 3.12: Promoters of clinical practice guideline adherence among allied health professionals

Organisation	Decision Support	Audit & Feedback	Team work	Supervision	Reminders	Support & encouragement
60.4%	18.8%	12.5%	10.4%	8.3%	4.2%	4.2%

Guideline	CPG clarity	Applicability	CPG format
22.9%	8.3%	8.3%	6.3%

Attitude	Agreement	Outcome expectancy
12.2%	12.2%	0%

Knowledge
0%

Interestingly, personal factors were not frequently perceived as promoters of CPG adherence for AHPs. In the attitude category, only agreement with the guidelines (12.2%) was considered to be important and, as was the case with nurses, having the knowledge to carry out the CPG was not mentioned as a CPG adherence promoter in the reviewed studies (Table 3.12).

3.4.8 Comparison of All Types of Promoters to Guideline Adherence among Doctors, Nurses and Allied Health Professionals

As with barriers to CPG adherence, there were differences between doctors on the one hand and nurses and AHPs on the other hand for promoters of CPGs adherence. However, organisational factors were considered as the most important promoters of CPG adherence across all the health care professions (see Figure 3.8).

Figure 3.8: Comparison of promoters for clinical practice guideline adherence
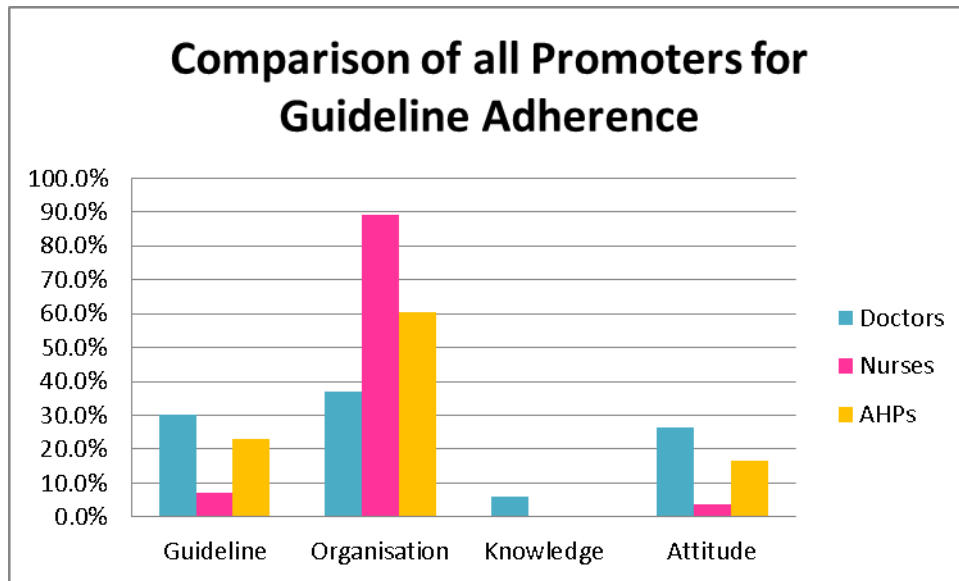
The single most frequently mentioned promoter for doctors' adherence to CPGs was agreement with the CPG. The most frequently mentioned promoter for both nurses and AHPs was decision support. Among all three groups knowledge of the guideline was seen as the least influential promoter of adherence.

Koh et al. in 2008, discussed that providing staff support was a key promoter for nurses adherence to CPGs (91). He highlighted that motivating nurses through support and encouragement will improve their confidence in applying CPGs, and thus, efficiency in providing the best quality of care (91). Moreover, Asaro et al. in 2006 (92) and Bloom in 2005 (93), emphasised that for all doctors, nurses and AHPs, decision support tools are effective in improving CPG adherence, which can be achieved by using interactive techniques such as audit/feedback forms, academic detailing/outreach, and sending out CPG reminders (92, 93) .

3.5 Summary

There are marked differences between nurses and doctors with regards to supervision, decision support, agreement with the guideline and applicability of the guideline, but there appears to be much less difference between nurses and allied health professionals.

3.6 Limitations

This systematic review included articles from the BNI, Medline and CINAHL databases only. This may have resulted in missing some studies relevant to this research available only on other databases. However, manual searching of the bibliographies of the studies identified from these two databases did find additional studies for the systematic review and this approach may have overcome or attenuated this limitation.

The selection of the studies to be examined, the extraction of the data and the data analysis were done initially by the researcher. This might be considered to pose a threat of the validity of the results. However, this issue was addressed through the involvement of the researcher's academic supervisors in discussion and agreement on all the processes of selection, extraction, arriving at definitions, data analysis and detailing the results. Double checking and re-checking with the supervisors took place at all stages of the systematic review in order to limit the likelihood of bias.

3.7 Conclusions

This systematic literature review has identified both promoters and barriers for CPGs across the health care disciplines. Doctors are most influenced to adhere to CPGs by their agreement with the guideline and by its applicability in practice, whereas nurses and AHPs are more influenced to adhere by decision support, feedback and team work. Results show that studies of nurses could be applied to other AHPs and vice versa, while studies of nurses cannot be applied to doctors or vice versa. It is hoped that the results of this research will help to improve strategies to promote adherence to CPGs, though it also reveals the need for future research. As an additional unexpected benefit, these findings shed light on the respective roles of doctors and nurses, and perhaps offer insight into the cultural differences between them.

Chapter 4: Individual Nurses' Views on Promoters and Barriers to Clinical Practice Guidelines Adherence

As explained in Chapter 2 and reported in Chapter 3, this research started with a systematic review of the literature on the promoters of and barriers to clinical practice guidelines adherence among doctors, nurses and allied health professionals. Based on the results of that review, a qualitative study of those promoters and barriers was then embarked upon, using both one-to-one interviews and focus groups with nurses. This chapter presents the analysis and discussion of the data gathered in the one-to-one interviews and Chapter 5 will analyse and discuss the focus group data.

4.1 Introduction

The one-to-one interviews with professional registered nurses aimed to explore nurses' experiences, insights and views of dealing with CPGs in their practice. The research intentions were to explore (a) the extent to which nurses read and internalise CPGs and (b) factors which may promote or inhibit CPG adherence.

4.2 Study Design

As explained and justified in Chapter 2, this study intended to use a grounded theory approach to its qualitative research method (please refer to chapter 2 for more detailed information on the methods used in this study). Consequently, it was not feasible to state the specific research aims at the outset. However, according to Strauss and Corbin in 1998, if a grounded theory approach is employed, it suffices to state the general aim which, in this study, is to improve patient care and patient safety by investigating factors that promote or inhibit staff adherence to CPGs (94).

The objectives of this study and, therefore, of the individual interviews, are:

➢ To explore nurses' attitudes towards CPGs and to identify their hidden attitudes and beliefs about CPG adherence

➢ To identify and explore CPG adherence barriers and promoters

➢ To form a hypothesis about CPG adherence from a discussion of the study's collected data

➢ To evaluate the findings and, based on these, to provide recommendations for health care administrators and for future research. This will be discussed in chapter 7

➢ To suggest strategies to improve adherence to CPGs. This will be discussed in chapter 7

In conducting qualitative data interviews, the researcher "attempts to understand the world from the subjects' point of view and to unfold the meaning of people's experiences" (58). Interviews also allow the researcher to explore and expand his or her understanding of participants' feelings, experiences and insights into the phenomena of interest, as well as enabling a more detailed exploration of the topic. In addition, the participants may be more open about non-adherence to guidelines if they do not have to admit to their own errors or to whistle-blow about their colleagues' conduct in front of their peers; thus the interviewer may get more honest answers in one-to-one interviews (56). The main disadvantage of using one-to-one interviews as a resource of information is that they do not allow participants to interact with each other and to share their views and insights. This issue, however, was addressed by using group interviews, also called focus groups, the results of which are detailed in Chapter 5.

4.3 Results and Discussion of Interview Data

This study aimed to identify promoters and barriers to adherence to clinical practice guidelines by nurses. This section presents an analysis of the data collected from 12 individual interviews conducted with registered nurses employed in a variety of roles in two hospitals. Their key characteristics were initially presented in Table 2.2, and a reminder is shown below in Table 4.1.

Table 4.1: Details of participants in one-to-one interviews

Number of Years of Experience	Gender	Current Speciality
28	Female	Cancer Nurse
4	Female	Theatre Nurse
22	Female	General Surgery
17	Female	Surgical Admissions
12	Female	Orthopaedic Trauma
24	Male	Training and education
20	Female	Theatre Nurse
7	Male	Pain Management
9	Female	ITU
3	Female	General Surgery and Medicine
11	Female	Theatre Nurse
10	Male	Research and Development

Three principal themes emerged from the analysis of one-to-one interview data. They related to attitudes, knowledge and behaviours in response to external barriers. However, it should be noted that all these factors influence each other and, therefore, it is not possible to entirely separate them. Each category was subdivided into several subcategories. Their axial relationships are summarised in Figure 4.1 and each theme and its subthemes are described and discussed in the remainder of this chapter. The results shown in Figure 4.1 represent results for nurses' adherence to CPGs based on interview data. The results represented in the framework (Figure 7.1) and discussed in detail later are based on the hierarchy of occurrence; this hierarchy is derived from the relative frequency of the occurrence of emerging themes from the interviews.

Figure 4.1: Results (based on interviews) for factors promoting adherence to clinical guidelines among nurses.
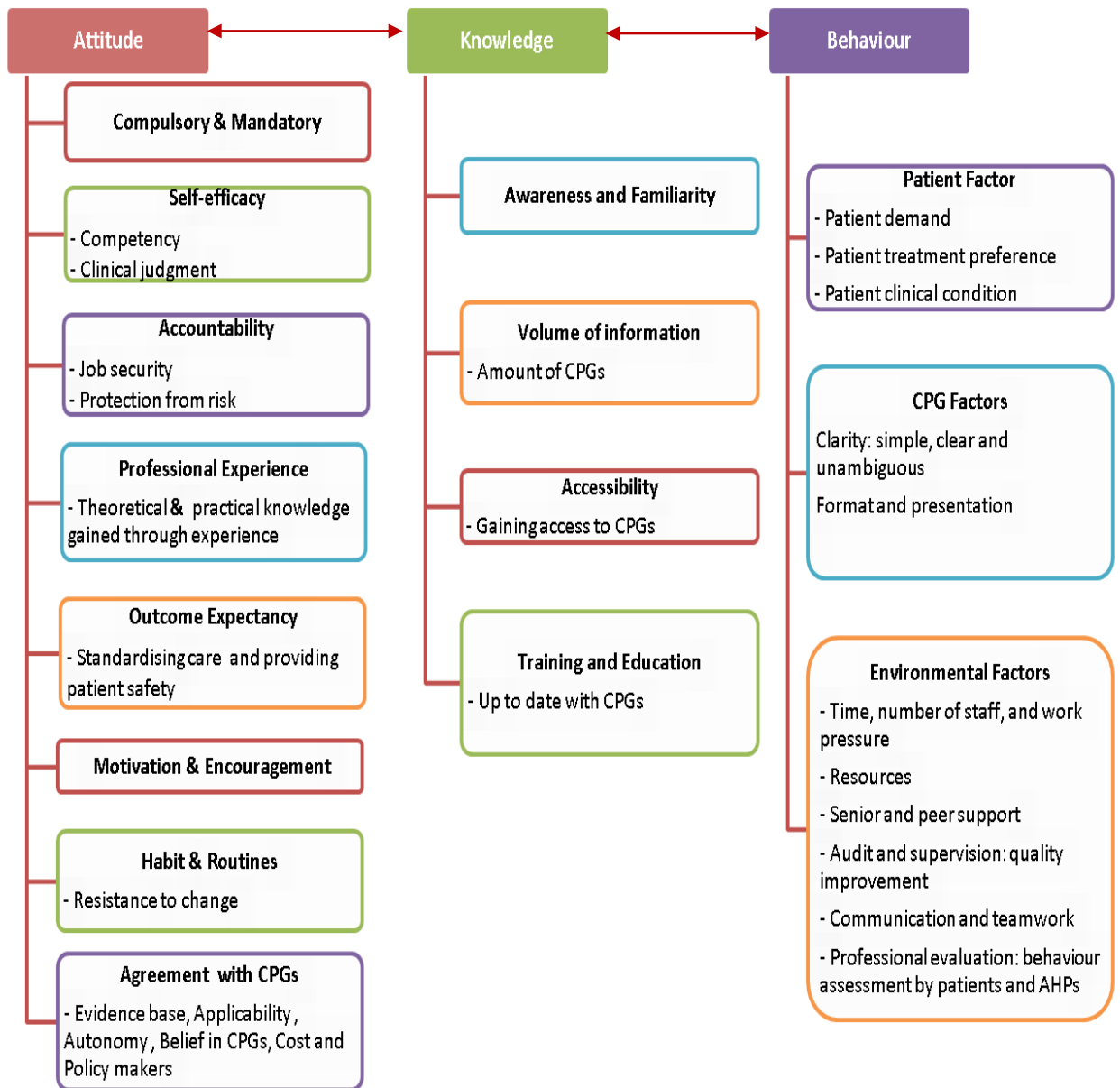
4.3.1 Theme 1: Attitudes to Clinical Practice Guidelines

The most prominent theme to emerge from the analysis of the interview data about adherence to CPGs relates to nurses' attitudes to CPGs. Within this category, the most frequently perceived factors affecting adherence were the mandatory and compulsory nature of the guidelines, nurses' accountability, whether or not they agreed with a guideline, outcome expectancy, nurses' self-efficacy, their professional experience, habit and routines, and, finally, issues of motivation and encouragement (see Figure 4.1). (The attitude underlying the mandatory and compulsory nature of the guidelines is compliance, of course).

Attitude can be defined as "a positive or negative evaluation of people, objects, events, activities, ideas, or just about anything in your environment" (95). An attitude is shown by a person saying or doing something. Below, the sub-themes which belong to this main theme are discussed individually, with supporting verbatim quotations taken from the interview recordings.

4.3.1.1 Compulsory and Mandatory

Participants said that adherence to clinical guidelines is more likely because they are compulsory and mandatory (i.e. the attitude of compliance). Some saw adherence to guidelines as part of being professional and applying the NMC nursing code of conduct.

"You have got to do this. You've got to follow these guidelines. This is the best practice" (Nurse E).

"... and it is in our code of conduct, we have to" (Nurse E).

However, referring to the mandatory nature of clinical guidelines, some participants also expressed a worry about losing their job, losing their working licence or even being charged with a crime if they flout important guidelines.

"Well it has to be because obviously you're in a profession where you know we've got to adhere to NMC guidelines and everything and you know, it does protect our PIN number" (Nurse F).

"The guidelines are guidelines, very few of those are set in stone; obviously you need to have an understanding of when does breach of that guidelines move into potential affecting your professional registration or become illegal" (Nurse A).

4.3.1.2 Accountability

The NMC code of conducts states "As a professional, you are personally accountable for actions and omissions in your practice and must always be able to justify your decisions" (96).The NMC in 2008 also states that "nurses and midwives use their professional knowledge, judgement and skills to make a decision based on evidence for best practice and the person's best interests" (97). Thus, nurses are very aware of being accountable for their actions. This was evident among interview participants.

"we can only, we can make staff aware of guidelines but it's up to them to then take ownership of the guidelines and actually follow them" (Nurse A)

"You know we can't actually spoon feed them if you like and say, you know at that end of the day, our staff nurses have all got PIN numbers" (Nurse D).

A fifth participant speaking about adhering to clinical guidelines coupled accountability with protecting herself from risk,

"... [adherence to guidelines to] protect myself from any risk issues, for making mistakes as I am responsible for what I am doing" (Nurse J).

In addition, two other participants linked being accountable for their actions to job security.

"... basically at the moment they're on about stopping the increments in pay and they're getting rid of nurses so I mean that would have a contributing factor" (Nurse K).

"I think they become, I know on a couple of occasions where they've [nurses] become like lacksadaisy like where it, they're too worried about [losing job] what's going on with themselves and so it has affected patient care" (Nurse H).

4.3.1.3 Self-efficacy

Another subtheme in attitudes was self-efficacy or the belief that one can actually

perform the behaviour. Nurses' belief in their own skills and knowledge

influences adherence to clinical guidelines. They also referred to self-efficacy as

"competency*".*

> *"...we haven't been updated for a while but you know personally that you*
>
> *haven't searched for any updated guidance for a while, we don't have the*
>
> *knowledge and skills so I guess it's that competency" (Nurse B.).*
>
> *"...so if you haven't got a very good skill mix you know there's a risk that*
>
> *things could become compromised" (Nurse C).*

Respondents asserted the importance of having all the needed knowledge, skills

and experience to deliver care. They also discussed having clinical judgment,

which Phaneuf (2008, p.3) defined as "the conclusion or enlightened opinion at

which a nurse arrives following a process of observation, reflection and analysis

of observable or available information or data"(98). This was evident in the

following responses.

> *"...both skills and experience but also that academic ability to be able to*
>
> *understand when they can flex those guidelines" (Nurse C).*
>
> *"...capability of the nurses to work and use common sense, to do the work*
>
> *actually so and those play as part of the drivers" (Nurse I).*

On this issue, nurses seem to have particular problems in moving from one ward to another. They fear that they may not have enough skills and knowledge for the new situation and that that can affect adherence to clinical guidelines.

> *"...well going from one specialist area to another, therefore they [nurses] haven't got the technical expertise, and they can't anticipate as well as somebody who's familiar with the practice" (Nurse L).*

> *"...Peoples' lack of confidence of dealing in certain situations, if they're not familiar with a given clinical area then they, they haven't got the confidence to follow that through" (Nurse K).*

4.3.1.4 Professional Experience

Professional experience refers to having both theoretical and practical knowledge gained through experience (99). Having professional experience allows a nurse to assess an event and thus use his/her clinical judgment (99). On this topic, respondents referred particularly to colleagues who are new to the organisation or new to the profession. The former, especially, seem to see adherence to clinical guidelines as reassurance of their competency.

> *"...they [nurses] might be new to the organisation and not know how to do things so they just follow the guidelines 'cos at least you know, that tells them how to do it" (Nurse J).*

> *"That don't actually, that don't really have any hands on experience or they haven't the, you know, number of years. I do feel that sometimes I think*

they should actually ask, you know, the first line staff what they, you know,

suggestions from them and things like that" (Nurse E).

4.3.1.5 Outcome Expectancy

Another factor influencing guideline adherence was the outcome expectancy when implementing a specific guideline. There was some evidence that a nurse's adherence to a clinical guideline depended, to some extent, on his/her belief that following a guideline recommendation would or would not lead to the desired outcome.

Some respondents linked the part played by clinical guideline adherence in outcome expectancy to standardising care as well as providing patient safety.

> *"Factors encouraging me to follow guidelines is to ensure that all the*
>
> *patients receive a good standard of care and for patient safety" (Nurse A).*
>
> *"...to ensure the safety of patients, to ensure that everybody receives the*
>
> *same standard of care" (Nurse E).*
>
> *"Well it's in the patient's best interests. Obviously you know it's patient*
>
> *safety and you've got to follow guidelines for the patients to be safe and not,*
>
> *you know, come to any harm" (Nurse I).*

4.3.1.6 Motivation and Encouragement

Some respondents believed that providing nurses with motivation and encouragement is a very important factor in promoting adherence to clinical guidelines.

> *"Where I work at the moment, the training is fabulous, the ward manager is really good. So like the staff are up to date with everything but that's not the case in all areas" (Nurse K).*

> *"...we've got a really, really good ward manager that keeps us and the sisters on the ward, keep us up to date with anything that's new" (Nurse B).*

4.3.1.7 Habit and Routines

Habit and routines were mentioned by many respondents as a promoter in CPGs adherence. Some believed that day-to-day procedures enable nurses to become familiar with guidelines and, thus, more likely to adhere to them,

> *"...the guidelines underpin really everything that we carry out in theatre. Therefore it's very much part of our day to day practise so you have to be familiar with the guidelines in order to be able to carry out your duties" (Nurse B).*

> *"...the day to day running of what we do, you know you're very familiar with" (Nurse C).*

On the other hand, habit and routine was seen by others as barriers of guideline adherence. Nurses who have been used to performing particular tasks for many years and achieving the desired outcomes can be sceptical about changed or updated guidelines. Consequently they may resist attempts to change their behaviour.

> *"Some of the guidelines aren't followed because there is, there are a lot of people in the NHS that think 'I've always done it this way, there's nothing wrong with it'. So you always get that negativity with the people that 'that's how I've always done it'" (Nurse K).*

> *"I think the some nurses, and this is a very generalization, will follow a set of rules that he or she learnt some time ago and will not, will always perform against those rules and will not deviate from that rule" (Nurse F).*

4.3.1.8 Agreement with the Guidelines

Agreement with the guidelines was a strong sub-theme within the Attitudes theme and this seems to be a critical factor in whether or not nurses adhere to guidelines. Within this category, participants referred to the evidence base for the guideline, its applicability, their beliefs for guidelines, challenges to their autonomy and cost, and to their confidence in the guideline developer.

4.3.1.8.1 Evidence Base

One of the most explicit pieces of evidence that came from the interviews was the importance of providing nurses with scientific evidence about the need for a new CPG. CPGs that are issued with a clear scientific base supporting them are more likely to be adhered to than guidelines that did not. If no such evidence is provided, nurses can find new guidelines confusing and difficult to adhere to.

> *"Show them proof... we'll see if it's beneficial'; if you've got the proof ...."*
> *(Nurse I).*
>
> *"I will follow them if I think that the evidence is there behind them…"*
> *(Nurse E).*
>
> *"...you've also got the evidence and if they understand what they're doing, and they understand why they're doing it then the patients will get the best care....   And you know that the care that you're giving, you know there's plenty of research based going into it so you're not doing things haphazardly kind of thing" (Nurse F).*
>
> *"... most people you need to go deeper, explain why is there changing guidelines, what's the benefits to them, how it will affect them, if it affects them positively or negatively and how they'll benefit or how their patients will benefit" (Nurse I).*
>
> *"Show them evidence that this is the best practice because it's been researched, you've got all the benchmarking. If you can prove that this is the best way and that it's the best for the patient then yes they will change and yes they will conform to that practice" (Nurse A).*

4.3.1.8.2 Applicability

Applicability means the ability of clinical guidelines to be applied, without too much difficulty, to patients and clinical situations. This was another major concern for participants and an important factor in CPG adherence. Concerns included the difficulty of following guidelines in some practical situations and doubts about guideline relevance.

> *"I think, there's, within the surgical day unit I think we're expected to follow a lot of unnecessary assessment following guidelines that probably irrelevant to the nursing care that our patients require" (Nurse D).*

> *"It's going back to the belief systems again. Go back to, yes they're considered guidelines but they're not applicable to me in my role now" (Nurse J).*

Another aspect of guideline applicability reported by participants was the rigidity of CPGs and the fact that nurses were not permitted to be flexible and adapt a guideline to particular clinical situations.

> *"Something like in the guidelines that surgery, subsequent surgery has to be followed up in 31 days, sometimes there just isn't enough operating time to be able to do that" (Nurse C).*
> *"...the policies should be basically common sense but when there's discrepancies like that as to what to do when somebody was previously MRSA and what to do now and how you treat that patient, I think there is*

still some confusion over that and that's just down to educational processes

I think" (Nurse K).

"...we face some difficulties with them as they are because they are already

developed and they're, and it's very hard to make any requisition or

changes to it at the moment and you have to follow it" (Nurse B).

4.3.1.8.3 Autonomy

The points made by respondents that were categorised under 'Applicability' suggested that some of them felt that a tension sometimes existed between adherence to CPGs and applying their professional expertise. One participant expressed this more explicitly in saying that adhering to clinical guidelines sometimes could be challenging to a nurse's professional autonomy.

"I think in nursing if we truly believe it's a profession, then we should allow

people to interpret those guidelines within their professional understanding

and adapt accordingly. But to do that we have to have people who have

sufficient, or academic knowledge and skills" (Nurse I).

4.3.1.8.4 Belief in CPGs

It seems that a nurse's belief in a guideline can affect his/her adherence to it.

"Sometimes it's a lack of belief in them, occasionally it's someone thinking

actually that their way's better" (Nurse E).

4.3.1.8.5 Cost

Some nurses agreed that adhering to clinical guidelines could reduce costs, either by avoiding potential litigation or simply by enabling patients to be discharged sooner.

> *"If everybody followed the guidelines then yes, I'm sure it would because then you'd have less risk of patient, of an adverse event happening which can cost the trust a lot of money" (Nurse J).*
> *" It can reduce, if like for instance, you followed the guidelines for infection control, if you brought risk of infection down and reduced cross infection then that saves money because then you haven't got the longer stays in hospital and the more use of medical intervention" (Nurse H).*
> *"...if you can improve patient care and you can get, you know, patients through like through their stay with us then obviously that impacts on costs 'cos you're reducing bed days" (Nurse B).*

4.3.1.8.6 Policy Makers

With regard to attitude to clinical guidelines, the level of confidence in the policy maker was obviously a factor in adherence to clinical guidelines for some participants. The perceived remoteness of policy makers from clinical practice was expressed by several participants, with the inference that this was a possible barrier to CPG adherence.

> *"The other one is the way that these guidelines have been written is a lot of them we feel that it's not exactly written for us" (Nurse C).*

"Some of the guidelines in place, I can understand why they're there but I do feel that some of these guidelines are put in place by people that sit behind desks" (Nurse K).

"...a lot of us you know sometimes feel that these guidelines are brought in from people in their offices and things like that and say 'well this is how it should be done' and blah, blah, blah" (Nurse I).

However, the opposite side of this coin was expressed by some participants. If a guideline had been developed locally, and especially if nurses felt that they had been involved in drafting it, their attitude to the guideline was much more positive. The inference here was that this was a CPG adherence promoter.

"...we do have some local guidelines we created our own from the trust, in the trust, which is a very good guidelines which gives a better picture because some of the guidelines are national guidelines which applies for all the trusts in the whole UK" (Nurse K).

"Making sure that you involve people who are actually delivering the care, so that you get involved as many people as possible from the ground. You know, the nurses that are actually working on the floor 'cos they're the ones that are delivering the care at the end of the day and they're the ones who are more realistic" (Nurse J).

"So getting them [nurses] on board and getting discussions going and working from there onwards, Involve more staff nurses rather than you know, managers and matrons and people that don't actually do hands on nursing anymore on the shop floor" (Nurse A).

"…lot of the nurses feel that they are left alone and they don't have part on the, making of the guidelines and that makes it a bit challenging for them to follow it in other words" (Nurse B).

One participant went even further and believed in involving patients as well as nurses in policy making.

"…because it's their care isn't it? It's the treatment for them, to improve their care. I think patients should have a say to a degree" (Nurse E).

4.3.2 Theme 2: Knowledge to Clinical Practice Guidelines

Knowledge is the second theme that emerged from the analysis of the interview data for factors promoting and inhibiting adherence to clinical guidelines among the nursing profession.

Participants contended that a nurse who has a good knowledge of a procedure is more likely to adhere to clinical guidelines or, as one asserted, lack of knowledge or understanding can lead to a guideline being ignored.

"I think if it's common sense, if you understand what you're doing then you're more inclined to be, to follow the guidance that is there and you're familiar with the process" (Nurse F).

"...doing your aseptic techniques to you know, how to take a temperature, how to do blood pressure, all of those sorts of things, they're techniques that have been taught you know, see one, do one type of thing but also now because we have guidelines in place, it's just standard practice" (Nurse H).

"If they don't understand what it is, then they tend to ignore it and again that comes down to education" (Nurse K).

This knowledge theme includes the issues of awareness and familiarity, the volume of information, the large number of guidelines, their accessibility and nurses' training and education. The remainder of this section will discuss each of these issues, in turn.

4.3.2.1 Awareness and Familiarity

It may seem to be obvious but two participants made the point that clinical guideline adherence requires the nurse to be aware of the guideline's existence. This is especially important for the guidelines that relate directly to the specialism in which the nurse is working and, thus, it is particularly significant for new staff members.

"When we get new members of staff starting work in the department, we have an induction week where they, we actually go through some of the policies and show them how we do things" (Nurse D).

"...because clearly there are a lot of guidelines we have, they're all on the intranet in this trust but it's about being aware of which clinical guidelines

are relevant to your practice and make sure that you adhere to those"

(Nurse B).

Two other respondents made much the same point, though they referred to it as familiarity rather than awareness.

"I'm familiar with others but not, mostly just within my own ward" (Nurse A).

"...communication could be because obviously if the things aren't like disseminated from above then, they're saying 'there's this guideline on whatever' and if you haven't like read it or you aren't familiar with it then that could inhibit how you actually follow the guideline" (Nurse J).

4.3.2.2 Volume of Information

Participants reported a particular difficulty in coping with both the sheer number of clinical guidelines and the length of some of the individual guidelines. The clear inference was that nurses might well be aware of the existence of a particular guideline but, among their other duties, they find it difficult to read and comprehend them all thoroughly. If this is the case, then obviously it can be a barrier to adherence. This issue was a matter of concern for these respondents and one suggested that the guideline writers should try to find ways of clarifying the main points.

" I think one of the problems is there are so many guidelines, to always be aware of one, that there is one about whatever you're doing and whether you know everything about it" (Nurse A).

"...there are hundreds of protocols for things like, you know, infection control and you know all them different kinds of ones of those, I'm probably not absolutely aware" (Nurse B).

"I mean I've just had to read through 40 IPC policies just for any comments and I did have a few that related to the theatre environment that I felt you know maybe needed to be added or adapted or need further clarity.... reading through them, you know I mean I just, I had to step away then I had to come back to it, re-read it again, I felt as if I hadn't absorbed it. I mean one policy, you know I mean it's like 30 pages long, do you know what I mean. And then you do, you have to pick out the relevant bits that apply to your area or your specialty, you know and you think 'Well maybe we could condense it and put it into like a bullet form' you know, but you've got to sift through" (Nurse K).

4.3.2.3 Accessibility

The 'accessibility' sub-theme is similar to the two previous 'knowledge' sub-themes in that guideline adherence requires that nurses read and understand the guidelines but here the point is that they must be 'accessible' or easy to find. For the three participants who mentioned this issue, it would seem that accessibility is not a problem in the NHS Trust for which they worked.

"...we have intranet system within our Trust where we have policies of the month, they put out two or three policies every month so everybody's

refreshing themselves and up to date constantly on new policies and

guidelines" (Nurse F).

"...we have a huge amount of policies and procedures which we can access

via the internet, intranet on the Trust site" (Nurse L).

"...they're quite easy to get hold of if you know where you're looking

because obviously the Trust I work for, it's on intranet and every policy you

get out, is on there but then it's getting the time to actually get on to a

computer to read them" (Nurse K).

4.3.2.4 Training and Education

Training and education is a crucial factor in improving nurses' knowledge and skill. Almost all respondents recognised how important training and education is for them in order to keep them up-to-date with clinical guidelines and also to improve their knowledge and skills. Obviously this sub-theme is closely linked with the 'knowledge' sub-theme and respondents were clear that knowledge gained from training had a large effect as a promoter of guideline adherence. However, training might not be available or difficult to arrange.

"I think training, time for training is the best way to follow it . . . cos they

[guidelines] just turn up don't they, on the wall? And then we've got to read

them. Maybe, if they were introduced better, then we would, if we had half

our session on them or something and then it would stay in your mind more

wouldn't it?" (Nurse B).

"Yes, if they haven't been trained properly it will reflect if they are following guidelines, which again comes to lack of education and learning" (Nurse D).

" ...training could inhibit it because obviously if you aren't trained in doing a specific task it's ok having a guideline to tell you how to do that task but you know you've got to be confident in doing that task" (Nurse K).

"I mean other places that I've worked, you can go on training but you have to do it on your day off because they just go when training dates are out" (Nurse I).

The need to be up-to-date with guidelines is implicit in many of the responses quoted in this section, and especially those concerning education and training. But two participants made this explicit and obviously considered it very important.

"Yeah, we try to ensure that nurses do try and encourage nurses to ensure that they keep up to date" (Nurse C).

"I'm very up to date with the current policies and procedures…. think sometimes just being up to date with them, you know being able to keep up to date." (Nurse A).

4.3.3 Theme 3: Behaviour in response to External Barriers

The third of the three main themes that emerged from the analysis of the data collected in interviews about guideline adherence was behaviour, that is, the way

in which nurses behave or react to specific situations. It is also referred to as an external barrier. External barriers affect the ability of nurses to perform a guideline recommendation. External barriers include three subcategories, namely, the patient¸ the guidelines and environmental factors.

4.3.3.1 Patient Factors

This sub-theme included two further sub-themes, namely, patients' demands and patients' clinical conditions that could affect adherence to clinical guidelines.

4.3.3.1.1 Patient's Demands

Participants reported that sometimes a patient would express a preference for one treatment rather than another, and this may not accord with clinical guidelines.

> *"Depending on what your patient's like depends on how you're going to treat them" (Nurse E).*

4.3.3.1.2 Patients' Clinical Condition

A patient's clinical condition is another factor that may affect guideline adherence. Generally, this is because a guideline may not be applicable to a particular patient.

> *"…and I think sometimes that there isn't a guideline for every case or patient" (Nurse B).*

"Sometimes it's more difficult because the patient doesn't fit into the guidelines of what should happen so you know there's always some sort of personal slant on it from the patient" (Nurse A).

"So like when we do our checks in the morning we know everything, like for instance today one of our patient's had a pacemaker so obviously that's very important because then we can't use our normal routine and we've got to change everything for that patient" (Nurse K).

4.3.3.2 Clinical Practice Guideline Factors

Participants claimed that the way in which clinical guidelines are written or presented could affect nurses' behaviour with regard to adherence. This includes the clarity and format of the guideline.

4.3.3.2.1 Clinical Practice Guideline Clarity

Participants reported that guideline adherence was likely to be promoted if the guideline is written in a simple, clear and unambiguous text. This enhances the point made in Section 4.3.2 that understanding aids adherence. Guidelines that are ambiguous and unclear not only make adherence difficult but they may be interpreted differently by different nurses and cause confusion.

"Sometimes the practice doesn't quite match and that's when we've got ambiguity and people interpret things differently and there is a potential there for things to go wrong" (Nurse J).

"It's different sometimes if people don't understand it correctly that it's

down to different people's interpretation" (Nurse I).

"I think it's down to the language that may be used sometimes, the

ambiguity" (Nurse G).

4.3.3.2.2 Clinical Practice Guideline Format

Guideline format means the way guideline information is presented. Participants suggested that nurses normally prefer simple, short guidelines that are coloured and laminated rather than long guidelines printed in black and white.

"I like the enhanced recovery guidelines that we have now are on a

condensed, coloured, laminated cards which are quite nice. They're easy to

look at, that's our guidelines for enhanced recovery" (Nurse F).

"...there are so many of them and quite a lot of them are in depth, just at the

end of it there might be one, a little late memoir at the back whereas the

bullet point, they're summarised, the main things, to remember" (Nurse H).

4.3.3.3 Environmental Factors

The final behaviour subtheme was environmental factors. These were related to organisational factors and the social evaluation threat.

The organisational factors included time, the number of staff, work pressure, resources, senior and peer support, audit and supervision, the reminder system, communication and teamwork. These are discussed individually below.

4.3.3.3.1 Time

Section 4.3.2.2 reported on the difficulties that nurses can have in finding the time to read and understand guidelines. Here, participants talked about how, even when they are fully aware of a clinical guideline and want to adhere to it, time constraints sometimes make it difficult to do so.

> *"Then you've got again the time issue, if you've got time constraints sometimes that can then affect whether something's carried out correctly" (Nurse B).*
>
> *"...sometimes you just can't find the time to be honest, we have to follow guidelines but we need time" (Nurse D).*
>
> *"...of whether, how productive you are and whereas if you work on a waiting list, you know you've got 'x' amount of time to get it done, right? And if it takes that length of time, then it takes that length of time but if we can get it done quicker, we can go home..." (Nurse I).*

4.3.3.3.2 Number of Staff

Similarly, participants reported that the number of patients and lack of staff limits their ability to adhere to guidelines, and this can seriously affect patient care.

> *"Reducing the nurses on the wards. The patients cannot get 100% care, elderly patients are getting neglected because they're not getting served, and the nurses haven't got time to do it" (Nurse A).*

"I mean many a times I've worked on the wards and it is underserved.

There's just not enough staff, there's more management, there's more

secretaries and officers on the wards than there is nurses" (Nurse D).

4.3.3.3.3 Work Pressure

Lack of time to carry our guidelines fully and insufficient staff can, of course, lead

to work pressure on nurses, as also does being drafted into unfamiliar work

situations. Participants cited this as another possible barrier to guideline

adherence.

"...there's a lot of pressure put on people to work in places that they may

not always be familiar with" (Nurse H).

"...so, for instance, if we've got a certain amount of patients to get through

in one day, if you know that time's running out; I'm not saying that care

would be then compromised but it then becomes a lot more difficult is when

time is limited" (Nurse C).

However, one participant argued that work pressure could never be used as an

excuse for not knowing about guidelines or not keeping up-to-date with them.

That is a responsibility that nurses have and it is part of their accountability code

of conduct to improve their knowledge and awareness of guidelines.

"...but I think it's [lack of time], in some instances, an easy excuse to make

and this links back to professional accountability that we are obliged as

nurses to maintain our skills. So you know as a nurse, I'm not just a nurse for 37.5 hours a week, I'm a nurse for 24 hours a day, seven days a week and we need to accept that it is a vocational profession and that we have professional responsibilities outside of our work time." (Nurse L).

4.3.3.3.4 Resources

Lack of resources and funds were also reported as barriers to guideline adherence and these impacts on the quality of care.

"Resources are very, very tight and education and training is always the, you know, the resources loses out" (Nurse F).

4.3.3.3.5 Senior and Peer Support

Peers often share knowledge and experience with each other, as well as providing emotional and social help (100). Participants valued the peer support, as well as support from senior staff in carrying out their duties. This applied to guideline adherence, especially when a guideline was open to ambiguous interpretation.

"...there's always plenty of support around and there's always departments and leads within the trust to ask for advice if we're uncertain 'cos sometimes the language can be open to interpretation and this is good practice to follow policies" (Nurse F).

"Using people not as a resource that is, you know something that you can just throw away, actually you know if you look after people they will look after you" (Nurse D).

4.3.3.3.6 Audit and Supervision

Audit is defined as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change" (97). Participants stated that having audits and supervision by seniors promotes adherence to clinical guidelines.

"...you know monitoring people's practice to check if they are doing the right thing" (Nurse G).

"Supervision and assessment, it's a very important part and this is how can we learn, it's not just nurses, everyone. You won't be able to learn by yourself, you need to have someone behind you, someone senior who can show you the way how you can implement things correctly then you can follow that."(Nurse A).

"I think we've got good leadership, it's good as they direct you and advise you" (Nurse G).

4.3.3.3.7 Communication and Teamwork

Communication and teamwork were other issues that nurses highlighted during the interviews. Having good communication and good leadership in teams were considered as promoters of guideline adherence.

> *"I mean if you show them the evidence, if you yourself do that practice and prove that it is the best practice and encourage them but also praise them for doing it. I mean you get the results by doing your research with your patients, you say "Right, we'll try it on so many patients" (Nurse K).*

An aspect of communication that nurses seem to value is a reminder system that provides messages designed to promote adherence to clinical guidelines.

> *"You might not realise that you're following an old set of guidelines because there isn't a reminder to remind you and you are not aware that they've been renewed" (Nurse H).*
> *"...things like the trust protocols, we get emails round every month saying which new protocols are out and that we need to look at and now I mean this is a new thing as well" (Nurse B).*

Another important aspect of communication, according to participants, is guideline dissemination, or the process by which guidelines are distributed to nurses. The importance of guideline format was discussed in Section 4.3.3.2.2 in terms of nurses' understanding but it is also an aspect of communication. It is well established that different people learn in different ways and this was reflected in

participants' recommendations that clinical guideline adherence would be promoted if guidelines were disseminated in a variety of ways, including intranet databases, e-mails, face-to-face sessions, and through the management chain.

> *"We need to deliver the message in a number of ways to tick everybody's box. For example, some people will read and enjoy reading and come to read, some people don't." (Nurse B).*
>
> *"...the electronic resources, but the face to face is still important as well" (Nurse J).*
>
> *"We know, what we normally do in the trust, we find it on the intranet as a start point through sending a general email to all the teams that the guidelines are there." (Nurse K).*
>
> *"I get them passed down from my managers and then I have to dilute this out to my juniors and this reminds everyone to follow guidelines." (Nurse G).*

4.3.3.3.8 Professional Evaluation

Professional evaluation means that someone is watching you, and assessing how you behave. It can result in a different behaviour and it can have positive or negative effects. For nurses, professional evaluation could be by other medical professionals or by patients but, except for one participant who related this issue to a peer example, only patients were mentioned in the interviews. In the light of their comments, it would seem that the trust that patients have in nurses is a promoter of guideline adherence.

"As a nurse I follow all the guidelines, we all do . . . well I think you get a

lot of patients, the patients coming into hospital are totally vulnerable and

they expect you to deliver the best patient care" (Nurse A).

"Yes and I think that is the problem, they [patients] totally 110% trust the

nurses so you've got to maintain your nursing standards to provide that

care. All patients trust the nurses, I mean most of the patients wouldn't

know whether a nurse is doing anything wrong" (Nurse D).

"Many patients, you know, will simply just fold their arms up and say "Do

what you want to me, I trust you as a health carer" (Nurse E).

4.4 Chapter Summary

This chapter reports on and analyses the results of the first part of the qualitative

study, which used one-to-one interviews as a methodology. The main aim of

conducting one-to-one interviews was to explore nurses' attitudes towards CPGs

and to identify their hidden attitudes and beliefs about CPG adherence. Three

principal themes emerged from the results of this study, namely nurses' attitudes,

their knowledge, and behaviours related to external factors. The significance of

these will be further discussed in Chapter 7.

Chapter 5: Nurses' Views in Focus Groups on Promoters and Barriers to Clinical Practice Guidelines Adherence

Chapter 4 presented an analysis of the data gathered in one-to-one interviews with nurses on promoters of and barriers to clinical practice guidelines. That was the first part of a qualitative study of these issues. This chapter discusses and analyses the results of the second part of that qualitative study, which used focus groups to gather data. Its rationale, design and methodology were explained in Chapter 2.

As the themes that emerged from the focus groups data are the same as those that emerged from the individual interviews data, most of this discussion will be similar to that in chapter 4.

5.1 Introduction

Focus groups are widely used in the investigation of social research problems because they enable researchers to explore intermediate variables as a means of explaining certain relationships. They are defined as "a form of group interview that capitalises on communication between research participants in order to generate data" (101). This allows for an exploration of different thoughts and

ideas through interaction among the participants. Focus groups are also an effective technique for exploring the attitudes and needs of participants (101).

As with interviews, focus groups also have their disadvantages. Chief among these are the multiple opinions generated from different participants and the limited number of questions that can be covered in the time available. In this study, there were also constraints imposed by the availability of the nurse participants during their working day. In addition, although focus groups can generate valuable information on major themes, they are often not very suitable for identifying subtle differences in opinions (59).

5.2 Aims and objectives

As explained and justified in Chapter 2, the aim of conducting focus groups was to enable nurses to share, interact and discuss factors promoting and inhibiting adherence to clinical guidelines.

The objectives were similar to those for the individual interviews and they can be listed as follows:

1. To explore, through discussion and interaction, nurses' knowledge and experiences about adherence to clinical guidelines
2. To identify and explore guideline adherence barriers and promoters

3. To analyse the collected data in order to form a hypothesis about CPG adherence

4. To evaluate the findings and provide recommendations for health care administrators and for future research

5. To suggest strategies to improve adherence to clinical guidelines

5.3 Results and Discussion of Focus Group Data

This section presents an analysis of the data collected from four focus group interviews conducted with registered nurses employed in a variety of roles in two hospitals. Their key characteristics were shown in Table 2.3 but they are repeated here as Table 5.1 for ease of reference and to show the groupings.

Table 5.1: Details of participants in focus groups

Focus group	Number of Years of Experience	Gender	Current Speciality
1	31	Female	Theatre
	5	Female	Theatre
	10	Female	Surgical Admissions
	30	Female	Orthopaedics
	23	Female	Training and education
	5	Female	Theatre
2	14	Female	Theatre
	30	Female	Theatre
	27	Female	Theatre
	30	Male	Anaesthesia and recovery
	7	Female	Theatre
	3	Female	Theatre
3	5	Female	Theatre
	3	Female	Anaesthesia
	10	Male	Pain Management
	1	Female	Theatre
	26	Female	Anaesthesia
	14	Female	Theatre
4	2	Female	Theatre
	12	Male	Anaesthesia
	12	Male	Anaesthesia
	1	Female	Pain Management
	5	Female	Orthopaedic Trauma
	4	Male	Orthopaedic

As with the interviews, three principal themes emerged, namely nurses' attitudes, their knowledge and behaviour in response to external factors. As previously mentioned in section 4.3, each factor can have an influence on each other factor

and, consequently, they cannot be entirely separated. Their axial relationships are summarised in Figure 5.1. Each theme and its subthemes will be described in turn.

Figure 5.1, represents results for nurses based on the results of the focus groups, and this is similar to the results of the interviews summarised in Figure 4.1. However, while the main themes remained the same, a slight difference emerged in their subthemes.

Figure 5.1: Results (based on focus groups) for factors of adherence to clinical guidelines among nurses.
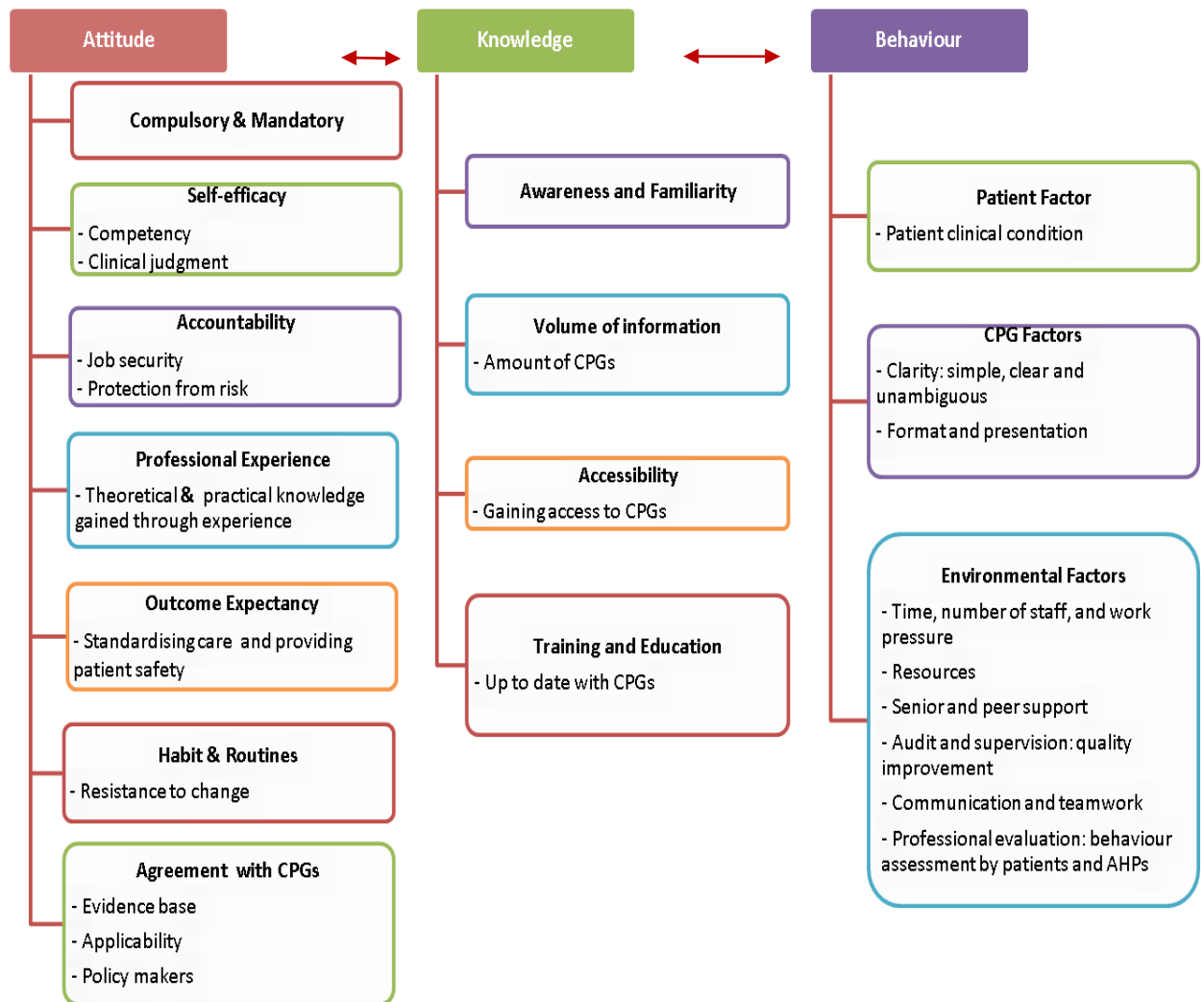
5.3.1 Theme 1: Attitude to Clinical Practice Guidelines

Interestingly, as with the individual interviews, the most prominent theme to emerge from the focus group data about CPG adherence was nurses' attitudes to CPGs. Attitudes can be defined as "a positive or negative evaluation of people, objects, events, activities, ideas, or just about anything in your environment" (95) and they are shown by saying or doing something. Within this category, the most

prominent promoters were self-efficacy, outcome expectancy and agreement with the policy makers. Attitudes were also shown through analysing the data of these subthemes: accountability, habit and routines, professional experience and agreement with guidelines in general.

5.3.1.1 Compulsory and Mandatory

Participants argued that CPGs are more adhered to both because they are compulsory and mandatory and because adherence is part of being professional and carrying out the NMC nursing code of conduct.

> *"...we live in a very litigation aware society and I think as nurses we're professionally mandated to be absolutely crystal clear about what care we administer to patients" (Nurse 2D).*
>
> *"...clinical guidelines to me are something that I should follow as a qualified nurse" (Nurse 2B).*
>
> *"I mean as part of our own practise, we do need, and our own registration, we do need to keep ourselves updated" (Nurse 3C).*

Participants also discussed the fact that non-adherence to clinical guidelines could lead them to face legal challenges that could affect their professional standing.

> *"I think they can also be used…. if someone needed to be disciplined as well over something that happened, it could be used against you. Why haven't you followed the guidelines on that particular procedure or part of your care, it is your responsibility you know" (Nurse 4F).*

5.3.1.2 Accountability

Accountability in nursing means that "nurses and midwives use their professional knowledge, judgement and skills to make a decision based on evidence for best practice and the person's best interests" (97). Also, the NMC code of conduct states "As a professional, you are personally accountable for actions and omissions in your practice and must always be able to justify your decisions" (96). Participants in the focus groups were very aware of being accountable for their actions.

> *"...the nurses are responsible for their own activities and their own actions" (Nurse 1F).*

> *"...we all have PIN numbers, you know, we are responsible of our action" (Nurse 4C).*

5.3.1.3 Self-efficacy

The most frequently discussed item in the focus groups related to self-efficacy. Self-efficacy was seen as a promoter for CPGs adherence. Participants were very clear about the importance of having the skills and knowledge needed to adhere to CPGs in their practice and, generally, they thought that they and their colleagues did possess the necessary skills and knowledge.

> *"...we do suffer sometimes in here, you know it's a huge department, lots of clinical interventions that are going on every hour of the day, got a lot of staff and a lot of skills, some skills are very specific" (Nurse 1D).*

"It's important to make sure that the people we've got are in the right place and have the skills and the knowledge of the particular policies that they are maybe called upon to execute" (Nurse 2B).

".... it's our responsibility to make sure that people in areas are equipped to do what they're asked to do. Whether that's perform a skill or use a particular piece of kit" (Nurse 1A).

5.3.1.4 Professional Experience

Professional experience means having both theoretical and practical knowledge gained through experience (99). Having professional experience allows a nurse to assess an event and then apply his or her clinical judgment (99).

Some participants stated that their professional experience complements their knowledge of, and adherence to, clinical guidelines. This was seen as a promoter for CPGs adherence. However, others suggested that, in some cases, their professional experience allowed for a superior assessment and treatment of a patient than simply following clinical guidelines. Consequently, this was considered as a barrier for CPGs adherence.

"You're doing it umpteen times every day, I think you know after x years you've, you don't need to be sort of reading the guidelines all the time, you feel you know what's best practice" (Nurse 1E).

"Sometimes your experience is I won't say better than clinical guidelines but we have an awful lot of experience, I would say sometimes I know better than clinical guidelines" (Nurse 2A).

5.3.1.5 Outcome Expectancy

Another common subtheme of promoting guideline adherence was outcome expectancy when implementing a specific guideline. Outcome expectancy is nurses' belief that performance of a guideline recommendation will or will not lead to the desired expectations. Thus, it can be either positive or negative. All participants believed that adhering to clinical guidelines is the best way to provide the best quality of patient care, and the best safety and protection for patients.

"...clinical guidelines I think are for the protection and to ensure that we follow full care for patients and that they get the best out of the service that we supply" (Nurse 1F).

"...clinical guidelines are something that we follow to provide quality care" (Nurse 2A).

"...potential patient outcome and for protection and safety of the patient" (Nurse, 2D).

"I also think that the patient, what the patient gets out at the end of it and the fact that we can do the best for the patient by following the guidelines that are set out. Because we set the guidelines for the patients' benefit at the end of the day" (Nurse 3E).

"...guidelines are vital, guidelines are necessary to protect the patients" (Nurse 4B).

"...for the patients' care, clinical guidelines are put in place to help us carry out our job to the best of our ability to look after the patients in our care" (Nurse 2D).

5.3.1.6 Habit and Routines

Habit and routines was also reported by participants to be a promoter for guideline adherence. Day-to-day procedures get nurses to be familiar with guidelines and thus adhere more to them. The main messages conveyed by participants were that adherence to a particular CPG is more likely the more regularly it is used in his or her clinical practice and the more relevant it is to the speciality in which the nurse is working. Conversely, CPGs which are seldom, if ever, used in day-to-day practice tend to be ignored or forgotten.

"The ones that I might look at, that I regularly use are pertinent to my area" (Nurse 1E).

"...because you work within an area, it's pertinent to your specialty, you know you use those policies more frequently than you would general policies is what I'm saying. You tend to be more knowledgeable on the ones you use more regularly" (Nurse 1E).

" I think they're there for you to follow and when you learn them [guidelines] and you know them then it just becomes normal, it becomes part of your practice" (Nurse 1B).

"The practicality of using that, maybe the more you use a guideline, the

more you're familiar with it. Other guidelines which live in the cupboards,

you know it's there but we don't use it so we might forget..." (Nurse 3A).

5.3.1.7 Agreement with Guidelines in General

Discussion among participants suggested that the level of nurses' agreement with

guidelines is another critical issue for their adherence or non-adherence to CPGs.

Comments on this issue can be related to the evidence base provided for the CPG,

to the CPG's applicability and to their confidence in, and agreement with, the

policy makers. The following sub-sections deal with each of these sub-themes in

turn.

5.3.1.7.1 Evidence Base

Participants were in general agreement that guidelines that have a clear scientific

base supporting them are more likely to be adhered to than guidelines that did not.

"We've touched on evidence and research based. I mean guidelines with

clear scientific evidence I think are more followed than others" (Nurse 3B).

One participant also stated that if a guideline lacked a sufficient evidence base, he

was more likely to use his professional experience and clinical judgment rather

than adhere strictly to the CPG.

"So I think the kind of the longer I've been in service the more sceptical about guidelines I've been that you know they are guidelines but what are they based on" (Nurse 2D).

5.3.1.7.2 Applicability

The applicability of clinical guidelines in practice was stated by participants as another barrier in CPG adherence. There were suggestions that some guidelines were generally inapplicable or difficult to apply while others were not applicable in particular nursing situations. This appears to inhibit adherence to such CPGs.

"...clinical guidelines are sometimes often difficult to follow" (Nurse 1F).

"...clinical guidelines are difficult to follow in practise on many occasions" (Nurse 3C).

5.3.1.7.3 Policy Makers

The CPGs adherence factor that attracted the most intense discussion among participants in all four focus groups was nurses' confidence in the guidelines' developer and policy maker. It would seem that nurses sometimes do not follow guidelines because the people who draw up the guideline are not involved in their clinical area and therefore they do not understand nurses' needs or the applicability of particular procedures in some situations.

"Because they're [the policy makers] not there in the clinical area, they don't understand the clinical needs of the people who are implementing these policies" (Nurse 1E).

A corollary of this view was the strong suggestion by participants that nurses are more likely to adhere to guidelines if they are involved in developing them. A further argument was that locally developed guidelines, known to be written by nurses, had the best chance of gaining adherence.

"And I think that's where it falls down doesn't it, that some of them are written and people who are actually implementing them don't have the opportunity to have input into them" (Nurse 3C).

"I think it's important to make sure that policy makers who write policies for nurses are nurses, with the clinical expertise and the clinical background" (Nurse 4A).

"...in here, our local policies are written by the sisters and the people with the expertise. So we know that we have a policy that's robust, it's ratified and everybody understands and actually it is reflective of best practise" (Nurse 2C).

"And I think those are policies that don't, aren't written in that way, that tend to be pushed to one side. But I think because of the way the NHS works and litigation our policies, generally within the Trust are regularly reviewed, peer reviewed, ratified and so I think we would have less policies that wouldn't be adhered to. And people actually understand also the consequences of not adhering to a policy if something goes wrong" (Nurse 2F).

"...because the whole check list we didn't have any involvement in, did we? It just got brought in, the, you know, which one I mean, that got brought in, thrust upon is and there was pretty poor compliance wasn't there to start

with and it's got hammered into us that much now, it's second nature, we do

it. But we didn't have any involvement in it" (Nurse 3D).

5.3.2 Theme 2: Knowledge of Clinical Practice Guidelines

The second theme to emerge from the focus groups' data was nurses' knowledge.
Nurses were in no doubt about the importance of having the knowledge to adhere
to clinical guidelines, and the danger of not having that knowledge.

> *"I think it's important to be sure we've got the right staff and knowledge in*
>
> *the right place with the right skills" (Nurse 2D).*
>
> *"Without the right knowledge and understanding nurses might not realise of*
>
> *their existence" (Nurse 2E).*

The factors that made up this theme were CPG awareness and familiarity, volume
of information, the number of guidelines, accessibility, training and education and
the time needed to stay informed about guideline updates. These factors are
discussed individually in the following sections.

5.3.2.1 Awareness and Familiarity

Participants said that being aware of a guideline is obviously a promoter of
adherence to it. However, familiarity with situations that require the use of
particular guidelines may be more important because those that are seldom, if
ever, used in a nurse's daily practice are apt to be forgotten.

> *"You're being made more aware and you follow it more better (Nurse, 1D).*

I think you're being made more aware of it, so it jogs your memory" (Nurse 3D).

5.3.2.2 Volume of Information

The large volume of information that had to be absorbed in keeping up-to-date with clinical guidelines was the most discussed barrier within this knowledge theme. Participants reported that this can be a barrier to adherence.

"...some of them are like really heavy reading aren't they? And because they're so difficult to read sometimes I think people just don't bother reading them" (Nurse 1C).

"...sometimes they're just slightly confusing and if you're in a rush you think 'Oh, I'll read it later' you know" (Nurse 4E).

"When you read it, you just pick out the key words you think are relevant to you don't you? If all the rest of it is just rubbish words that you don't really read" (Nurse 1E).

"It's all hard work and you're reading and they're so long" (Nurse 2B).

5.3.2.3 Amount of Guidelines

In addition to the length of some individual guidelines, many participants commented on the amount or number of them, with the clear implication that this was also a barrier to CPG adherence.

"...clinical guidelines are just too many of them, they're there for good reason but there's way too many and they're too confusing and too long" (Nurse 3D)

"They are intense and too many" (Nurse 3A).

"...the fact that there are so many of them" (Nurse 1C).

"...the clinical guidelines; I think there's too many" (Nurse 1D).

"I agree the clinical guidelines are too many and not always adhered to" (Nurse 1F).

"I thought there was too many, you just lose track of the guidelines and you can't remember them all" (Nurse 4E).

5.3.2.4 Accessibility

In addition to their concerns about the length and number of CPGs, participants also expressed nurses' worries about the difficulty of accessing them. They did not always have easy access to computers but the greater concern, it would seem, is that they are faced, on screen, with a mass of information and that there is no easy way to search for topics that are relevant to their particular needs. This barrier, together with the length and number of CPGs, is a disincentive for nurses to try to keep up-to-date with CPGs. The implication was that, if administrators and IT staff gave more thought to this issue, nurses would be more likely to read and comprehend new CPGs and, therefore, they would be more likely to adhere to them.

"They're [guidelines] not always easy to access as well" (Nurse 2E).

"They're [guidelines] just not easy to access" (Nurse 2D).

"...web, about being able to go directly to something that's relevant to us and be able to pick, rather than trying to trawl through the whole list of policies, be able to pick out the ones that are pertinent" (Nurse 1B).

"...they [nurses] need to know something now, they maybe haven't got the time to go onto the intranet, they can't access the computer" (Nurse 3C).

A few participants made recommendations to improve accessibility to guidelines.

"...having a search icon at the NHS website" (Nurse 1A).

"...even though it's in alphabetical order, the title might throw you as to where it might be on the list" (Nurse1B).

5.3.2.5 Training and Education

Almost all the focus group participants recognised the importance of training and education in promoting adherence to clinical guidelines. They thought that providing training and education to nurses helps them to be up-to-date with guidelines and also improves their knowledge and skills. It was also clear that the participants enjoyed training sessions, as well as valuing them.

"Well if you're attending like the right training, it's a lot fresher in your mind isn't it" (Nurse 3A).

"I think if they enjoy the teaching session and they get something out of it, then it sticks in their mind, the policy sticks in their mind" (Nurse 3E).

"I think that the teaching session that we attended, there's a little bit of information in there that makes them realise how important the policy is, so that's a sort of, that's a good session that we enjoy" (Nurse 3B).

"...like guidelines change that often that if you haven't been trained in that for like four years, you might well find that it's completely different like how you're supposed to be like carrying out things" (Nurse1E).

"...but they do actually get some training on some of the policies that are pertinent to the theatre" (Nurse 1B).

However, participants reported that, though they were very willing to attend training sessions, there were many obstacles to doing so. Sometimes this was due to insufficient places on the course and sometimes, even when they had been allocated a place, they were unable to attend due to shortage of staff on the day. This created the impression that the management was not too concerned if nurses did not fulfil their training obligations. Such difficulties were seen as barriers to CPG adherence.

"There aren't resources to that, no way. When was the last time you've done BLS? It's supposed to be a yearly thing for us, like we haven't, there isn't enough places on the BLS course and then when you are on it there's not enough staff to let you go to the course" (Nurse 1E).

"Well it [management] perceives that it's not important and if people perceive that education and training is not important and that comes from a management perspective, you know they're not going to pursue that" (Nurse 4A).

"There's a need isn't there? You take people off the audit day to put them into clinical practice, so people might not necessarily get the training that they actually do need" (Nurse 4F).

5.3.2.6 Up-to-date with Guidelines

The importance of being up-to-date with clinical guidelines has been a recurring topic in relation to previously discussed aspects of this knowledge theme. However, participants also wanted to stress the value of awareness of current guidelines as an important issue in its own right in any debate on CPG adherence.

"...so you might think that you're ok with a certain policy and that you don't have to go back and read it again, but in the timescale since you last actually addressed it, it might have changed and it does" (Nurse 3D).

"...just recently there was like an incident, just something similar that happened that we followed an old, or somebody followed an old guideline, which was current at the time when it was produced but it had since changed but our files still had the old policy in. it wasn't harmful to the patient, it was still a guideline although it had been changed since" (Nurse 2C).

"...we do need to make sure our policies are updated, but we're trying all the time. It's just reaching the information" (Nurse 2E).

5.3.3 Theme 3: Behaviour in response to External Factors

Behaviour to external factors is the third theme that emerged from the analysis of the data collected from the focus groups. As mentioned and discussed in section 4.3.3, behaviour refers to the way in which nurses behave and react to specific situations. It particularly relates to what might be called external barriers to the ability of nurses to perform a guideline recommendation. External barriers include three subcategories, namely, the patient, the guidelines and factors related to the work environment.

5.3.3.1 Patient Factors

The main patient factor mentioned by focus group participants as a barrier to CPG adherence was the patient's clinical condition. Sometimes, it was not possible to follow the guideline with a particular patient or the nurse knew from his or her experience that following the guideline was not in the patient's best interest.

> *"...well for example we've got guidelines that say we need to monitor the patient when they come into recovery. You need all the monitoring on for however long, but sometimes like, depending on the patient, that's not possible" (Nurse 3B).*

> *"Sometimes it depends on how the patient wakes up and they're ripping it off or if it's a child, we take them off, we don't, as long they're crying and pink, we're happy! But the guidelines say that we should do, but it depends on the patients" (Nurse 3C).*

> *"And again, depending on the patient if you've got one that's like really agitated and confused then you need to be with them, or like you know,*

they're going to be of harm to themselves, if they're trying to climb off the

trolley then you need to stay with them, like you can't, it's easier just to say

'Do you know what this is? Do you know that'" (Nurse 1E).

5.3.3.2 Guideline Factors

Participants' comments suggested that the clinical guidelines themselves can affect nurses' behaviour in regards to adherence to clinical guidelines. Their simplicity and format seem to be particularly important.

5.3.3.2.1 Simplicity

Simple, clear and unambiguously written guidelines were reported by participants as factors that promoted CPG adherence. Such guidelines make nurses more confident that they are carrying out the essence of the guideline and, therefore, they are more willing to apply it. Participants reported that they found it very helpful if a guideline included a summary of its content and their view was that this also promoted adherence.

> *"I think they need to be simplified, put into basic so you know it's, I think*
>
> *too many overlap and I think they need to be simplified for people to*
>
> *understand, to know exactly what they're following"(Nurse 2C).*
>
> *"So it makes it simple and it stands out, it's quick to refer to and to be*
>
> *used" (Nurse 1E).*
>
> *"Summarise it, it's better and simple" (Nurse 2F).*

5.3.3.2.2 Guideline Format

Guideline format means the way guideline information is presented. Participants said that nurses prefer simple, short, coloured and laminated guidelines rather than many black and white pages. An in-depth discussion took place in most of the focus groups on this issue and on the best ways to present guidelines to nurses. The participants made a number of positive suggestions, including producing guideline summaries with bullet-points, printed as well as electronic copies, step-by-step guides and flowcharts and posting them on notice boards. Clearly, participants were eager to adhere to clinical guidelines, but they thought that the administration could do more to help them to do so by better presentation and using a variety of formats.

> *"I will print out them policies so that the staff have got them at hand to read because with the busy department it's difficult for them to get out of the theatres and resources are very short on computers and that so, it's, you know it's, they're there in black and white for them to read" (Nurse, 3E).*
>
> *"Yeah, and step by step guides of what you do, so three different options that, you know if the patient has this or you would follow that option" (Nurse 3D).*
>
> *"Like an algorithm, make it simple" (Nurse 1A).*
>
> *"...flow chart" (Nurse 1D).*
>
> *"So it makes it simple and it stands out, it's quick to refer to, rather than just having like Yeah a long document" (Nurse 1B).*
>
> *"I like, maybes read that one when I'm loitering about a bit which I wouldn't have done if it wasn't stuck on the board" (Nurse 1F).*

"It's as if what they need is the document and then a tactical paper that you would take out" (Nurse 1E).

5.3.3.3 Environmental Factors

The third behavioural subtheme to emerge from the collected data was environmental factors. Most of these related to organisational factors, such as time, number of staff, work pressure, resources, senior and peer support, audit and supervision, reminder system, communication and teamwork but there was also the issue of social evaluation threat. These topics are discussed in turn in the following sub-sections**.**

5.3.3.3.1 Time

Participants reported that reading the guidelines and updating their knowledge could sometimes be time consuming. A point that was well-made by one participant was that doubts or confusion about the details of a particular guideline are most likely to occur during a clinical crisis but that was the least suitable time to have to look up its wording. It would be better if nurses could update themselves on a regular and planned basis.

"...it's a very stressful environment so maybe that might be an indication why perhaps guidelines sometimes aren't followed because it's almost like an acute time that you need to suddenly realise that you need to be following a guideline and the last thing you want to do at that time is then

have to start reading something when you need action straight away"

(Nurse 4F).

5.3.3.3.2 Lack of Staff

Clearly relevant to the previous point, participants reported that the number of

patients in their care and lack of staff limits the time they have available to update

themselves with guidelines and, thus, to ensure their adherence. This was reported

as a barrier for CPGs adherence.

> *"Cutting nurses and no one to deliver the care" (Nurse 2C).*
>
> *"... it's all set up now but it was a long process because it was asking for a*
>
> *lot of stuff that wasn't in hand and the systems weren't set up, you were*
>
> *waiting for the systems to be set up" (Nurse 3A).*
>
> *"...having empty posts, no one is there to help" (Nurse 1F).*

5.3.3.3.3 Resources

Participants claimed that a lack of resources was a barrier to lack of adherence.

This included inadequate staffing, as detailed in Section 5.3.3.3.2, the non-

availability of other health professionals, a shortage of financial resources, or that

the resources available were simply insufficient to provide the best care while

attempting to meet required targets.

> *"...things like radiologist not being available because there's an empty post*
>
> *and things like that so sometimes it's the constriction of the services that are*
>
> *available, sometimes it had to do with money, sometimes it's to do with*
>
> *sickness" (Nurse 1F).*

"…because people are under pressure to get things done and rush things through and meet targets and because we're a target driven organisation, sometimes you know the quality of the care isn't as it should be" (Nurse 1E).

5.3.3.3.4 Peer and Senior Staff Support

Peer and senior staff support refers to the support provided by peers in terms of knowledge, experience, emotional, social or practical help to each other (100), and similar support by senior staff was said by participants to be important to them and lack of such support might result in not adhering to guidelines.

"...support processes, it's the support that you've got around you from your senior staff. How, you know there are occasions when you would like to make decisions but sometimes that may be inhibited because of whoever's in charge of the department at the time might not be helpful" (Nurse 3E).

5.3.3.3.5 Audit and Supervision

Audit is defined as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change"(102). Nurses stated that having audits and supervision on nurses will promote adherence to clinical guidelines,

"...appraisal, we have to just highlight which trust protocols are the ones that we need to be familiar with" (Nurse 2A).

5.3.3.3.6 Communication and Team Work

Akin to the view about support, reported in Section 5.3.3.3.4, communication and teamwork were issues discussed in the focus groups as organisational factors that affected CPG adherence. Participants stressed the importance of having good teamwork and communication as a promoter for CPGs adherence.

> *"...not everyone who reads the guidelines understood it exactly as everyone, you know and unless you have sort of an examples or a way of someone senior to tell them how to" (Nurse 1F).*
>
> *"I think changes in them not being filtered through is the biggest barrier" (Nurse 3D).*
>
> *"Team meeting, the nurses on the ward about once a month where the new policies and procedures will be discussed and if there's any issues with any of the policies or procedures I think that's mentioned at the team meeting as well if there's, and there's quite of lot audits on things like hand washing and you know things like that. So then it will be highlighted whether any guidance is not being followed" (Nurse 3C).*

Two aspects of communication that attracted particular comments in the focus groups were a reminder system and guideline dissemination. A reminder system provides a message or communication designed to ensure that nurses remember to adhere to clinical guidelines. Participants stated the importance of having such a reminder system and they clearly valued it as a promoter for CPGs adherence. Guideline dissemination is the process by which guidelines are distributed to

nurses. Participants' comments on this issue had obvious links with their comments about guideline accessibility in Section 5.3.2.4 but they are relevant to communication.

> *"A reminder, because in that heat of the moment when people's minds go blank, they might need a reminder" (Nurse 2C).*
>
> *"I think the policy of the month thing's good though isn't it? That's on the board" (Nurse 3E).*
>
> *"You're walking past it [reminders], aren't you? So you see it on a daily basis. It keeps reminding you" (Nurse 3B).*
>
> *"I think it's a lot better now that we have the policy of the month and we get, what about four policies a month and they're the policies a month that you know, you can look through and things. I think that's a lot better, and they tend to pick the, like this month I think there's three that are more pertinent to us than anywhere else" (Nurse 2B).*

Communication among staff to pass on guideline updates was also seen as a GPG promoter among nurses in focus groups.

> *"...I mean they are forever changing and if that hasn't been communicated to you that the policies have actually changed and you haven't taken the time to update yourself then you might be following, you might think you're following the correct policy but it might already be out of date" (Nurse 2A).*

5.3.3.3.7 Professional Evaluation Threat

A social evaluation threat stems from the fear that someone is watching and judging you. This can result in a different behaviour. According to the focus group participants, a nurse who feels or knows that he or she is being professionally evaluated is more likely to adhere to clinical guidelines.

> *"...audit, you know we do audit. If you think somebody's watching you, you're going to make sure you do it correctly"* (Nurse 2A).

5.4 Chapter Summary

This chapter has reported on the analysed results of the second part of the qualitative study, which used focus groups. The main aim of conducting focus groups was to enable nurses to share, interact and discuss factors promoting and inhibiting adherence to clinical guidelines. In summary, there were slight differences in nurses' views between interviews and focus groups. For instance, motivation and encouragement featured less in the 'Attitudes', autonomy and cost in 'Agreement with CPGs' and patient preferences and demands featured less in 'Patient Factors'. The reasons for this could be that in focus groups nurses may have lacked the feeling of privacy, and this may have prevented them exploring in more depth their feelings and views. Such behaviour was noted in one to one interviews that allowed participants to explore and expand their understanding of their feelings, experiences and insights into the phenomena under investigation and to enable a more detailed exploration of the topic in a private atmosphere. This will be further discussed in Chapter 7. Some differences may just have been

due to chance.

Chapter 6: Quantitative Study

6.1 Introduction

Chapter 3 presented the results and analysis of the systematic literature review, the first method used in this thesis to delineate the factors influencing CPGs adherence. Chapters 4 and 5 presented an analysis of the data gathered in one-to-one interviews and focus groups with nurses on promoters of and barriers to CPGs. That was the second method used in this thesis to identify factors influencing CPG adherence. This chapter presents the final method used in this thesis to acquire that information. It was a quantitative method using an online questionnaire, the rationale, design and methodology of which were explained in Section 2.6.

6.2 Quantitative Recruitment

The quantitative recruitment process used to collect questionnaire responses was similar to the qualitative recruitment process. However, the recruitment process in quantitative study used a purposive sampling technique. The aim of using purposive was to recruit nurses who were from mental, paediatric, medical and woman's health. The reason for this was to increase the representation of nurses from different backgrounds other than the surgical specialities, which was a limitation in the representation of the qualitative studies.

A new research site was added to this study (Tees, Esk and Wear Valleys NHS Foundation Trust) and specific wards were targeted.

A list of contact details of head nurses and matrons was provided by Research and Development (R&D) managers from Tees, Esk and Wear Valleys NHS Foundation Trust and South Tees NHS Trust. Invitations to participate were sent by email through their department managers. Therefore, there was a chance that not all the mangers passed on the invitations, even though frequent reminder emails were sent to the mangers to encourage their nurses to take part in the study. Nurses who responded to the invitations to take part in this study were provided with information sheets which included details about the aims and objectives of the study, consent, study design, confidentiality, ethical approval, data collection, data storage and dissemination. The information sheets also included details about actions that would be taken if any disclosures of professional misconduct or potential breaches of the criminal law were made during the completion of the online questionnaire. The email about the study was attached with a hyper link (URL) to access the website that ran the online questionnaire. On screen consent was sought out from all participants before taking part in the questionnaire.

In order to encourage questionnaire uptake by nurses, a ten pound (£10 GBP) Amazon voucher was provided to the first fifty participants who volunteered to take part. A total of 61 nurses took part in the study; Table 6.1 summarises nurses'

demographic data. From this table it can be seen that nurses' were from a variety of backgrounds and specialties, offering a broad sample.

Table 6.1: Demographics of participants in questionnaires

Ward Speciality	Gender		Total Nurses	Nurses levels	
	Male	Female		Junior	Senior
Child care	1	13	14	9	5
Maternity	0	12	12	8	4
Medical	4	13	17	7	10
Mental	0	8	8	2	6
Surgical	1	9	10	5	3

6.3 Questionnaire Results

This section will present the results of the online questionnaire that was conducted to evaluate the most influential promoters and barriers to CPG adherence among the nursing profession.

A five element fully anchored symmetric Likert Scale with a neutral midpoint was used (103). Likert scale data are properly ordinal in nature rather than interval data, and in principle should not be subjected to arithmetical operations (104). However, this approach can be justified where the outcomes appear to *behave* as numbers – where, for instance the outcomes are normally distributed. When this is possible, there is a significant gain in the economy of summary presentation and comparisons between different sets of responses are facilitated (105). While being aware of the limitations of this approach, it was employed in this instance, believing that the advantages outweigh the disadvantages.

The questionnaire was divided into two parts, 26 statements on possible promoters of CPG adherence (Table 6.2), followed by 10 possible CPG adherence barriers (Table 6.3) and participants were asked to indicate whether they strongly disagreed, disagreed, neither agreed nor disagreed, agreed or strongly agreed with each statement. The reason for choosing a 5-point Likert scale design rather than 7 is because it is much easier and simpler for the participant to read out the complete list of scales (106).

6.4 Analysis of Questionnaire Results

The analysis of the results was based on counting the weight of the agreement by participants to each statement on the questionnaire. The five possible answers to each question formed a 5-point Likert scale and, thus, each response could be given a value from 1 for Strongly Disagree to 5 for Strongly Agree.

A mean is "one measure of the central tendency either of a probability distribution or of the random variable characterised by that distribution"(107), while the standard deviation (SD) "shows how much variation or dispersion from the average (mean, also called expected value) exists. A low standard deviation indicates that the data points tend to be very close to the mean; a high standard deviation indicates that the data points are spread out over a large range of values"(108). The analysis of the questionnaire results consisted of taking each of the statements in turn, calculating the mean and standard deviation (SD) of the response values from all respondents to that statement and then

comparing these between statements. This was done separately for the 26

statements about possible CPG promoters and the 10 statements about possible

CPG barriers. Tables 6.2 and 6.3 show the participants' levels of agreement to

each of the statements. The data was sorted in ascending order according to the

mean of responses.

Table 6.2: Questionnaire Results of Promoters of Clinical Guidelines Adherence. Results are sorted by the mean of responses from largest to smallest (a higher mean value indicates a higher agreement among nurses to this statement)

Q. ID	You adhere to Clinical Practice Guidelines because:	Mean	St. Dev.
Q4	You are accountable for your action	4.51	0.71
Q1	They are mandatory and compulsory	4.50	0.95
Q2	You are competent and you have the skills to carry out the task	4.26	0.69
Q8	It standardises care as well as providing patient safety	4.26	0.60
Q3	You have the knowledge to carry out the task	4.04	0.81
Q12	You are aware of the guideline's existence	4.02	0.44
Q6	It protects you from risk	4.02	0.75
Q11	It could be cost effective when performing a clinical procedure	3.98	0.43
Q13	You are having audits and supervision by seniors	3.96	0.60
Q9	Habit and routine enable you to become familiar with guidelines, and thus, more likely to adhere to them	3.94	0.62
Q14	You receive good communication and good leadership around guideline adherence	3.90	0.74
Q15	You receive peer support, as well as support from senior staff in carrying out your duties	3.90	0.71
Q16	There is someone watching you and assessing how you behave	3.88	0.72
Q26	They are disseminated in a variety of ways, including intranet databases, e-mails, face-to-face sessions, team briefing, and through the management chain	3.86	0.61
Q10	You receive motivation and encouragement	3.80	0.58
Q19	They are developed locally	3.78	0.68
Q7	Sometimes, you feel you lack the professional experience (knowledge and skills) for a particular situation	3.67	0.75
Q5	You fear you may lose your job	3.62	1.01
Q18	They are issued with a clear scientific base supporting them	3.50	0.89
Q17	The guidelines are applicable, without too much difficulty, to patients and clinical situations	3.48	0.89
Q20	You were involved in developing the guidelines	3.19	0.91
Q21	They are accessible and easy to find	3.06	1.04
Q22	They are written in clear and unambiguous text	2.80	1.00
Q25	They are designed with a reminder system that provides messages	2.60	0.83
Q24	They are coloured and laminated	2.46	0.77
Q23	They are simple and short	2.36	0.83

Table 6.2 shows the analysed results for the first part of the questionnaire about the factors that promote adherence to CPGs among the nursing profession. Q4, which relates to the statement "You adhere to Clinical Practice Guidelines because you are accountable for your actions", had the highest mean of agreement, and Q1, which relates to the statement "You adhere to Clinical Practice Guidelines because they are mandatory and compulsory", had the second highest level of agreement. These results suggest that nurses believe they adhere to CPGs primarily because they are mandatory and compulsory and because they will be accountable for their actions if they fail to do so. The underlying attitude here is compliance, as described in Chapter 4, and this result therefore corresponds with the results of the qualitative studies, which indicated that the nurses' attitude of compliance to mandatory and compulsory guidelines, in light of their accountability, (in Figure 4.1) is an influential promoter for CPG adherence. Accountability and CPGs being mandatory cannot readily be separated in practice. On the other hand, Table 6.2 also showed that Q23 and Q24, which relate to the statements "You adhere to Clinical Practice Guidelines because, they are simple and short" and "You adhere to Clinical Practice Guidelines because, they are coloured and laminated", produced a lower mean of agreement than the other promoters listed, falling below the neutral point of 3.0.   This means that nurses are disagreeing with the format as a promoter because they disagree that CPG are simple and short, coloured & laminated. This corresponds to the qualitative finding that format is a barrier. Similarly Q22 and 25 ("They are written in clear and unambiguous text" and "They are designed with a reminder system that provides messages") fall below the neutral point, although not by so

much – again this suggests that nurses do not agree with the view that the text is clear or that reminders are provided!

It is important to note that there is no ranking to the qualitative data; rather the questionnaire data validates the existence of the themes which emerged from these qualitative discussions.

Table 6.3: Questionnaire Results on Barriers to Clinical Guideline Adherence. Results are sorted by the mean of responses from largest to smallest (a higher mean value indicates a higher agreement among nurses to this statement)

Q. ID	You do not adhere to Clinical Practice Guidelines because,	Mean	St. Dev.
Q10	Sometimes, clinical guidelines are rigid and not flexible to adapt to a particular clinical situation	4.06	0.47
Q2	Not all guidelines are applicable to a particular patient	3.98	0.25
Q8	Patient preference for one treatment rather than another, may not accord with clinical guidelines	3.90	0.47
Q3	Of time constraints and work pressure	3.83	0.72
Q7	You lack training and education	3.82	0.86
Q9	Following a guideline recommendation would not always lead to improved outcome	3.82	0.63
Q1	You do not always agree with a guideline	3.55	0.94
Q5	You lack the resources and funds to carry out clinical procedure	3.55	0.89
Q6	You lack understanding of a guideline	3.45	0.82
Q4	They are a challenge to your professional autonomy	2.49	0.71

Table 6.3 shows the analysed results for the second part of the questionnaire where participants were asked to state their level of agreement to 10 statements of possible barriers to CPG adherence among the nursing profession. As the chart shows, Q10, which relates to the statement "You do not adhere to Clinical Practice Guidelines because, sometimes, clinical guidelines are rigid and not flexible to adapt to a particular clinical situation" received the highest score using the data analysis method described earlier in this section. Thus, the respondents considered this factor to be the most influential barrier for CPG adherence. The

second most influential barrier was Q2 which relates to the statement "You do not adhere to Clinical Practice Guidelines because, not all guidelines are applicable to a particular patient". The results suggest that what may stop nurses from adhering to CPGs is that CPGs are not flexible enough for different clinical situations and nurses sometimes need to make their own professional judgements, based on the case or the patient condition they are dealing with, regardless of the CPG. This again relates to the qualitative research results shown in Figures 4.1 and 5.1, which highlighted that nurse's attitude towards CPGs' applicability in certain clinical situations were considered as barriers for adherence. Interestingly, the least agreement was for Q4 "You do not adhere to Clinical Practice Guidelines because, they are a challenge to your professional autonomy". Most nurses agreed that adherence to CPGs does not affect their professional autonomy and this was the least influential barrier to CPG adherence. Again, this validates the results of the qualitative studies that the least influential barrier was that adherence to CPGs will affect nurses autonomy.

6.5 Limitations

From the above, it can be seen that the data analysis of the answers to the online questionnaire was based on reviewing the mean of responses and their standard deviations. This method of analysis is not the most complex method of analysing quantitative data but this research aims to achieve a general overview of the most influential promoters and barriers for CPGs adherence and, for that purpose, the simplicity and clarity of the results achieved by this method are clear advantages.

However, it should be said that the use of this simple methodology may pose some risk to the validity of the results.

There are standard limitations of questionnaires which also apply here. For an electronic questionnaire of this kind, it is not possible to calculate a return rate, and it is not possible to determine whether or not the respondents are typical. On the other hand, the offer of a reward may help encourage responses from a wider range of participants than would otherwise take part.

6.6 Summary

Notwithstanding these limitations, it can be clearly seen from Tables 6.1 and 6.2 that there is good agreement with the coding presented in Chapters 4 and 5, with the additional benefit that a semi-quantitative ranking can be drawn from the results of the questionnaire study. The 4 questions which returned values below the neutral point in Table 6.1 and the 1 question in this category in Table 6.2 are framed as the inverse of the corresponding elements of the codings and therefore represent agreement. Within the limitations of the study there is no evidence, therefore, to indicate that the nurses responding in the qualitative studies were different from those in the quantitative study reported in this Chapter.

Chapter 7: Discussion and Final Conclusions

7.1 Introduction

This chapter will discuss the results of the systematic literature review and the qualitative study that produced data from both individual interviews and focus groups with nurses. It will also discuss the results of the questionnaire used to validate the results of the qualitative arms of this research. It will include a discussion of the implications of the research findings, as well as their limitations. The discussion will highlight the themes that have emerged from the research and how the findings might stimulate further research. Finally, as a result of the research contained within this thesis, the author has produced a framework and a table of recommendations to assist policy makers, health care organisations, medical educators and nurse managers in writing new guidelines, or updating current guidelines, in a manner that is likely to improve nurses' adherence to CPGs and, thus, improve overall patient care and safety.

As discussed in Section 1.6, the aim of this study was to identify factors that promote adherence to clinical practice guidelines by nurses and factors that pose barriers to such adherence. Nurses' adherence to CPGs is believed to be vital in order to improve patient care and patient safety (see references in Chapter 2 and subsequently). However, a variety of promoters can be seen to make adherence more likely, and a variety of barriers may make adherence less likely.

It should be stressed here that, as discussed in Chapter 3, the analysis of the systematic literature review was based on categorising the data into two main groups, namely, environmental and personal factors and this took place before initiating the qualitative study, as shown in both Table 3.5 and Table 3.6

The main research contribution of this thesis is the production of a framework for promoters for and barriers to CPG adherence among nurses. The framework is presented in Figure 7.1 below. It suggests ways in which policy makers, medical educators, health care providers and managerial staff could improve nurses' adherence to CPGs and, thus, improve overall patient care and safety. It could also assist policy makers in writing new guidelines and in updating the current guidelines. It is hoped that the framework of the promoters of and barriers to CPG adherence, and the findings of this research, will help medical educators to increase nursing students' awareness of and adherence to CPGs during undergraduate education. These students will graduate with better awareness of the factors that will increase their own and colleagues' CPG adherence and, thus, they will achieve higher quality care and improve patient safety. Also, health care organisations need to develop better models for clinical guideline development and awareness, especially among nurses, and to have a greater insight into the factors that promote or inhibit adherence to them.

In analysing the data from both the individual interviews and the focus groups, Cabana's classification framework was used as a starting point in developing an

updated framework for factors of that influence adherence to CPGs by nurses (10). The choice of Cabana's framework was based on the fact that it was the first framework developed to address factors for CPG adherence. The framework in Figure 7.1 is based on nurses' opinions, views and feedback, from one to one interviews, focus groups and an online questionnaire, regarding promoters of and barriers to CPG adherence. As discussed previously, although the framework construction was mainly based on the views of nurses with a surgical background, it can be claimed that it is generalisable to other nursing groups after the results on which it was built were confirmed by the results of a questionnaire-based survey of nurses from a much wider range of specialisms, as discussed in Section 6.2.

As shown in Figure 7.1, the three main themes that emerged from all three studies were attitudes, knowledge and behaviours related to external factors.

Figure 7.1: Framework for factors affecting adherence to clinical guidelines among nurses
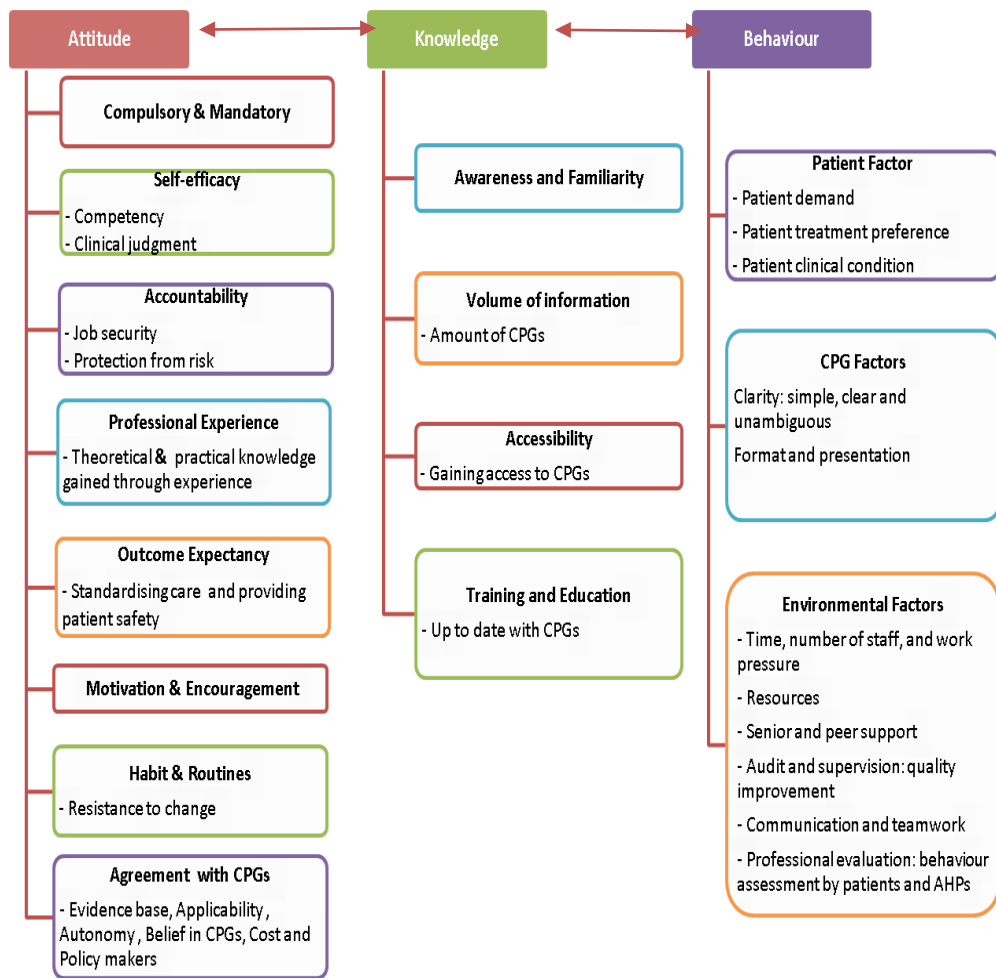
Based on the framework in Figure 7.1 that was created to summarise the factors that influence nurses' adherence to CPGs as well as on previous research in this field, a set of recommendations has been developed to help policy makers, medical educators, administrative and managerial staff in health care settings, as well as nurses themselves, to improve nurses' adherence to CPGs. These recommendations are set out below in Table 7.1 and will be discussed throughout Chapter 7.

Some of the recommendations listed in Table 7.1, could be more easily addressed than others. For example, for recommendations related to health care organisations, it may be easier to achieve immediate changes in nurses' knowledge by providing direct training and education. Health care organisations and can easily disseminate CPGs through their online databases and constantly send reminders to nurses to follow the updated CPGs. In contrast; it is less achievable for health care organisations to immediately increase the number of nurses in wards, or provide all resources necessary, due to financial challenges.

Policy makers could immediately involve more nurses in writing, developing and evaluating CPGs before disseminating them. This would help nurses to understand the scientific rational behind CPGs, and convince them to adhere to them, improve their knowledge and communicate them easily to their fellow nurses without complexity.

Nurses' managers could be encouraged to pay more attention to new nurses on their wards by providing them with orientation programs, support and motivation. This can be achieved through line managers and the nursing staff, to help new nurses to adapt easily to the new environment and thus potentially improving CPG adherence.

In summary, this Chapter will attempt to discuss the results of the literature review, qualitative studies and finally the quantitative evaluation study. In order to achieve this, Sections 7.2, 7.3 and 7.4 will explain and discuss the effect of nurses' attitudes, knowledge and behaviour to external factors on CPG adherence on all the three studies respectively. Each theme will be discussed separately in relation to all three studies in one section in order to pull together the similarities and differences in each chapter; in order to analyse and integrate the results.

Sections 7.2.1, 7.3.1 and 7.4.1 will highlight and suggest recommendations for health care providers, policy makers, medical educators and nursing managers respectively. Section 7.4 will present an overall summary of all the studies followed by Section 7.5 where limitations of the thesis will be presented. Finally Section 7.6 will suggest future work based on this thesis and Section 7.7 will present an overall conclusion to the thesis.

7.2 The Effect of Nurses' Attitudes on Adherence to Clinical Practice Guidelines

Based on the framework in Figure 7.1, this section will discuss nurses' attitudes to CPGs adherence, which was a prominent element that emerged from the data collected from both the individual interviews presented in Section 4.3.1 and the focus groups presented in Section 5.3.1. This was also clearly among the personal factors identified in the systematic literature review discussed in Section 3.4. The quantitative study (chapter 6) also helps confirm these results.

In chapter 3, the investigation of the collected literature identified attitudes as important factors in CPG adherence, as shown in Table 3.5 and 3.6. The aim of conducting a systematic literature review was to search the existing literature to find factors that promote and inhibit adherence to CPGs not only among nurses but also among doctors and AHPs. It is interesting to note that doctors have been the subject of most studies on adherence to CPGs and many fewer have applied to nurses and AHPs. For this reason, the rest of the thesis focussed on nurses to fill the gap in the literature regarding this subject.

The systematic review presented in chapter 3 showed that, of the relevant studies identified, most were related to doctors' attitudes as a barrier for guideline adherence (Figure 3.1) followed by nurses' attitudes (Figure 3.2) and attitudes of AHPs (Figure 3.3). It also showed that attitudes toward CPGs are a more influential barrier to CPG adherence for doctors than they are for nurses and AHPs. Overall, there are noticeable differences between nurses and doctors with regards to factors that promote and inhibit adherence to CPGs, but only a slight difference between nurses and AHPs. Reasons for these differences might be in the roles, years of study, salary and responsibilities of doctors compared with nurses and AHPs, although they work side by side to deliver the best care for patients. This was discussed and explained previously in Section 3.4.

As with the systematic literature review, the most prominent theme to emerge from the interviews, focus groups and questionnaires data relates to nurses' attitudes. Within the interviews and questionnaires, the foremost promoters of CPG adherence were accountability and compliance with the mandatory and compulsory nature of the guidelines. Colo in 2007 (29), in his qualitative analysis of nurses' interviews, discussed that according to the Accountability Act, nurses adhere to CPGs because they worry about losing their nursing licence (29). Moreover, Harrison et al. in 2003 (36), in his interview-based study about doctors' attitudes towards following CPGs, discussed that accountability is a strong promoter for doctors' decision making to adhere to CPGs (36). Interestingly, neither of these sub-themes was extensively mentioned in the focus groups. The analysis of the qualitative data collected from the four focus group interviews revealed that, the most perceived promoters for adherence were self-efficacy, outcome expectancy and agreement with the policy makers. The observation that accountability and the guidelines being mandatory attracted less comment in focus groups might be explained as nurses in focus groups could lack the feeling of privacy. This may prevent them exploring in more detail their feelings and views. Such behaviour was noted in one to one interviews that allowed participants to explore and expand their understanding of their feelings, experiences and insights into the phenomena under investigation and to enable a more detailed exploration of the topic in a private atmosphere. In addition, online questionnaires provided participants with a more private atmosphere in which to share their views and feedback on CPGs adherence. Despite this fact, it is clear that nurses held the view that they adhere to CPGs because of their mandatory and

compulsory nature. Nurses do not always adhere to CPGs because there may be good reasons not to do so, for instance where the patient's condition or particular clinical situation requires a different course of action. This was also confirmed by other research groups (90, 109, 110), where it was stated that nurses were unable to adhere to CPGs due to a patient's condition not corresponding exactly with certain guidelines. Patient care, and the quality of care and safety, as shown by patient outcomes, has to be at the centre of nurses' accountability. Thus, health care organisations should have faith in nurses' clinical judgments and allow for patient preference in health care.

The compulsory and mandatory nature of CPGs aids adherence by nurses through compliance, since they regard it as part of being professional and conforming with the 'The Nursing and Midwifery Council (NMC) Code' of conduct (96) . This also means that nurses are aware that non-adherence to CPGs could be considered as an illegal act and, thus, affect their NMC registration.

Nurses are very aware that being responsible and accountable for their decisions and actions and adhering to CPGs protects them from the risk of disciplinary or legal action. Therefore, it is important that nurses are aware of the expectations of their managers, recognise their own responsibility and accountability for their actions, and ensure that they always perform within the limitations of their own competence. Also, nurses have the duty to make sure that they have the suitable knowledge and skills needed in any clinical situation. Failing in doing so, will

result in nurses facing questions about their professional code of conduct or even legal action. Moreover, nurses are aware that ignoring CPGs could threaten their profession registration and job security. Therefore, job security is another promoter for CPG adherence and nurses recognise that this depends on them being accountable for their actions and decisions.

Having all the necessary skills and knowledge positively influences adherence to CPGs. Self-efficacy, competency and the ability to exercise clinical judgement are considered by nurses as promoters of CPG adherence in their profession. This finding corresponds to the results of the systematic literature review in this thesis.

According to the literature review in section 3.4, health care professionals do not always agree with CPGs and this makes it less likely that they will adhere to them. Disagreement can be caused by the way in which the CPGs were developed and the strength or weakness of the evidence base behind it. Interestingly, agreement with CPGs is less important as a barrier for nurses than it is for doctors and AHPs. This was also supported by the qualitative studies and also the quantitative study; as shown in Table 6.3, where nurses responded to the question "You do not always agree with a guideline" had one of the lowest agreements of all the statements. According to Cabana in 2002, agreement and disagreement with CPGs was amongst the barriers for CPG adherence in doctors (111). He discussed that utilising guidelines can be tailored to physician intervention depending on their understanding of care quality (111). This information is important for policy

makers when writing and updating CPGs. Policy makers need to be aware that nurses attitudes towards CPGs differs for doctors on one hand and nurses in the other hand.

As previously reported in the systematic literature review, qualitative and quantitative studies, professional experience is also considered as another factor for CPG adherence. Having professional experience allows a nurse to assess an event and thus use his or her clinical judgment (99). Though this has similarities to self-efficacy and competency, it emerged as a separate sub-theme. According to Jones et al. in 2007, the lack of critical care experience in nurses is one of the factors that influence nurses adherence to CPGs (34). They also stressed the importance of critical care team agreement to a specific CPG. (34). Therefore, new nurses and those who are new to an organisation tend to adhere more to CPGs than more experienced nurses. This may be explained by the fact that new nurses can be unsure of their clinical judgment and use CPGs as a standard to deliver care. Thus, this attitude is a promoter for CPG adherence. Moreover, new nurses also tend to seek peer support from those who have more professional experience. This is another promoter for CPG adherence. However, lack of professional experience was thought to be a barrier to CPG adherence in some circumstances.

Nurses are known to be flexible in their work environment and thus they are sometimes asked to work in different settings. Although many nurses have a wide range of skills and knowledge, being moved from one ward to another can result in a nurse not having enough experience, skills and knowledge for every task. This could be considered as a barrier for CPG adherence. It is therefore important for nurses' mangers and in-charge nurses to be aware that moving nurses around different wards might result in nurses not having all the knowledge and experience needed in the particular clinical situation in which they find themselves. This can result in nurses not knowing about relevant CPGs and thus failing to adhere to them. In turn, this could affect patient care and the safety of patients. Clinical managers need to be aware of this fact and instead of risking their nurses they could employ other strategies, for example, increasing the number of nursing staff. However, this might not be feasible in the current financial climate of the NHS, where cut backs are being made constantly. Managers can also increase the quality of their nurses' care by providing them with the training and education necessary to ensure that nurses have all the required skills and knowledge.

The data collected in focus groups, one-to-one interviews and questionnaires showed that outcome expectancy influenced adherence to CPGs. This means that, if a nurse was confident that adhering to a CPG would lead to a good outcome, he or she was much more likely to do so. In general, nurses believe that adhering to CPGs is the best way to provide quality of patient care, safety and protection. This attitude is a promoter of guideline adherence. In the literature that was reviewed,

doctors', nurses' and AHPs' beliefs about the outcome of a CPG will affect their adherence. Nurses' belief in outcome expectancy was the strongest barrier for CPG adherence comparing them to doctors and AHPs. Conversely, sometimes, outcome expectancy can be a barrier to CPG adherence. For instance, if a nurse disagrees with a guideline or is not convinced about the strength of the evidence base supporting the guideline, he or she might be inclined to ignore it or not adhere to it fully. This claim is supported by Ploeg et al. in 2007, in a survey for nurses where it is highlighted that negative attitudes and beliefs amongst nursing staff towards CPGs limits adherence (112). Interestingly, the systematic literature review revealed that this is also a common barrier for adherence among doctors (10, 111, 113-117). The qualitative studies and questionnaire survey also indicated that this is an influential barrier for nurses' adherence to CPGs. Therefore it is important, through training and education, that nurses receive full explanations of CPGs and the evidence on which they are based. It is the responsibility of the health care organisations to provide a special budget for nursing training and education.

Habit and routine can be both a promoter and a barrier for CPG adherence. According to Quenot, in 2008 (118) and Offerhaus in 2005 (119), habit and routine practice can cause doctors and nurses not to adhere to CPGs due to their resistance to change in their practice (118, 119).. The daily routine of implementing a certain guideline is likely to improve adherence to it as the health care professional becomes more aware of that guideline and more familiar with it. However, habit and routine can also be a barrier to adherence, especially when

CPGs are updated and health care professionals are not motivated to change their habits and daily routines. Only a few of the relevant studies reported this as a barrier among doctors, nurses and AHPs respectively (29, 40, 114, 115) . Nurses need to be regularly reminded and updated about any changes made to CPGs. Health care organisations can also increase nurses' CPG awareness by ensuring that nurses attend regular training and education sessions for knowledge and skills enhancement. According to the results of this research, these activities could increase both nurses' awareness of CPGs and their CPG adherence and, thus, improved patient outcomes, care and safety.

Autonomy may also be related to self-efficacy. If health care professionals' are confident that they have all the required skills and knowledge, they are more likely to adhere to CPGs, and thus self-efficacy can be considered as a promoter of adherence in the right circumstances.

It is noticeable that there are marked differences in the reasons behind CPGs adherence between doctors on the one hand and nurses and AHPs on the other hand. These differences may be caused by differences in the roles, years of study, salary and responsibilities of these two groups of health professionals, despite the fact that they work side by side to deliver the best care for patients. Much of the reviewed literature (1, 114, 120, 121) discussed doctors' autonomy as a barrier for adherence to CPGs. It is noticed that doctors have some concerns towards "cookbook medicine", where they have to follow certain rules and regulations

blindly. In contrast, nurses and AHPs were taught to follow such instructions to achieve best quality of care and so autonomy is less of a barrier to CPG adherence in nurses. Perhaps this goes to the interesting question of the key difference between the roles of doctors and nurses.

Providing nurses with motivation and encouragement are other promoters in nurses' attitudes for CPG adherence. This can be done by nurses having supportive teams and encouragement from senior staff and management to adhere to CPGs. This could be achieved through good communication and psychological support (122), where it was stated that nurses' adherence to CPGs improved through increasing nurses' motivation.

Nurses' attitudes can also be linked to adherence to CPGs by their attitude towards professionalism. For example, Yoder (1995) suggested that if nurses perceived that an interest was taken in their career development, and their work was valued, then nurses would view this as professionally important (123). This perception of importance often influenced intent to stay positive about their jobs. This would then likely lead to nurses adhering better to CPGs (123). Moreover, nurses' attitudes toward professionalism have a direct influence on undergraduate nursing students (124). Undergraduate nurses perceived registered nurses as role models for them that informed their own attitude toward professionalism. Therefore medical educators and health care providers need to be aware of this fact in order to improve CPGs adherence by providing encouragement and

motivation for nurses to act as role models for others in showing good adherence to CPGs.

The NMC sets general guidelines for professionalism in the form of the Nursing Code. This is intended as a key tool in safeguarding the health and wellbeing of the public (125). The NMC Nursing Code states that *"As a professional, you are personally accountable for actions and omissions in your practice and must always be able to justify your decisions. You must always act lawfully, whether those laws relate to your professional practice or personal life"* (125). Therefore, nurses' professionalism is related to nurses' attitudes to CPGs. In order, to achieve professionalism and thus comply with the Nursing Code, nurses must adhere to CPGs; otherwise they may face legal actions. The results of this thesis, as shown in the interviews, focus groups, and questionnaires, strongly suggest that the professionalism of nurses is a major influence in their decision to adhere to CPGs.

If health care organisations, policy makers and managers work on convincing nurses about the relevance of CPGs, nurses' attitudes to CPGs, and their adherence, will be improved. Staff nurses who trust and believe in CPGs are much more likely to adhere to them and to deliver the best quality care. Finally, the collective attitudes of all doctors, nurses and AHPs towards barriers and promoters to CPGs are important factors for adherence, affecting the ability to work as a team to deliver the best possible high quality of care. Again adherence to CPGs is important because they provide AHPs with the best available evidence

and strategies for diagnoses and treatment, improving patient care, and assist clinical decision-making.

7.2.1 Summary of Recommendations for Health Care Providers, Policy Makers, Medical Educators and Nursing Managers

In order to improve nurses' adherence to CPGs, health care organisations, managers and medical educators need to be aware of the importance of the effect of nurses' attitudes towards CPGs and, perhaps the need to change nurses' negative attitudes towards CPGs. Although the NHS faces regular financial crises this should not be allowed to compromise health care standards by reducing the number of nurses or their training and education. Health care organisations must invest in their nurses as they are the biggest part of the hospital workforce and improving nurses' knowledge and skills will have a direct influence on patient care and safety. In the context of the current financial strains, it is important to note that nurses' adhering to CPGs can reduce bed days in hospitals and the resultant savings could be applied to other areas of patient care.

Policy makers should also involve more nurses in their decision and policy making and they would find that this would improve nurses' attitudes toward CPGs. This includes involving nurses in the CPG development process, as discussed in Section 1.2. The results of this thesis indicate that, to adhere fully to CPGs, nurses have to believe in and trust the designers and policymakers. This can directly influence nurses' agreement with, awareness of, and trust in the

evidence-base of CPGs. Moreover, policy makers need to be aware that, in some cases, CPGs are not applicable, not valid or need updating. Sometimes they are also poorly designed. It is important to stress the fact that CPGs that have a clear evidential base supporting them are more likely to promote adherence to than guidelines that do not, on the basis of the findings presented here. Agreement with and confidence in the policy makers are other promoters for adherence to CPGs. Staff nurses' sometimes do not adhere to CPGs because they believe that policy makers are not involved in their clinical areas. Nurses would be more likely to adhere to CPGs if they were involved in developing these policies. It would seem that involving nurses in developing CPGs could be a major promoter of CPG adherence. These factors explain why it is so important to take an evidence-based approach to guideline development. It is also wise to keep in mind that guidelines are dynamic and evolving; they must change to keep pace with new scientific knowledge and technologies. Nurses have to be trusted to use their clinical judgment and professional experience to evaluate the clinical situations. Moreover, difficulty in CPG application is a barrier to CPG adherence. Policy makers must ensure that when developing CPGs for nurses they have to take into account their applicability in real life situations. Policy makers would be helped to achieve this if they involved more nurses in writing or updating CPGs because nurses could advise them on CPGs' practicality, applicability and feasibility in clinical situations. All of the immediately preceding comments arise from the results of this thesis.

Nurses' confidence in the policy maker or experts responsible for developing a CPG is another important promoter in adherence to CPGs. The literature demonstrates that confidence in policymakers is also a concern for doctors and that a lack of confidence can be a contributing barrier for non-adherence (13, 16, 126). The results of the questionnaire survey also confirmed that not involving nurses in policy making was seen by nurses as an influential barrier for CPG adherence. If policymakers and policy developers involved nurses in all the processes of developing, updating and writing CPGs, this would increase nurses' trust in the policy makers and in CPGs which, in turn, would lead to better CPG adherence.

Medical educators who train nursing students have an important role in facilitating nurses' development of good attitudes towards CPGs and adherence to them. If this happens during nurses' undergraduate education, it will enhance graduate students' attitudes to CPGs when they enter professional life and, in turn, it will improve adherence to CPGs. Having both the knowledge and skills can be considered as a promoter for adherence to CPGs.

Medical educators need to be aware that outcome expectancy influenced CPGs adherence among nurses. This means that, if a nurse was confident that adhering to a CPG would lead to a good outcome, he or she was much more likely to do so. In general, nurses believe that adhering to CPGs is the best way to provide quality of patient care, safety and protection. It is the responsibility of medical educators

and also health care organisations to proote understanding of the outcomes and to inform their nurses if there are any updates or changes in CPGs, especially the day-to-day and frequently-used CPGs. Moreover, health care organisations need to dedicate a special training and education budget to update nurses on CPGs.

Another factor that might also affect nurses' attitudes towards adherence can be related to the undergoing change management within NHS. As the NHS has recently undergone a period of technological, social and economic change, different departments' managers were encouraged to facilitate these changes within their organisations and the wider NHS. The change itself can affect individuals in their working environment in a variety of sources, such as the change for service improvement and how it is delivered, the organisational change through restructuring within organisation, and finally, the change through their career development (127). Managers need to ensure the continuous support to their teams through the change process, as different types of change require different support methodologies. Individuals themselves must also be willing to support this change (127).

In summary, health care organisations, policy makers, medical educators and managers need to be aware of the importance to CPG adherence of nurses' attitudes to CPGs. They need to develop new strategies to improve nurses' attitudes towards adherence to CPGs. Among the factors to be considered are

nurses' training and education, encouraging and supporting nurses and looking at health care organisational structures.

7.3 The Effect of Nurses' Knowledge on Adherence to Clinical Practice Guidelines

Knowledge of the guidelines is the second theme discussed in this thesis for promoters and barriers for adherence to CPGs. Factors related to knowledge were awareness and familiarity, volume of information, number of guidelines, accessibility and training and education. The knowledge theme is discussed below in relation to the results of the systematic literature review, the individual interviews and the group interviews or focus groups. The questionnaire survey helped rank the results obtained by the other research methods and to evaluate the most influential barriers to and promoters of CPG adherence.

In the systematic literature review, knowledge was considered as a promoter as well as a barrier for adherence. Having the knowledge, as well as having the belief that guidelines improve knowledge, was seen as a promoter for adherence.

Chasuk, in 2001(128), in a survey of doctors, highlighted the importance of doctors having the knowledge of the existence of CPGs to improve their adherence (128). This was later supported by Chiu, in 2010 (129) where he compared nurses to doctors knowledge of CPGs and found that physicians'

knowledge regarding CPGs implementation were greater than nurses' (129). This means that doctors had more knowledge of guidelines, and thus they were more aware of issues of adherence. Out of the total number of studies examined, only a small number of studies referred to knowledge about CPGs among doctors as a promoter for CPG adherence but no studies were found that dealt with knowledge in relation to CPG adherence for either nurses or AHPs. All participants in the interviews agreed that CPG adherence depends on knowing of their existence and understanding them. Lack of such knowledge is obviously likely to cause nurses to fail to follow guidelines (130). Moreover, both focus groups responses (as discussed in section 5.3.2) and the results from the questionnaires also show that lacking knowledge about CPGs is likely to cause nurses to fail to follow them. Lack of awareness of guidelines is known to lead nurses to unintentionally ignore them and this affects the delivery of care (113, 131).

The volume of information is also considered as a barrier for CPG adherence. Long guideline documents and too many of them require nurses to memorise a lot of information and this risks them forgetting and not adhering to CPGs. Early studies on guidelines have identified the importance of summarised CPGs. Gorton in 1995 (132), and Hayward in 1997 (42), both highlighted that simple, short and friendly format will encourage adherence (42, 132). Based on that, policymakers need to have CPGs condensed or summarised so that they are clear and much easier to understand and remember (1, 15, 38, 133).

Training and education on CPGs also improves nurses' knowledge and skill of patient quality of care (134, 135). Both Lineker (134) and MacDermid, in 2009 (135) concluded that providing training and education improves adherence, as well as involving educators in workshop sessions that focuses on improving the quality of care (134, 135). Almost all participants in the qualitative and quantitative studies reported that training and education is important for them in order to improve their knowledge and skills, including keeping them up to date with CPGs. The importance of training and education in enhancing nurses' adherence to CPGs was discussed extensively in Section 7.2 and Section 7.2.1.

Many participants in the questionnaire felt that training and education was not seen as important in their organisation. This can be due lack of resources for training, lack of staff on the ward so that nurses could be released for training, and courses having limited spaces. This results in nurses not adhering to CPGs because they are not aware of them. This fact is seen as dangerous for patients and a threat to nurses' professional accountability and job security. Nurses need scheduled training and education sessions in order to improve their awareness, knowledge and skills. Overall, this will have a direct influence on patient outcomes, care and safety.

7.3.1 Summary of Recommendations for Health Care Providers, Policy Makers, Medical Educators and Nursing Mangers

Health care organisations', policy makers, medical educators' and nursing managers' need to be aware that, having the knowledge of the existence of CPGs is indeed an important promoter for CPGs adherence. Lack of knowledge of CPGs causes non-adherence. Therefore, providing training and education increases nurses' awareness and familiarity with CPGs and keeps nurses up to date. This also encourages nurses to adhere to CPGs and to adhere to them more fully. Moreover, lack of awareness and lack of familiarity with CPGs are obvious barriers for adherence. Therefore, more training and education would help to overcome this problem and result in nurses adhering more to the CPGs. This training can be provided by communications from senior nurses and by providing reminders about CPGs. These are the responsibilities of health care organisations, managers and nurses themselves.

It is important to highlight that health care organisations should provide nurses with reminders about CPGs. These reminders can be delivered either electronically through regular emails covering recent updates to CPGs or through user-friendly formats, such as pocket sized cards that are hole-punched for a ring binder, or laminated and coloured cards to hang in busy locations such as the treatment rooms. These reminders are considered by nurses as a good promoter of CPG adherence (93, 132, 136).

7.4 The Effect of Nurses' Behaviour in response to External Factors on Adherence to Clinical Practice Guidelines

The last theme that appeared from the three studies in this thesis was behaviour in response to external factors. In this thesis, behaviour means the way in which nurses behave or react to a specific set of situations. External factors affect the ability of nurses to perform a guideline recommendation. They include three subcategories, namely; patient¸ guideline and environmental factors.

The systematic literature review revealed two subthemes with regard to patients: patients' demands, and their clinical condition. When a patient prefers one treatment rather than another, this can affect a nurse's adherence to a CPG. The patient's clinical condition and ability may also inhibit the application of a guideline recommendation (113) and this could also be considered as a barrier to CPG adherence. A patient's choice of a certain treatment was frequently mentioned in the literature (34, 91, 137, 138).

Participants in the individual interviews, focus groups and questionnaires supported the conclusion from the systematic literature review. Patients' demands and their clinical condition influences nurses' adherence to CPGs, usually in a negative way. Policy makers therefore need to involve patients as well as nurses in developing CPGs. Patient involvement is fundamental to achieving patient-awareness to CPGs. The patient involvement could be achieved through consultation and their participation in the development and wording of CPGs.

The CPGs themselves can affect nurses' behaviour in regard to adherence to them. For example, their degree of complexity and their format can promote adherence or act as an adherence barrier. Doctors seem to be less affected by this barrier for CPG adherence than are nurses and AHPs (34, 91, 137, 138). Presenting CPGs in a simple, clear and friendly format is a promoter of CPG adherence. Again, as discussed previously, policy makers need to take into account these comments when formatting CPGs.

The second subtheme, (see the framework in Figure 7.1), is environmental factors. These are mainly organisational factors. Work pressures and lack of staff can result in health care professionals not finding the time to update their knowledge and this is likely to affect their CPG adherence. Powell-Cope, in 2004 (139), in a focus group study, concluded that high work pressure, as well as difficulties with the patients' condition in a work setting, will affect a professionals' judgments on adherence to CPGs (139). Nurses and AHPs, also considered lack of time as the second most important barrier for adherence. Thus, health care organisations pursue a dangerous course if they reduce the number of nurses they employ on wards because this is likely to reduce CPG adherence and endanger patients.

The literature indicates that audits and supervision of the work of doctors, nurses and AHPs improves their adherence to CPGs (89, 140-142). Supervision, audits and peer support were considered to be strong promoters of adherence, though this effect was greater for nurses than for doctors. Qualitative and quantitative

studies also confirmed the importance of providing motivation, supervision, and audits for CPGs adherence. Boonstra, in 2005 (143), listed all these as important factors for CPG adherence. Clinical managers need to provide effective communications with their nursing staff. This includes motivating nurses and giving encouragement and support. The results of all three studies in this thesis suggested that these are important ways to improve adherence to CPGs.

Lack of time, insufficient staff in the ward, poor resources and heavy work pressures are all considered as barriers to CPG adherence. However, nurses are accountable for their actions and it is their responsibility to find the time necessary to improve their knowledge, skills and awareness of CPGs because they are accountable for applying the latest guidelines. Thus, these external factors can clearly be considered as barriers to CPG adherence but nurses' sense of their own individual responsibilities and knowing that they are accountable for their actions promotes CPG adherence (93, 132, 136).

Finally, CPG dissemination is considered as a factor for CPG adherence among nurses. CPG dissemination is the process by which guidelines are distributed to health care professionals. Each health organisation is responsible for CPG dissemination to its own staff. Poor CPG dissemination was the most common barrier to CPG adherence among doctors but appears to affect AHPs less and nurses less. Bassand, in 2005 (144), stated that it is the role of professional societies to disseminate the updated CPGs. He also added that this can also be

done through running educational activities. Health care organisations and medical educators can improve CPGs dissemination by conducting educational meetings in conferences, lectures and workshops. They can also provide supervision, feedback and audits on nurses' performances. Moreover, disseminating CPGs initially to managers who would then be responsible for communicating them to junior nurses is a good way to disseminate CPGs. Good dissemination of CPGs to all staff and to all departments is considered as a promoter for adherence (34-36). Finally, health care providers can also disseminate audio-visual materials on clinical and non-clinical wards and use a skilled qualified demonstrator to explain and train nurses on adhering to CPGs (145).

7.4.1 Summary of Recommendations for Health Care Providers, Policy Makers, Medical Educators and Nursing Managers

As discussed previously in Section 7.2 and 7.3 adherence to CPGs is affected by nurses' attitude and knowledge. These issues include lack of awareness, lack of agreement or lack of applicability and inability to memorise CPGs. Organisational factors, such as lack of time, lack of number of staff, lack of resources and heavy work pressures can also be important CPG adherence barriers. It is important to note that health care organisations, mangers and medical educators need to be aware that implementing CPGs is not easy. It might consume a lot of time and effort and it can be challenging. However, the full implementation of a CPG can be very rewarding and it will be reflected in the quality of the patient's care and

safety. For example, health care organisations could start by focusing on frequently-used CPGs, such as those related to hypertension. Health care organisations, policymakers and medical educators should also start to show nurses the evidence behind CPGs in order to enhance their trust in CPGs.

Moreover, health care organisation need to be willing to examine their own procedures and routines, to find ways in which they might enhance nurses' professionalism, for example, by providing more systematic support and encouragement, by increasing the resources available on wards and by giving greater priority to in-service (and undergraduate) training and education.

The data collected from both the one-to-one interviews and the focus groups showed that external barriers affect the ability of nurses to perform guideline recommendations. External barriers include three subcategories: patients¸ the guidelines themselves and environmental factors. These factors can be seen as barriers for nurses' adherence to CPGs. Accordingly, when policy makers are developing CPGs, their main focus should be to use the best available evidence to improve patient care, quality and safety. Beyond that, policy makers need to be aware of the system in which nurses' work and the availability of all the resources needed in order to adhere to CPGs. Moreover, nurses need the time and skills in order to adhere completely to CPGs. Patients, on the other hand, need to be reassured that their nursing care is based on the best evidence available and carefully considered guidelines and is not impaired by a need to reduce cost. This can be done by providing patients with information sheets which explain their

clinical conditions and the advantages and disadvantages of CPGs that nurses and doctors might use in their treatment. This approach would enable patients to make more informed choices about their treatment. Such shared decision making about patients' care would improve nurses' CPG adherence, patient outcomes and patient satisfaction.

Finally, it is important to note that nurses' adherence to CPGs can reduce bed days in a hospital by improving patient care and the savings could be applied to other areas of patient care. Nurses' adherence to CPGs not only improves patient care and safety but also it saves the NHS money. This can help in improving the economic and financial crises which the NHS is facing at the moment.

A summary of all the recommendations is provided below in Table 7.1

7.5 Framework Evaluation

The framework which was developed in this study (Figure 7.1) was sent back to the nurses who took part in the focus groups and one to one interviews with a request for their feedback on it. This framework was sent to nurses who provided their email address and consented to be re-contacted for any further details or explanation of the study. From the total number of nurses who took part in this study only 3 nurses responded. All nurses said they found it useful as a summary of the factors for CPGs adherence among nurses. This feedback could be

enhanced by asking more nurses to reflect on the framework and give their opinions, however, due to time restrictions this was not completed within the timescale of the submission of this thesis. Here this researcher again acknowledges that the framework for promoters and barriers for CPGs adherence is an extension and updating of an existing framework for doctors which has been available and widely used in research since 1999. However, unlike the 1999 framework, this new framework was constructed for nurses rather than for doctors, and has led to the development of a table of recommendations (Table 7.1).

7.6 Overall Conclusion to the Thesis

In conclusion, this thesis explored promoters and barriers for CPGs adherence among nurses and produced a framework that summarised these factors (Figure 7.1). The framework is based on nurses' powerful views and feedback about trying to apply the current guidelines in their health care practice. This framework resulted from the discussion of individual nurses' views in Section 4.3, and nurses' views in focus groups reported in Section 5.3, and confirmed by the results of the online survey Section 6.3. The development of this framework was based on Cabana's classification framework for doctors' adherence to CPGs (10). This framework allowed the author to develop a set of recommendations for health care providers, policy makers, medical educators' and nurses mangers. This is presented here in Table 7.1.

Table 7.1: Recommendations to improve adherence to clinical practice guidelines

Health Care Organisations
Provide nurses with more specialised training and education to improve nurses' knowledge and skills and to keep nurses up to date with clinical practice guidelines, thus increasing nurses' clinical practice guidelines awareness and familiarity.
Increase the number of staff nurses in clinical ward settings in order to reduce the number of patients for each nurse, reduce work pressure and allow nurses more time to read and update themselves on clinical practice guidelines.
Provide nurses with all the necessary resources and funds (equipment, staff, training, and education).
Disseminate clinical practice guidelines in a variety of ways, such as internet data base, emails, face-to-face sessions and a thorough management chain.
Provide nurses with appropriate means to allow them to access clinical practice guidelines.
Provide nurses with a reminder system which provide messages designed to promote adherence to clinical practice guidelines.
Policy Makers
Involve nurses in the process of developing clinical practice guidelines
Involve patient in policy making
Provide nurses with an explanation of the scientific evidence base for adhering to clinical practice guidelines.
Reduce both the sheer number of clinical practice guidelines and length of some individual clinical practice guidelines, where possible.
CPGs to be written in a simple, clear and unambiguous, use colour rather than long documents printed in black and white.
Provide nurses with user-friendly clinical practice guidelines format such as, laminated copies, pocket sized cards and key chains with a summary of the CPGs.
Encourage guidelines to be written and developed by nurses themselves.
Nurse Mangers
Avoid moving nurses from one speciality to another unless a proper training plan is set beforehand to improve their skills and knowledge of the CPGs.
Provide a thorough orientation programme for nurses who are new to the health care organisation or to the nursing profession.
Ensure that nurses receive motivation and encouragement from their line managers and their health organisation.
Encourage senior and peer support in order to provide nurses with knowledge and emotional help.
Provide nurses with regular audit and supervision.
Medical Educators
Increase undergraduate nurses' awareness of the importance of adherence to clinical practice guidelines.
Improve nurses' communication, teamwork and leadership skills

7.7 Limitations

This section will summarise the limitations of the thesis including the literature review, qualitative studies and the quantitative study. The systematic literature review depended wholly on three search engines, BNI, Medline and CINAHL, and did not involve any others. This might have resulted in missing some eligible studies. However, a manual search of the bibliographies of the studies identified from BNI and Medline added some eligible studies to the systematic review and this approach may have overcome this limitation. However, a manual search of CINAHAL did not add any new studies.

The initial selection of the studies thought to be relevant to this research, the extraction of the data and the data analysis were done by the researcher alone. This might be considered to be a threat to the validity of the study. However, the researcher's academic supervisors were then involved in discussion and agreement on all the processes of inclusion, extraction, definitions, data analysis and results. Discussion and agreement with supervisors took place at all stages of the systematic review in order to limit the possibility of bias by one person. Information on supervisors' involvement is explained in detail in the relevant sections of Chapter 2.

It is always challenging to measure reliability in qualitative research. The main reason for this is human nature, and people's opinions and behaviours are not static and consistent. Reliability in qualitative research entails aiming for "the

stability of responses to multiple codes of data sets" (24). The issue of the reliability of the qualitative data collected in this study was addressed in the following ways.

1. At the data analysis stage, two and sometimes three researchers analysed the data independently and then compared their coding and the themes that emerged from each transcript.

2. In cases where guesses were made about the meaning of parts of the collected interview data, or where there were other uncertainties, the relevant participant was contacted in order to check the data for accuracy.

3. The audio tapes of the individual and group interviews were transcribed by both the researcher and administrative staff and the results were compared.

4. Several people listened to the digital recording of the interviews and focus groups and checked them against the transcripts.

5. The researcher's experience and background in nursing enabled her to empathise with the participants' feelings and to understand their meanings.

6. Transcripts were sent back to participants in order to check on their accuracy and this enhanced reliability.

The validity of research results has been defined as the generalisability of those results, that is, the extent to which the findings of a study can be applied to other situations. Qualitative research is sometimes dismissed because generalising its findings is difficult, since the sampling process is often purposive and the findings

are largely contextual. According to Merriam in 2009, the validity of a qualitative study must therefore come from the transferability of the findings (60). The identified best way to achieve transferability is to paint as full a picture as possible of the context and findings of the study. Such a thick description of the sending context may enable someone in a potential receiving context to assess the similarity between the two situations (77). Another suggested method for improving transferability is careful selection of the study sample, including maximum variation in the sample because this allows for the application of the study to a wider audience. This variation is achievable by increasing the sites used for a study, choosing more participants or selecting a typical sample of participants (60). Validity in this thesis was addressed by including two hospitals, a wide variety of ward specialities and a relatively large number of participants. Moreover, a quantitative questionnaire survey was conducted in order to confirm the results obtained from both the systematic literature review and the qualitative studies

With regards to the results obtained from the interviews and focus groups, it is worth referring here to the discussion in Section 2.4.2 on the fact that the desired variety of specialties of the recruited nurses was hard to achieve. Since most of the nurses in the sample were from a surgical background, this may have produced a bias in the results. However, as explained in Section 2.4.2, this limitation was addressed by implementing purposive sampling to recruit a larger group of nurses from a greater variety of specialities, including Women's Health,

Mental Health, Community and Paediatric nurses to participate in a questionnaire survey.

A threat to the study was identified in the fact that the researcher is a registered nurse and the interview participants were also nurses. Platt (86) argued that interviewing colleagues working in the same setting might affect the research process in terms of institutional pressure and confidentiality. It was important, therefore, to ensure that a relationship of trust and ethical sensitivity relating to any disclosure existed both during and after the interviews. It was emphasised from the outset of the interviews and focus groups that the interviewer's role was that of a researcher and not that of a nurse. This relationship and sensitivity was achieved throughout the conduct of the interviews and focus groups.

7.8 Future work

Table 7.1 highlighted some recommendations that may help health care providers, policy makers, medical educators and nursing managers develop CPGs that are more likely to be adhered to by nurses. The following suggestions for future research could further enhance such adherence to CPGs:

➢ The quantitative research (Chapter 6) could be extended to a national survey on the promoters and barriers for CPGs adherence among nurses. This would offer the opportunity to obtain wider and more authoritative evidence on factors that influence CPG adherence. A national survey could use stratified sampling by dividing the research population into

geographical categories, for example, north, east, south, and west. Within each category, nurses can be invited randomly to take part in the survey.

- A blog could be created where any nurse in the UK could provide anonymous feedback, suggestions and evaluation on individual guidelines and their applicability in real life situations. Policy makers could benefit from this rich interactive feedback to enhance the process of developing new CPGs. However, using social media raises some ethical issues, such as security, that need to be addressed before opening such a medium. One contribution to this could be to have a secure blog to which only nurses have access. There are also issues related to privacy and confidentiality. Nurses' would need to be reassured that all information used from the blog would be confidential and that identities would be anonymised. Participants could be given the opportunity to use a pseudonym for their blog entries after first logging-on by using their registration IDs. Participants could be advised that all data would be confidential unless it contained an account of professional misconduct or illegal activity that had the potential to cause harm to themselves or another person. In such cases, the blog administrator would have the right to see a user's real identity.

- The results of this research should be actively disseminated by using a variety of methods, including journal publications, international scientists' conferences, press releases and other promotional activities. If journalists are involved, the results should be explained carefully to them to ensure

accurate reporting. Moreover, universities and other academic

organisations could be encouraged to report the results of this study to

undergraduate nurses by including them in learning and teaching

materials. These methods will, hopefully, ensure active dissemination of

the research results and the framework so that they will have a wide and

beneficial use.

➢ The use of hand held tablets such as the iPad mini to assist nurses in

accessing CPGs in crisis settings could be evaluated. It would be a fun

way to help ensure nurses had access to CPGs by using 'Speak aloud'

applications installed on these tablets, rather than having to read whole

text by themselves. However, the risk here is that tablets might be too

expensive to buy and liable to theft. Thus, the feasibility of this idea is low

at the moment, but it could be employed when, for instance, when the

tablet prices are more affordable.

➢ The use of checklists could be a way of ensuring guidelines have been met

and to ensure that CPGs are adhered to by nurses (146).The

implementation of this method can be facilitated by the use of previously

mentioned technologies, such as, iPads and hand held devices. There are a

large variety of checklist applications freely available to the users of such

electronic devices.

Take Home Message

Adherence to clinical practice guidelines is the basis of providing high quality of care. Recommendations are made in Table 7.1. which I believe have the potential to improve this process.

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Appendices

Appendix 1a: Ethical approval of study by Durham University School of Medicine and Health Ethics Sub-committee.

Wolfson Research Institute
Rebecca Parrett
Research and Development Manager, Wolfson Research Institute Chair, School of
Medicine and Health Ethics Committee Tel: 0191 334 0425
Email: Rebecca.Perrett@durham.ac.uk

Samantha Ismaile
PhD Student
School of Medicine and Health
Holliday Building
Durham University Queen's Campus
TS17 6BH
United Kingdom

12the November 2010

Dear Samantha,

Re: Ethics Application ESC2/2010/16
Factors promoting or inhibiting adherence to guidelines among nurses.

Thank you for submitting your revisions to the above application to the School of Medicine and Health ethics sub-committee. These have now been reviewed and I am satisfied that the changes have been made in line with the requests by the committee. However one item still requires adding:

• The following sentence should be added to the participant information sheet 'This study has been reviewed and approved by the School of Medicine and Health ethics sub- committee, Durham University'. In the same paragraph you will also be required to add in details of which NHS REC gives a favourable opinion for your study.

I can therefore confirm ethical approval from the SMH ethics sub-committee for your study, on condition that the above sentence is added to the information sheet prior to the documents being sent to the NHS REC. Please do not hesitate to contact me should you have any questions. I hope that the study goes well.

With best wishes

R H Perrett.

Appendix 1b: Ethical approval of study by County Durham and Tees Valley

Research Ethics Committee

10 February 2011

Ms Samantha Ismaile
Postgraduate Researcher/Medical Education
Room A 100a
School of Medicine and Health
Holiday Building
University of Durham – Queens Campus
University Boulevard
Thornaby
Stockton-on-Tees
TS17 6BH

Dear Ms Ismaile

Study Title:	**Factors promoting or inhibiting adherence to clinical guidelines within the nursing profession**
REC reference number:	11/H0908/1
Protocol number:	N/A

Thank you for your letter of 27 January 2011, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Appendix 1c: Ethical approval of study by South Tees Hospitals

South Tees Hospitals **NHS**

NHS Foundation Trust

Research & Development / Academic Division
Academic Centre
The James Cook University Hospital
Marton Road
Middlesbrough
TS4 3BW

www.southtees.nhs.uk

Tel: 01642 282585
Email: julie.rowbotham@stees.nhs.uk

21 February 2011

Ms Samantha Ismaile
PhD Student
School of Medicine and Health
University Boulevard, Durham University
Stockton on Tees
TS17 6BH

Dear Ms Samantha Ismaile

Re: 2010113 - Factors promoting or inhibiting adherence to guidelines among nurses

Many thanks for your letter responding to the Committee's request for further information for the above study.

Documents reviewed and approved were:

- Protocol - Version 5 dated 25 January 2011
- Interview Schedule - Version 5 dated 25 January 2011
- Participant Information Sheet - Version 5 dated 25 January 2011
- Participant Consent Form - Version 5 dated 25 January 2011
- Flow Chart - Version 4 dated 01 December 2010
- Notification to Line Manager enclosing letter/email to Nurses - Version 5 dated 25 January 2011

I am happy to approve this via Chairman's Action and look forward to hearing how the study progresses in due course.

Kind regards.

Mr A Owens
Chairman of Research Approval Board
GMC 3485934

South Tees Hospitals NHS

NHS Foundation Trust

Research & Development / Academic Division
Academic Centre
The James Cook University Hospital
Marton Road
Middlesbrough
TS4 3BW

www.southtees.nhs.uk

Tel: 01642 282585
Email: julie.rowbotham@stees.nhs.uk

28th July 2011

Samantha Ismaile
1 The Firs
Kimbelsworth
Chester Le Street
Co. Durham

Dear Samantha

2010113 – Factors promoting or inhibiting adherence to guidelines among nurses.

This letter confirms your right of access to conduct research through South Tees Hospitals NHS Foundation Trust for the purpose and on the terms and conditions set out below. This right of access commences on **28th July 2011** and ends on **1st October 2012** unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at South Tees Hospitals NHS Foundation Trust has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to South Tees Hospitals NHS Foundation Trust premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

Appendix 1e: Ethical approval to conduct questionnaire from, Tees, Esk and Wear Valleys NHS Foundation Trust, Research and Development Office, Middlesbrough

Tees, Esk and Wear Valleys **NHS**
NHS Foundation Trust

Research & Development Office
Flatts Lane Centre
Flatts Lane
Normanby
Middlesbrough
TS6 0SZ
hilary.allan@nhs.net

Our Ref: HA/vh

29th April 2013

Ms Samantha Ismaile
PhD student
School of Medicine and Health
Holliday Building
Durham University, Queens Campus
Stockton on Tees
TS17 6BH

Dear Ms Ismaile

Title: Factors promoting and inhibiting adherence to clinical guidelines among nurses
R&D Ref: 0264/13

I am pleased to inform you that you have successfully gained research governance approval from the TEWV NHS Foundation Trust to conduct this study. All local checks are met and the documents approved are:

Document	Version	Date
IRAS	3.5	09 April 2013
Protocol	V6	22 March 2013
Participant Information Sheet	V6	13 January 2013
Consent Form	V5	22 March 2013
Questionnaire	V4	19 November 2012
University Ethics approval		12 November 2010
Sponsor Letter	Durham University	07 December 2012
Evidence of Insurance		09 July 2012
CV	Ms Samantha Ismaile	01 December 2010
CV	Prof John McLachlan	

You may therefore commence this study in this Trust.

Appendix 1f: Ethical approval to conduct questionnaire from, South Tees Hospitals NHS Foundation Trust, Research and Development Office, Middlesbrough

South Tees Hospitals **NHS**

NHS Foundation Trust

Research & Development / Academic Division
Academic Centre
The James Cook University Hospital
Marton Road
Middlesbrough
TS4 3BW

www.southtees.nhs.uk

Tel: 01642 854089
Email: researchdevelopment@stees.nhs.uk

07 November 2012

Ms Samantha Ismaile
PhD Student
School of Medicine and Health
University Boulevard, Durham University
Stockton on Tees
TS17 6BH

Dear Samantha

Re: 2010113 - Factors promoting or inhibiting adherence to guidelines among nurses

Many thanks for your letter informing R&D of the extension to the above study to include more nurses and the sending out of the questionnaire.

I am happy to issue R&D approval via Chairman's Action and look forward to hearing how the study progresses in due course.

Kind regards.

Mr A Owens
Research & Development Director
GMC 3485934

Appendix 2a: Consent Form for both Interviews and Focus Groups

🛡 **Durham**
University
School of Medicine and Health

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Consent Form for Medical Education Research Project:

Factors Promoting or Inhibiting Adherence to Clinical Guidelines among the nursing profession,

Study Ref:11/H0908/1

Email:			
Please read each statement and tick responses as applicable. In order to prove that this form has not be altered please initial next to each statement.			
By signing this consent form you are agreeing to the following:	Yes	No	Initial
The recording of focus groups and/or interviews			
The production of an anonymous focus group/interview transcript			
Publication of anonymous quotes from focus groups/interviews and questionnaires			
	Yes	No	Initial
I understand that the researcher will keep the analysed data until she has completed her course of study which will take approximately 12 months after the initial data collection period			
I understand that all the data in paper form will be kept locked in a cupboard and the electronic data will be saved on a University computer which is subject to the organisation's procedures in relation to electronic data prevention, and is password protected.			
I understand that all data will be used for PhD thesis and also it will be used in peer review journals and conferences.			
I understand that if I agree to digital-recordings being made that they will be kept confidential and destroyed at the end of the study.			
I have been, and will be, given the opportunity to ask questions, and these initial questions have been acceptably answered.			
I understand that relevant sections of the data collected during the study may be looked at by any individual from regulatory authorisation and/or from the South/North Tees NHS Trust, where it is relevant to my taking part in this research. I give permission for theses individuals to have access to this data.			
I understand that anything I say that may be a potential breach of criminal law will have to be reported to Senior Management			
I understand that I have been provided with and have read the participant information sheet for the study.			
I understand that I am free to withdraw from the study at any point, without any adverse consequences to myself within 3 months after conducting the focus groups or interviews.			
I understand that the focus group/ interviews will last for at least 30-40 minutes and I might be approached again as a part of the study within 8 months of initial contact.			
I agree to take part in this research study			

Signed (participant):
Date:
Signed (researcher):
Date:

Samantha.ismaile@durham.ac.uk, School of Medicine and Health, Durham University, Stockton-on-Tees, TS17 6BH, 0191 3340095 (25/1/ 2011, Version 5)

Shaped by the past, creating the future

Information Sheet for Participants for Medical Education Research Project:
Factors Promoting or Inhibiting Adherence to Clinical Guidelines within the
Nursing Professions

About the Study
This is an individual study carried out to collect data for my three year PhD at
Durham University. This study is supervised by Professor John McLachlan and
Dr Marina Sawdon at School of Medicine and Health, Durham University. Data
collected during the research will be analysed and presented in my PhD thesis.
Findings from my research will be presented in conferences and will be submitted
for publications in peer reviewed journals.

Aims and Objectives
This research intends to explore factors promoting or inhibiting adherence to
clinical guidelines among nurses. To explore this issue, I want to understand
nurses' views and insights of adherence to guidelines. We wish to explore the
following attributes
The extent to which nurses, have read and internalised guidelines
 Factors which may promote or inhibit adherence to guidelines

I hope that this study will explore ways of improving the quality of care delivered
to patients and also improve patient safety.

My role and method
I will conduct semi-structured interviews and focus groups, which will take
around 30-40 minutes. With your consent, I will make notes and will audio record
the interviews.

What types of participants are needed?
We are inviting nurses working with the Strategic Health Authority, Local
Primary Hospitals Trusts to participate in this study. Male and female nurses are
invited to participate from different wards.
We intend to recruit approximately 50 nurses. Only 50 participants will be
included in this study. In case there was more volunteers interested in this study

not everyone expressing an interest will be interviewed. We thank everyone for showing their interest in our study.

What will participants are asked to do?
After receiving and reading this information sheet you will be given at least a week to decide whether you are happy to participate. If you wish to take part in this study please e-mail/phone me. Please find my contact details on page 4. On the day of the interview/focus group you will be given verbal information on the project and asked to sign a consent form (attached to this e-mail invitation).

You will be involved in a focus group that will take approximately 30-40 minutes. In case you can not attend the focus groups you will be interviewed. You may also be re-approached to attend a follow-up focus group or on-to one interview.

You are likely to be involved only for the duration of the focus groups/interviews (approximately 40-30 minutes). However, if following transcript analysis, further interesting questions emerge then you may be contacted directly by myself via email for a follow up interview by telephone (approximately 15 minutes). Consent will be sought for this from the outset. It is expected that you would be involved in the study for not more than 8 months from the initial contact (to re-interview).

Confidentiality
I will pay attention to preserve your human rights and respect your dignity and individuality during the whole research. Your right to withdraw at any time from the research will be respected. Informed consent will be taken before and after each individual interview/focus groups (verbally on audio recorder). With your informed consent (written) I will make notes for my reference and will digitally (audio) record the interviews/focus groups. All these recordings will be kept locked in a cabinet until transcribed, after which they will be destroyed. Data collected during the interview will be analysed and presented in my PhD thesis and in some future reports, presentations and publications. Any data collected relating to individuals will be kept anonymous in the thesis and in any future presentations or publications.

What data or information will be collected and what use will be made of it?
Interview data will be anonymised, coded and analysed for themes. The results of the interviews and focus groups will be anonymous and will not be fed back to employee agencies on an identifiable basis.

Only members of the research team will have access to the data but only for those nurses consenting for the data to be used for research purposes.

How long will personal data be stored or accessed after the study has ended?
12 month

For how long we will store research data generated by the study?
12 months.

What if participants want to withdraw from the study?
Participants will have the freedom to withdraw at any stage of the study without giving any explanation and without it affecting their roles and jobs within 3 months after conducting the focus groups/interviews.

We do not anticipate any potential harm or discomfort to participants, nor do we expect any benefit. Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

What action will be taken if any disclosures of professional misconduct or potential breaches of criminal law were made?
Participants will be informed that the results of the interviews/focus groups will be anonymous and will not be fed back to employee agencies on an identifiable basis. However, prior to the interviews and focus groups, participants will be invited to describe any failures to adhere to guidelines which they have observed or become aware of, and to indicate the possible reasons for these. It may be that participants choose to describe an incident in which they were involved, but in the third person. Alternatively, they may describe breaches as theoretical situations, rather than actual ones. Participants will be informed that any accounts in the first person which involve potential breaches of professional misconduct or criminal law will have to be reported to Senior Management (e.g. the deliberate administration of a lethal overdose), in common with the universally enjoined practice in health care. However, since the purpose of this research is to identify factors promoting and inhibiting guideline breaches, it is essential to give participants the opportunity to describe breaches of guidelines in a safe and confidential environment, without automatic retribution for honest reporting

What if participants have any questions?
If you have any questions about our project, either now or in the future, please feel free to contact either:

Professor John McLachlan	Dr. Marina Sawdon	PhD student Samantha Ismaile
Holliday Building	Holliday Building	Holliday Building
Queen's Campus	Queen's Campus	Queen's Campus
Stockton on Tees	Stockton on Tees	Stockton on Tees
Tel: 0191 3340515	Tel:01913340340	Tel: 0191 3340095
j.c.mclachlan@durham.ac.uk	marina.sawdon@durham.ac.uk	Samantha.ismaile@durham.ac.uk

This study has been reviewed by the academic supervisors Professor John McLachlan and Dr. Marina Sawdon. This study is sponsored by Durham University, School of Medicine and Health, Queen's Campus. There is no external funding provided for this study.

Advised by the R&D Department at Durham University in their letter dated 12Nov2010.
County Durham& Tees Valley Research Ethics Committee has given a favourable input for this study

What if I have any complaints?
If you have any complaints about the way in which this study has been carried out, please contact the Secretary of the Chair of the Ethics Committee Judith Walsh: +44 (0) 191 33 40518, email at j.m.walsh@durham.ac.uk

If any participants have concerns regarding guideline breaches they can contact their line-manager in the trust following standard trust practice.

Thank you for your time!

Durham University
School of Medicine and Health

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Semi Structured Interviews and Focus Groups Guide
Factors Promoting and Inhibiting Adherence to Clinical Guidelines among the Nursing Profession

Time – 30-40 minutes

General Questions

1. How long have you been in the nursing profession?
2. What professional and academic qualifications do you hold?
3. What is the nature of your work?

Main Questions

Note: In case participants do not know the answer. I will give them choices to pick from and explore upon it. Proposed answers are written in Italic

1. Can you tell me if your work is subject to guidelines? What kind of guidelines?
   - *Clinical guidelines*
   - *Recruitment guidelines*
   - *Sickness guidelines*
   - *other*

2. Can you tell me about how confident and familiar you are with such guidelines?
   - *Confident day to day routine*
   - *Not sure*
   - *I don't know*
   - *other*

3. Can you tell me about the factors encouraging you to follow guidelines?
   - *Improve patient safety and care*

- *Protect my license and Job*
- *Seniors instructions and mentoring*
- *Satisfactory outcomes*
- *Familiarity and routine*
- *Skills and knowledge*
- *Guidelines accessibility*
- *Reduce cost*
- *Motivation*
- *Continued employment benefit*
- *Resources*
- *Mandatory studies and assessments*
- *other*

4. Can you tell me please about the factors that might inhibit you from following guidelines?
   - *Time*
   - *Recruitment*
   - *Guidelines differences across the trust*
   - *Guidelines contradiction*
   - *Lack of resources*
   - *Internal contradictions*
   - *Lack of training and assessment*
   - *Lack of communication*
   - *Accessibility*
   - *Lack of support system*
   - *other*

5. Why do you think clinical practice guidelines are used?
   - *They improve patient safety*
   - *They protect me in case of accidents*
   - *They add in new research findings into current practice*
   - *They improve patient outcomes*
   - *They aid decision making*
   - *They make the clinical manager's job easier*
   - *They reduce costs*
   - *other*

6. How did you find out about the clinical practice guidelines, if any, that you use?
   - *Nursing/Medical Journal articles*
   - *Discussion with colleagues*
   - *From senior doctors/nurses*
   - *Mandatory training courses*
   - *Don't use any*
   - *other*

7. Why do you think that some guidelines are not used?
   - *Doctors/Nurses are unaware of them*
   - *Some guidelines are impractical to carry out*
   - *It is not practical to refer to guidelines when necessary*
   - *Doctors/Nurses don't like the idea of guidelines*
   - *Some guidelines are poorly developed and out dated*
   - *Other*

8. What do you think would be the most appropriate way to encourage nurses/doctors to follow guidelines?
   - *Incentives*
   - *Senior mentoring and providing feed back*
   - *Provide support from seniors*
   - *Provide support from colleagues*
   - *Regulation*
   - *Accessibility*
   - *Other*

9. In your experience, how are clinical practice guidelines usually developed?
   - *Senior doctors/nurses*
   - *By reviewing clinical papers applying clinical*
   - *Evidence base practice*
   - *By documenting current practice*
   - *Through discussion between specialists*
   - *They are decided by a government body or department*
   - *They are formulated by the royal colleges*
   - *Other*

10. How do you think clinical practice guidelines should be developed?
   - *Senior doctors/nurses*
   - *By reviewing clinical papers applying clinical*
   - *Evidence base practice*
   - *By documenting current practice*
   - *Through discussion between specialists*
   - *They are decided by a government body or department*
   - *They are formulated by the royal colleges*
   - *Other*

Dear line manager……

I am a PhD student at Durham University and I am conducting research into '**Factors promoting and inhibiting adherence to clinical guidelines within the nursing profession**'. I would like to invite all your nursing staff across all wards to take part in an interview or focus group to explore their views on this topic. Nurses are likely to be involved only for the duration of the focus groups/interviews (approximately 40-30 minutes). However, if following transcript analysis, further interesting questions emerge then nurses may be contacted directly by myself via email for a follow up interview by telephone (approximately 15 minutes).

I would be very grateful if you could distribute this invitation to all nurses within this hospital on my behalf.

Please forward this letter (below) together with the attached documents to all nurses.

Letter/e-mail to Nurses
Project Title: Factors promoting and inhibiting adherence to clinical guidelines within the nursing profession

Date: …………………………….

Dear ……………………………,

I am writing to invite you to take part in a research project on '**Factors promoting and inhibiting adherence to clinical guidelines within the nursing profession**'. My focus is to understand the views of nurses about adherence to clinical guidelines in their workplace, with an ultimate aim to improve patient safety and care. I will provide you with an information sheet about the research

and will explain the study and will ask for your consent before taking part in an interview/focus groups. I do not anticipate any risk to you or your patients from participating in this interview/focus group.

If you are interested in taking part in this study please read the attached information sheet and contact me either by email or telephone. Thank you for your time. I am looking forward to hearing from you.

Yours sincerely
Samantha Ismaile

Samantha Ismaile, RN, BSc, MSc, PhD candidate
Durham University
Medicine and Health School
Queen's Campus
Samantha.ismaile@durham.ac.uk
01913340095/ 07877698779

Appendix 3: Online Questionnaire on the most influential promoter and barrier for guideline adherence among nurses

Durham University
School of Medicine and Health

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Factors Promoting or Inhibiting Adherence to Clinical Guidelines among the Nursing Profession

For the following factors that affect adherence to clinical guidelines, please state your opinion on the given statement. Please **Tick (☑)** the appropriate answer.

You adhere to Clinical Practice Guidelines because,	**Strongly Disagree**	**Disagree**	**Neither Agree Nor Disagree**	**Agree**	**Strongly Agree**
They are mandatory and compulsory					
You are competent and you have the skills to carry out the task					
You have the knowledge to carry out the task					
You are accountable for your action					
You fear you may lose your job					
It protects you from risk					
Sometimes, you feel you lack the professional experience (knowledge and skills) for a particular situation					
It standardises care as well as providing patient safety					
Habit and routine enable you to become familiar with guidelines, and thus, more likely to adhere to them					
You receive motivation and encouragement					
It could be cost effective when performing a clinical procedure					
You are aware of the guideline's existence					
You are having audits and supervision by seniors					
You receive good communication and good leadership around guideline adherence					
You receive peer support, as well as support from senior staff in carrying out your duties					
There is someone watching you and assessing how you behave					
The guidelines are applicable, without too much difficulty, to patients and clinical situations					
They are issued with a clear scientific base supporting them					
Which are developed locally					
You were involved in developing the guidelines					

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
They are accessible and easy to find					
They are written in clear and unambiguous text					
They are simple and short					
They are coloured and laminated					
They are designed with a reminder system that provides messages					
They are disseminated in a variety of ways, including intranet databases, e-mails, face-to-face sessions, team briefing, and through the management chain					

You do NOT adhere to Clinical Guidelines because,	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
You do not always agree with a guideline					
Not all guidelines are applicable to a particular patient					
Of time constraints and work pressure					
They are a challenge to your professional autonomy					
You lack the resources and funds to carry out clinical procedure					
You lack understanding of a guideline					
You lack training and education					
Patient preference for one treatment rather than another, may not accord with clinical guidelines					
Following a guideline recommendation would not always lead to improved outcome					
Sometimes, clinical guidelines are rigid and not flexible to adapt to a particular clinical situation					

Appendix 3a: Summary of the Included Studies and Main Findings in MEDLINE Database

Summary of results   **Key to abbreviations**
Total= 833   AHPs: Allied Health Professionals
Selected Total=420   CPG: Clinical Practice Guidelines
Remove Duplicate=382
Excluded =196
Total= 186

		Article Title/Journal Name	Study Design	Target Group	Main Findings
1.	Agrawal, V Etc.. 2008 V:52,I:6	Awareness and knowledge of clinical practice guidelines for CKD among internal medicine residents: a national online survey American Journal of Kidney Diseases	Cross-sectional study using an online questionnaire survey	Doctors	*The study reports that educational efforts in increasing awareness of these guidelines may improve clinical outcomes.*
2.	Albers-Heitner,P Etc.. 2008 V:14,I:5	Adherence to professional guidelines for patients with urinary incontinence by general practitioners: a cross-sectional study Journal of Evaluation in Clinical Practice	Postal survey	Doctors	*The study reports that adhering to guidelines is difficult, mainly owing to lack of time, staff, diagnostic tools, competences to provide this care and low motivation of patients. The authors recommends for further research which focuses on*

					solutions how to support GPs to tackle major barriers to facilitate the adherence to guidelines
3.	Ansari, Maria Etc.. 2003 107/22	Improving guideline adherence: a randomized trial evaluating strategies to increase beta-blocker use in heart failure Circulation	Randomized controlled trial	Nurses	*Adherence to guidelines are influenced by;(1) provider education; (2) provider and patient notification: computerized provider reminders and patient letters advocating beta-blockers; and (3) nurse facilitator: supervised nurse to initiate and titrate beta-blockers.*
4.	Asaro, P Etc.. 2006 13/4	Embedded guideline information without patient specificity in a commercial emergency department computerized order-entry system Academic Emergency Medicine	Retrospective study	AHPs	*This suggests that the lack of patient-specific decision-support functionality in most current ED information system products may hamper progress in the development of effective decision support.*
5.	Bahtsevani, C Etc.. 2004	Outcomes of evidence-based clinical practice guidelines: a systematic review	LR	AHPs	*There is some support that evidence-based clinical practice guidelines, when put to*

	20/4				*use, improve outcomes (i) for patients--less likelihood of showing worsening of skin condition and disruption of skin condition improves more rapidly for infants; (ii) for personnel--support in daily work situation; and (iii) for organizations-- decreased admission rates and length of stay, less resource utilization and reduced costs. CONCLUSIONS: There is a need for further research as the findings are based on a rather limited number of studies. There is a tendency toward support for the idea that outcomes improve for patients, personnel, or organizations if clinical practice in health care is evidence-based, that is, if evidence-based clinical*
		International Journal of Technology Assessment in Health Care			

					practice guidelines are used, although these findings could be specific to the settings and context of the studies reported in this systematic review
6.	Bassand, J Etc.. 2005 26/13	Evidence-based vs. 'impressionist' medicine: how best to implement guidelines European Heart Journal		Doctors	*We examine the reasons behind the low uptake of guidelines into routine medical practice. Many physicians are simply not aware that guidelines exist; or they do not believe in them; or they simply do not care to implement them. Economic and social factors may also influence uptake of guidelines. It is the role of professional societies to disseminate best scientific knowledge, and ensure optimum implementation of guidelines. This can be achieved through educational activities*

					and CME credit. Close collaboration between the profession, health authorities, and maybe even the industry could improve uptake of clinical practice guidelines, and thereby improve patient outcome.
7.	Bauer, M 2002 10/3	A review of quantitative studies of adherence to mental health clinical practice guidelines Harvard Review of Psychiatry	Peer review of literature	AHPs	*Thus, evidence indicates that guideline adherence is not high without specific intervention, but that certain interventions (typically multifaceted and resource-intensive ones) improve adherence. However, the public health challenge is to design and implement interventions that are sustainable in general clinical practice.*
8.	Beaulieu, M Etc.. 1999 61/5	Practice guidelines for clinical prevention: do patients, physicians and experts share common ground? Can Med Assoc J	Focus groups	Doctors	*They reported difficulties in explaining to their patients the recommendations of the Canadian Task Force on Preventive*

					Health Care, which they found complex and inconsistent with popular wisdom. A better understanding of the values of patients and physicians would help guideline developers to Create better targeted communication strategies to take these discrepancies into account.
9.	Berlowitz, D Etc.. 2001 16/6	Clinical practice guidelines in the nursing home	Survey	AHPs	*Those nursing homes in which a high percentage of the staff reported adoption of one guideline were more likely to have adopted other guidelines. However, staff were not more likely to report adoption of a specific guideline when the nurse manager stated that it was adopted. We conclude that staff at VA nursing homes are familiar with guidelines. Guideline adoption at*

					individual nursing homes, however, is not a systematic process involving the entire staff.
10.	Bertoni, A Etc.. 2009 V169,I:7	Impact of a multifaceted intervention on cholesterol management in primary care practices: guideline adherence for heart health randomized trial Archives of Internal Medicine	Follow-up medical records	Doctors	*The study reports that, participants received training session by providing, copies of clinical practice guidelines, an introductory lecture, performance feedback report, and visits for intervention-specific academic detailing. Adherence to CGL increased.*
11.	Bhagat, K. Nyazema, N 2001	General practitioners and clinical guidelines	Cross sectional survey	AHPs	*felt that general practitioners should be involved in the development of guidelines, 72.6% had read at least one guideline, 65.9% were prepared to use guidelines in their practice, 61.6% thought that guidelines would improve their treatment*

					ability, and 59.7% thought that guidelines would improve their knowledge of disease. 76.5% felt that the government should not legislate, 66.2% felt that guidelines reduce practitioners' flexibility and 57.9% felt that guidelines would not improve their diagnostic ability. CONCLUSION: The respondents were, in general, favourably disposed towards CPGs. Most had already read some guidelines, and about two thirds were prepared to use them. Almost all respondents felt that general practitioners should be involved in the development of guidelines for use in general practice. These general practitioners felt that guidelines were

					likely to help them treat patients than to make a diagnosis. Despite these favourable attitudes, many practitioners felt that guidelines would limit their personal flexibility in caring for patients. Organisations developing or implementing CPGs in general practice should address these concerns.
12.	Bishop, P Wing, P 2003 3/6	Compliance with clinical practice guidelines in family physicians managing worker's compensation board patients with acute lower back pain Spine Journal: Official Journal of the North American Spine Society	Observational study	Doctors	*Physicians demonstrated a high degree of compliance with the guideline-recommended history, examination procedures and medications, but low compliance with recommended imaging and many treatment recommendations. CONCLUSIONS: Recently published clinical practice guidelines regarding the management of patients*

					with acute mechanical lower back pain have not been fully implemented into the patterns of practice of the family physicians.
13.	Bloom, B 2005 21/3	Effects of continuing medical education on improving physician clinical care and patient health: a review of systematic reviews	Review, meta-analysis	Doctors	*Interactive techniques (audit/feedback, academic detailing/outreach, and reminders) are the most effective at simultaneously changing physician care and patient outcomes. Clinical practice guidelines and opinion leaders are less effective. Didactic presentations and distributing printed information only have little or no beneficial effect in changing physician practice. CONCLUSIONS: Even though the most-effective CME techniques have been proven, use of least-effective ones*

					predominates. Such use of ineffective CME likely reduces patient care quality and raises costs for all, the worst of both worlds.
14.	Bloomrosen, M Detmer, D. 2010 V14,I:2	Informatics, evidence-based care, and research; implications for national policy: a report of an American Medical Informatics Association health policy conference Journal of the American Medical Informatics Association	White Paper	AHPs	*Conference participants explored the potential of informatics tools and technologies to improve the evidence base on which providers and patients can draw to diagnose and treat health problems. The paper presents a model of an evidence continuum that is dynamic, collaborative, and powered by health informatics technologies. The conference's findings are described, and recommendations on terminology harmonization, facilitation of the evidence continuum in a "wired" world,*

					development and dissemination of clinical practice guidelines and other knowledge support strategies, and the role of diverse stakeholders in the generation and adoption of evidence are presented
15.	Bogdan-Lovis, E Sousa, A 2006 62/11	The contextual influence of professional culture: certified nurse-midwives' knowledge of and reliance on evidence-based practice Social Science & Medicine	Interviews	Nurses	*Many had an incomplete understanding of the concept. Furthermore, in those cases where CNMs demonstrated accurate knowledge of EBM, practice protocols followed subspecialty dictates, thereby preventing their knowledge from translating into adherence to EBM-guided clinical practice guidelines*
16.	Borkowski, N Allen, W 2003 81/2	Does attribution theory explain physicians' nonacceptance of clinical practice guidelines? Hospital Topics	Questioners	Doctors	*More than half of the responders agreed that CPGs are good educational tools (54%) and that guideline*

	$				*development is motivated by a desire to improve quality of care (51%) with 52% believing that CPGs are likely to have this effect. In addition, a high minority related that CPGs are a convenient source of advice (41%). However, a sizable minority of physicians continue to view CPGs as oversimplified or "cookbook" medicine (46%), a challenge to physicians' autonomy (34%), and too rigid to apply to individual patients' cases (35%). Only a small percentage of responders expected guidelines to reduce the number of malpractice suits brought against the medical profession (11%) and decrease the use of defensive medical practices (5%). Furthermore, 61% of the*

					responders expected guidelines to be used in disciplinary actions against physicians with 42% responding that guidelines are likely to decrease physician satisfaction with the practice of medicine. Although 68% of the responders felt that guidelines are motivated to decrease healthcare costs, only 18% expect them to do so. In fact, 41% of the responders predict that guidelines will actually increase total healthcare costs. On the basis of the data analysis presented, two perceived negative motives were identified: (a) the lack of confidence in the CPG developer and (b) the threat to physician autonomy by using CPGs for quality assurance review

					purposes and/or disciplinary action
17.	Borneman, T Etc.. 2007 5/10	Implementing the Fatigue Guidelines at one NCCN member institution: process and outcomes Journal of the National Comprehensive Cancer Network		AHPs	*Findings showed several patient, professional, and system barriers that distinguish usual care from that recommended by the NCCN Cancer-Related Fatigue Guidelines. Phase 2, the intervention model, is designed to decrease these barriers and improve patient outcomes over time, and is in progress*
18.	Bouaud, J Etc.. 2008 129/2	How updating textual clinical practice guidelines impacts clinical decision support systems: a case study with bladder cancer management Studies in Health Technology & Informatics		AHPs	*Adherence to CGL increased with regular updates of guidelines*
19.	Boyd, C etc 2005 259/6	Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance	Review	AHPs	*This review suggests that adhering to current CPGs in caring for an older person with several comorbidities may have*

		JAMA			*undesirable effects. Basing standards for quality of care and pay for performance on existing CPGs could lead to inappropriate judgment of the care provided to older individuals with complex comorbidities and could create perverse incentives that emphasize the wrong aspects of care for this population and diminish the quality of their care. Developing measures of the quality of the care needed by older patients with complex comorbidities is critical to improving their care.*
20.	Brand,c Etc 2005 35/3	Clinical practice guidelines: barriers to durability after effective early implementation Internal Medicine Journal	Retrospective	AHPs	*Adherence to COPD-CPG recommendations was highly variable. Adherence was higher in the Emergency Department than the general wards and for*

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specific therapeutic recommendations. It was lower for non-pharmacological therapy and for recommendations relating to processes of care. Most health professionals were in favour of General-CPG. Barriers to use of General-CPG were in keeping with previous literature reports. Organizational issues including high levels of staff turnover and lack of integration of General-CPG into hospital quality frameworks were highlighted as major barriers. Hospital intranet access and presentation of General-CPG identified lack of consistency in terminology and presentation. CONCLUSION: Short-term effectiveness of

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					COPD-CPG implementation did not ensure sustained success. Departmental organizational behaviours and organizational system barriers are major factors influencing durability.
21.	Brouwers, M Etc.. 2004 20/4	Clinicians' assessments of practice guidelines in oncology: the CAPGO survey International Journal of Technology Assessment in Health Care	Questioners	Doctors	*The factors are interpreted as guideline quality, applicability, acceptability, and comparative value. The four factors predicted oncologists' endorsements of draft guidelines and, with the exception of quality, predicted their intentions to use the guidelines. As expected, variation in the factor scores could be attributed more to the differences among the oncologist who completed the survey than to the differences*

					among the guidelines themselves. CONCLUSIONS: An instrument composed of four stable and theoretically relevant factors emerged. The findings support the hypothesis that beliefs about guideline attributes and development attributes relate to oncologists' endorsement of and intentions to use guidelines.
22.	Browman, G 2005 2/10	Clinical practice guidelines and healthcare decisions: credibility gaps and unfulfilled promises? Nature Clinical Practice Oncology	View point	Doctors	*If clinical decision making is complex, then population-based decision making is even more Individual and societal values, competing interests, political, financial and social circumstances, as well as evidence, can affect both clinical and policy decisions, but*

					the non-evidentiary elements of decision making play
23.	Browman, G 2000 16/4	Improving clinical practice guidelines for the 21st century. Attitudinal barriers and not technology are the main challenges	Report	AHPs, doctors and nurses	*Challenges relate to technological developments to improve the efficiency and pace of the development process, to ensure that clinical practice guidelines are kept up to date, and to facilitate implementation of guidelines in the clinical setting. To improve and ensure the validity of the content of clinical practice guidelines, we need to address the important problem of publication bias, for which researchers, granting agencies, industry, and journal editors share responsibility. This means insisting on registration of trials at their inception, and incentives backed up by*

				rules for funding and peer review publication that would promote behaviours to avoid publication bias. The more difficult challenges for clinical practice guidelines relate to what are referred to as attitudinal factors. To achieve optimal efficiencies in development and maintenance of clinical practice guidelines, we need to promote cooperation among various information resource providers internationally and to stress partnership over leadership. Finally, there need to be reconciliation of the different stakeholder perspectives of the value and purpose of clinical practice guidelines so that they are used appropriately as

					aids to decision making and are not abused as tools for controlling clinical practice.
24.	Burns, S etc 2005	Implementation of clinical practice guidelines for prevention of thromboembolism in spinal cord injury Journal of Spinal Cord Medicine	review	Doctors	*The CPG publication had only a modest effect on practice. Use of structured implementation further increased the adherence to some CPG recommendations for thromboembolism prophylaxis. Similar implementation strategies should be considered for CPG recommendations with low adherence and high potential for morbidity and mortality.*
25.	Butzlaff, M Etc 2006 7	German ambulatory care physicians' perspectives on clinical guidelines - a national survey BMC Family Practice	Telephone	Doctors	*Despite a majority of physicians accepting and applying CPGs a large group remains that is critical and opposed to the utilization of CPGs in daily practice and to the*

					concept of EBM in general. Doctors in single practice and specialists appear to be more critical than physicians in group practices and GPs. Future research is needed to evaluate the willingness to acquire necessary knowledge and skills for the promotion and routine application of CPGs.
26.	Cabana, M Kim, C 2003 13/4 $	Physician adherence to preventive cardiology guidelines for women Womens Health Issues		Doctors	*Six primary barriers relate to individual providers, whereas factors associated with patients, guidelines, and the practice environment constitute external barriers.4 These barriers are listed and described below.* *Lack of awareness and familiarity Lack of self-efficacy* *Lack of outcome*

					expectancy External barriers at the practice level *Finally, organizational or environmental constraints* *beyond a physician's control are external barriers to* *Guideline adherence. Even if a physician is aware of* *the guideline and overcomes the barriers previously* *mentioned, external barriers from patients, practice* *organizations, payers, and other forces may* *limit effective translation of preventive cardiology guidelines.*
27.	Cabana, M Etc.. 2002 24/1 $	Implementing practice guidelines for depression: applying a new framework to an old problem General Hospital Psychiatry	Review	Doctors	*Six primary barriers relate to providers (lack of awareness, lack of familiarity, lack of agreement, lack of self efficacy, lack of outcome*

					expectancy, and inertia of previous practice). In addition, factors related to patient, guideline, and practice environment factors encompass external barriers to adherence. By delineating the underlying barriers to adherence, different interventions that are tailored to improve physician adherence to guidelines can be utilized
28.	Cabana, M Etc.. 2001 155/9 $	Reasons for Pediatrician Nonadherence to Asthma Guidelines Arch Pediatr Adolesc Med	Survey	Doctors	*We defined adherence as following a guideline component more than 90% of the time. Results The response rate was 55% (456/829). Most of the responding paediatricians were aware of the guidelines (88%) and reported having access to a copy of the guidelines (81%). Self-reported rates of adherence were between*

					39% and 53% for the guideline components. After controlling for demographics and other barriers, we found that no adherence was associated with specific barriers for each guideline component: for corticosteroid prescription, lack of agreement (odds ratio [OR], 6.8; 95% confidence interval [CI], 3.2-14.4); for peak flow meter use, lack of self-efficacy (OR, 3.4; 95% CI, 1.9-6.1) and lack of outcome expectancy (OR, 4.7; 95% CI, 2.5-8.9); and for screening and counselling of patients and parents for smoking, lack of self-efficacy (OR, 3.8; 95% CI, 1.7-6.2 and OR, 2.8; 95% CI, 1.3-5.9, respectively)
29.	Cabana, M Etc..	Barriers Pediatricians Face When Using Asthma Practice Guidelines	Focus groups	Doctors and nurses	*Type of recommendation and physician year of*

	2000 154/7 $	Arch Pediatr Adolesc Med			*graduation from medical school were related to which barrier was prominent. For corticosteroid prescription, senior physicians mentioned lack of agreement, whereas younger physicians described lack of confidence in dosing or recognizing contraindications. For peak flowmeter use, senior physicians emphasized lack of training. Only senior physicians described the inertia of previous practice as a barrier. All groups mentioned time limitations. Conclusions Efforts to improve adherence to asthma guidelines should consider the range of barriers that pediatricians face, such as lack of awareness,*

					familiarity, or agreement, and external barriers owing to environmental, guideline, or patient factors. In addition, this study documents barriers not previously considered, such as lack of self-efficacy, lack of outcome expectancy, and inertia of previous practice, that prevent adherence. Because type of recommendation and physician demographics is related to which barriers are prominent, interventions to improve NHLBI guideline adherence should be tailored to these factors.
30.	Cabana, M Etc.. 1999 282/15	Why Don't Physicians Follow Clinical Practice Guidelines?: A Framework for Improvement JAMA	Systematic review	Doctors	*Lack of awareness, agreement, familiarity, out expectancy, self efficiency, Appropriate knowledge and attitudes, describe guidelines as not easy to use or not*

					convenient when asked about guidelines in theory. Patient-Related Barriers, Environmental-Related Barriers (resources).
31.	Calderón, C Etc.. 2006 6 $	Gaining insight into the Clinical Practice Guideline development processes: qualitative study in a workshop to implement the GRADE proposal in Spain BMC Health Services Research	Qualitative research with an ethnographic approach, through non-participant observation and focus groups	Doctors	*1) Certain problems over procedure and terminology hindered the acceptance of this new method as a common reference system for the preparation of CPGs. 2) A greater closeness to clinical practice was accompanied by concerns over value judgments and subjectivity, with a demand for greater explicitness in the consensus process. 3) The type of "evidence" on which the guidelines are based, how and by whom the evidence is prepared, and what the role of the different actors should be, all constitute*

					unresolved concerns in the CPG preparation and implementation processes. 4) The grading process is not neutral: professional background, prior experience and the degree of leadership all condition the participants' input and interactions. CONCLUSION: The findings obtained allow the quantitative evaluation to be better interpreted and, in turn, go beyond the particularities of the GRADE method. Adaptation to the complexities of clinical practice, the need for carefully designed multi-disciplinary work and the reflexivity present in the CPG preparation process, all represent lines of debate that are

					necessary to improve the CPG quality in the Spanish health care sector.
32.	Callen, J Etc.. 2008 77/4	Clinical information sources used by hospital doctors in Mongolia International Journal of Medical Informatics	Self-administrative questioners	Doctors	*The respondents indicated that discussion with colleagues was the most frequently used information source, foreign medical textbooks most commonly inspired high confidence, and discussion with colleagues was the source most often perceived as having a high impact on clinical decision-making. For all sources, high confidence and high impact were strongly associated with each other. Satisfying the clinical information needs of doctors in less developed countries is particularly challenging and even though improvements in information technology*

					can facilitate access to knowledge, there still exist barriers. Health policies which promote computer skills and English language among doctors may contribute substantially to best medical practice in Mongolia.
33.	*Carlsen, B Etc.. 2007 54/575	Thou shalt versus thou shalt not: a meta-synthesis of GPs' attitudes to clinical practice guidelines British Journal of General Practice	Systematic review and meta-analysis of qualitative studies	Doctors	*GPs' reasons for not following guidelines differed according to whether the guideline in question was prescriptive, in that it encouraged a certain type of behaviour or treatment, or proscriptive, in that it discouraged certain treatments or behaviours. CONCLUSION: Previous analyses of guidelines have focused on professional attitudes and organisational barriers to adherence. This synthesis suggests*

				that the purpose of the guideline, whether its aims are prescriptive or proscriptive, may influence if and how guidelines are received and implemented. *1. Questioning the guidelines* *2. GPs' experience* *3. Preserving the doctor–patient relationship* *4. Professional responsibility* *5. Practical issues* *In most of the studies, GPs referred to a lack of time* *to read and assess the guidelines, follow the recommendations, and negotiate with patients* *6. Guideline format* *Concern for the individual patient's needs coupled with scepticism about applying* *research findings to*

					individuals seem to be the most important arguments.
34.	Carlsen, B Norheim, O 2008 $ V8	"What lies beneath it all?"--an interview study of GPs' attitudes to the use of guidelines BMC	Interviews	Doctors	*This study reported that GPs have concerns regarding adhering to GL. These factors were whether guidelines are trustworthy, whether they suit patients and whether the recommended action is feasible. The authors reported two important findings. First, the GP's were concerned that guidelines may be more heavily influenced by economic considerations than clinical ones. Second, in contrast to earlier findings, changes in recommendations and disagreement between experts were mostly viewed positively. The study concluded the need for transparency in the process of development*

					and implementation of guidelines. To enhance the use of guidelines, primary care physicians should be involved in the process of developing guidelines and the process should be transparent and explicit regarding the evidence base and economic considerations.
35.	Carlsen, B Kjellberg, P 2010 10/1	Guidelines; from foe to friend? Comparative interviews with GPs in Norway and Denmark BMC Health Services Research	Interviews	Doctors	*The most important difference was related to GP's attitudes to clinical guidelines that incorporated economic evaluations. While the Norwegian GPs were sceptical to guidelines that incorporated economic evaluation, the Danish GPs regarded these guidelines as important and legitimate. We suggest that the differences could be explained by the history of guideline development in Norway and Denmark*

					respectively. Whereas government guidelines for rationing services were only newly introduced in Norway, they have been used in Denmark for many years. CONCLUSION: Comparative qualitative studies of GPs attitudes to clinical guidelines may reveal cross-national differences relating to the varying histories of guideline development
36.	Carrick, S Etc.. 1998	Surgeons' opinions about the NHMRC clinical practice guidelines for the management of early breast cancer	Survey	Doctors	*M ore than 80% of surgeons reported having read all or most of the Guidelines and believed they were useful in improving women's management and wellbeing, easy to understand, evidence-based, a good summary of recent evidence, and that they would assist agreement between women and healthcare providers. Surgeons*

					agreed with most of the recommendations in the Guidelines, but 26% disagreed In terms of medicolegal implications, 41% believed that the Guidelines would protect clinicians, while, of the 37% of surgeons who believed that they would expose doctors to increased problems: Surgeons are generally positive about the Guidelines, but certain issues should be addressed if they are to be optimally implemented, including confusion about the medicolegal implications, perceived difficulties with providing multidisciplinary care and poor use of the Consumer's guide.
37.	Carter, A	Report on activities and attitudes of	Survey	AHPs,	*Organizational roles,*

	Atc.. 1995 153/7	organizations active in the clinical practice guidelines field CMAJ Canadian Medical Association Journal		doctors and nurses	*priority setting, guidelines implementation, guidelines evaluation and development of a network of those active in the CPG field. Organizational roles: The national specialty societies were felt to have the largest role to play; the smallest roles were assigned to consumers, who were seen to have a role mainly in priority setting, and to industry and government, both of which were seen to have primarily a funding role. Many barriers to collaboration were identified, the solutions to all of which appeared to be better communication, establishment of common principles and clear role definitions. Priority setting: There was considerable agreement on the criteria that should be used to set priorities*

					for CPG activities: the burden of disease on population health, the state of scientific knowledge, the cost of treatment and the economic burden of disease on society were seen as important factors, whereas the costs of guidelines development and practitioner interest in guidelines development were seen as less important. Organizations were unable to give much information on how they set priorities. Guidelines implementation: Most of the organizations surveyed did not actively try to ensure the implementation of guidelines, although a considerable minority devoted resources to implementation. The 38% of organizations that implemented guidelines

				actively listed a wide variety of activities, including training, use of local opinion leaders, information technology, local consensus processes and counter detailing. Guidelines evaluation: Formal evaluation of guidelines was undertaken by fewer than 13% of the responding organizations. All the evaluations incorporated assessments before and after guideline implementation, and some used primary patient data. Barriers to evaluation included lack of money, time, data or expertise. CPG Network: Most of the respondents felt that all organizations and individuals interested or involved in guidelines should form the membership of the network. The three most important functions of

					such a network were deemed to be (a) to facilitate collaboration among those involved in the CPG process, (b) to maintain an information centre on CPGs and (c) to provide expertise to the CPG process. It was felt that the network should have some formal structure and communicate through e-mail and print media
38.	Chaillet, N Etc.. 2006 108/5	Evidence-based strategies for implementing guidelines in obstetrics: a systematic review Obstetrics & Gynecology	LR	Doctors	*Prospective identification of efficient strategies and barriers to change is necessary to achieve a better adaptation of intervention and to improve clinical practice guidelines implementation. In the field of obstetric care, multifaceted strategy based on audit and feedback and facilitated by local opinion leaders is recommended to*

39.	Chaillet, N Etc.. 2007 85/10	Identifying barriers and facilitators towards implementing guidelines to reduce caesarean section rates in Quebec Bulletin of the World Health Organization	LR		AHPs	*effectively change behaviours*
						The identified barriers to and facilitators of the implementation of guidelines were 1) the hospital level, including management and hospital policies; 2) the departmental level, including local policies, leadership, organizational factors, economic incentive, and availability of equipment and staff; 3) the health professionals motivations and attitudes, including medico-legal concerns, skill levels, acceptance of guidelines and strategies used to implement recommendations; and 4) patients motivations. CONCLUSION: Identifying the barriers to and facilitators of the adoption of recommendations is an

					important way to guide the development of efficient strategies. The findings of this study suggest that the adoption of guidelines may be improved if local health professionals' perceptions are considered to make recommendations more acceptable and useful. Our findings also support the assumption that obstetricians seek to implement best practices, but require evidence tools and support to assess their practices and enhance their performance. In addition, peer review activities championed by opinion leaders have been identified by obstetricians as the most suitable strategy to improve the use of the guidelines in their practices.
40.	Chasuk, R Brantley, P	Knowledge and attitudes of family physicians about clinical practice	Survey	Doctors	*Attitude correlated significantly with*

	Martin, P 2001 153/1	guidelines and the care of patients with type 2 diabetes mellitus Journal of the Louisiana State Medical Society			*knowledge of the ADACR (P = .03) but not with "best practice". Despite low scores for knowledge, all but one of the ADACR were adhered to by more than 85% of respondents. Physician attitudes do not appear to be barriers to guideline implementation. Results may be used to focus studies of processes and outcomes in guideline implementation.*
41.	Cheng, N Green, M 2008 V54,I:8	Osteoporosis screening for men: are family physicians following the guidelines? Canadian Family Physician	Chart audit	Doctors	*The authors highlighted the importance of education to increase the awareness of GL.*
42.	Chiu, Ya-Wen Etc.. 2010 V30, I:2	Comparison of evidence-based practice between physicians and nurses: a national survey of regional hospitals in Taiwan Journal of Continuing Education in the Health Professions	Questionnaire survey	Doctors Nurses	*This study reported that physicians were more aware of EBP(GL) than nurses. Although both groups had high recognition of belief in and favourable attitudes toward EBP, their*

				knowledge of and skill in GL were relatively low. When compared with nurses, they reported that physicians were more willing to support GL implementations in clinical services. Physicians' knowledge and skills regarding the application of GL principles were greater than nurses. Furthermore, the authors reported that physicians more often accessed the on-line evidence-retrieval databases, including the Cochrane Library. The most commonly ranked barriers to GL applications for both groups included lack of designated personnel, lack of convenient kits, limited basic knowledge of EBP, and time. In general, nurses

43.	Christakis, D Rivara, F. 101/5	Pediatricians' awareness of and attitudes about four clinical practice guidelines Pediatrics	Survey	Doctors	*generated more barriers than physicians. There were significant discrepancies between physicians and nurses in their awareness of, attitude toward, knowledge of, skill in, behaviour toward, and barriers regarding GL.*
					CPGs were "too cookbook," reported that they were "too time-consuming," "too cumbersome." Additional reported limitations believed that a guideline left no room for personal experience and judgment, concern of increased liability risk, and poor parental acceptance of CPG recommendations. Mean helpfulness scores reported by no university-affiliated physicians were significantly higher than those reported by

					university-affiliated physicians. In a regression model of respondents aware of a particular guideline, more recent graduation from medical school and increased helpfulness scores were associated with guideline-related behaviour change.
44.	Cinel, I Etc.. 2006 12/5	Guidelines for severe infections: are they useful? Current Opinion in Critical Care	Evaluation	AHPs	*These educational programs are designed to increase awareness of guidelines recommendations and to optimize their implementation. Change bundles are selected sets of interventions or processes distilled from evidence-based practice guidelines that are likely to improve outcome.*
45.	Clarke, H Etc 2005 49/6	Pressure ulcers: implementation of evidence-based nursing practice Journal of Advanced Nursing		Nurses	*Lack of visible senior nurse leadership; time required to acquire computer skills and to implement new*

					guidelines; and difficulties with the computer system were identified as barriers
46.	Cochrane, L Etc.. 2007 27/2 $	Gaps between knowing and doing: understanding and assessing the barriers to optimal health care Journal of Continuing Education in the Health Professions	Systematic review	AHPs	*Cognitive-behavioural barriers: lack of knowledge, awareness, professional skill, or appraisal skills* *• Attitudinal or rational-emotional barriers: lack of efficacy, lack of confidence, lack of sense of authority, lack of outcome expectancy, lack of accurate self-assessment* *• Professional barriers: influence of invariants such as age, experience, gender, lack of motivation, influence of individual characteristics, concern for legal issues, rigidity of professional boundaries, lack of appropriate peer influences or models*

				• Barriers embedded in the guidelines or evidence: lack of practical access, lack of comprehensible structure, lack of utility, lack of local applicability, lack of convincing evidence
				• Patient barriers: conflicting culture; educational, cognitive, attitudinal behaviours; lack of adherent or concordant behaviour Support or resources: lack of support, lack of human and material resources, lack of financial resources or funding, lack of time
				• System and process barriers: lack of organization and structure, lack of harmony with health and oversight systems, lack of referral process, lack of workload-outcome

					balance, *lack of teamwork* *structure and ethic*
47.	Colo,C Etc.. $ 2007 55/9	Barriers to and facilitators of clinical practice guideline use in nursing homes Journal of the American Geriatrics Society	Qualitative analysis. Interviews	Nurses	*The most frequently cited barriers were provider concerns that CPGs were ''checklists'' to replace clinical judgment, perceived conflict with resident and family goals, limited facility resources, lack of communication between providers and across shifts, facility policies that overwhelm or conflict with CPGs, and Health Insurance Portability and Accountability Act regulations interpreted to limit CAN access to clinical information* *Unaware of CPGs* *Limited education of certified nursing assistant/licensed practical nurse staff* *''Checklists'' replacing*

					clinical judgment Conflict with resident/family goals Time to implement, Turnover, understaffing Limited resources, Poor communication, Health Insurance Portability and Accountability Act interpretation Variability in, residents, ''don't work for everybody'' Numerous ''protocols'' overwhelm staffs
48.	Cope, S Etc.. 2009 V148,I:8	International differences in asthma guidelines for children International Archives of Allergy & Immunology	Systematic search	AHPs	*The authors found GL differences across organisations and internationally. They suggested delineating the guideline development process and supporting evidence may improve transparency, consistency and guideline adherence.*
49.	Costantini, O Etc.. 1999	Attitudes of faculty, housestaff, and medical students toward clinical practice guidelines. Academic Medicine	Survey	AHPs, doctors and nurses	*Medical students reported learning about guidelines predominantly during clerkships in*

| | 74/10 | | | | *internal medicine (71%) and paediatrics (68%). Overall, the respondents agreed most strongly that guidelines are "useful for the care of common problems," and least strongly that guidelines are "difficult to apply to individual patients" and "reduce physician options in patient care." Faculty were more likely to consider guidelines a "good educational tool" and less likely than were medical students and housestaff to agree that they promote "cookbook medicine." Of 11 influences on clinical decision making, the three groups together rated practice guidelines eighth or ninth. The use of guidelines for academic investigations was rated most appropriate, overall. In* |

					terms of their appropriateness, faculty consistently rated the use of guidelines more favourably except for use in malpractice suits. CONCLUSION: Faculty, housestaff, and medical students have significantly different perceptions of and attitudes toward clinical practice guidelines
50.	*Cote, A Etc.. 2009 19/1	Physiotherapists and use of low back pain guidelines: a qualitative study of the barriers and facilitators Journal of Occupational Rehabilitation	Descriptive study using a qualitative method interviews	Physiother apist AHPs	*Not having the skills, doctors and physicians share the same barriers. Environmental factors. Social pressures placed on a clinician by patients, colleagues and other healthcare personnel to use or not use CPGs. This classification subdivides barriers and facilitators according to whether they pertain to the CPGs themselves, the clinicians, or the*

					environment (human or organisational).
					The majority of barriers and facilitators identified by the participants in this study pertained to the CLIP CPGs and the PT-users. While a few of the barriers pertaining to the human environment (i.e. patients or peers) were identified by the participants, generally speaking, very few environment-related barriers or facilitators were raised. This is an interesting finding that differs from those found in the literature. In fact, several studies on the implementation of innovations by physicians mention the importance of environment in their clinical practices
					Training sessions (presentations, role plays

					and case histories, etc.) should be offered to familiarize healthcare practitioners with the content of the CLIP CPGs and help them develop the skills need to follow the CPGs.
51.	Cranney, M Etc.. 2001 18/4 $	Why do GPs not implement evidence-based guidelines? A descriptive study Family Practice	Qualitative study using semi-structured interviews conducted during focus group	Doctors	*Several barriers to the implementation of evidence-based guidelines in the management of hypertension in the elderly were identified. These included: doubts about the applicability of trial data to particular patients; the poor adherence of GPs to practice protocols; ageist attitudes of some GPs; the effect of time pressure and financial considerations making the subject a low priority; the absence of an effective computer system; and the absence*

					of an educational mentor. All participants demonstrated a very positive attitude to practice-based education. They also welcomed external audit data, which compared their performance with that of other practices. Single-handed GPs were particularly enthusiastic about this approach as it provided them with the peer pressure they lacked. Conclusions. In order to bridge the gap between research and practice, educators need to address the various 'barriers to change' amongst practitioners.
52.	Crim, C. 2000	Clinical practice guidelines vs actual clinical practice : the asthma paradigm Chest	Survey	Doctors	*Health-care providers have not widely and consistently adhered to these guidelines. Several recent publications suggest that this underutilization of the*

					NIH asthma guidelines may in part be related to a lack of understanding. This lack of understanding appears to span the spectrum of physicians in private practice, physicians working in health maintenance organizations, as well as university-affiliated physicians. Moreover, both primary-care physicians and "asthma specialists" share deficits in their knowledge base. To compound the problem, patients with asthma also demonstrate poor adherence to the guidelines. This poor adherence is evident irrespective of the patient's socioeconomic status. These types of data clearly indicate a need for further educational programs

					directed to both physicians and patients
53.	Dahan, R Etc.. 2008 V14,I:5	Is knowledge a barrier to implementing low back pain guidelines? Assessing the knowledge of Israeli family doctors Journal of Evaluation in Clinical Practice	Questionnaires	Doctors	*This study reports remarkable differences between primary care doctors regarding their knowledge of guidelines. Differences were also found for specific variables including the doctor's age, country of medical training and self-report familiarity with the LBP guidelines. The authors suggested that these differences will require the design of multiple interventions tailored to each subgroup.*
54.	Dahm, P Etc.. 2009 V181,I:2	How to use a clinical practice guideline Journal of Urology	Literature review	Doctors	*This study reported that, clinical practice guidelines should formally grade the quality of the available evidence for a given clinical question and outline a formal process of how the*

					recommendations were derived. The study concludes that the systematic approach presented will allow urologists to critically appraise clinical practice guidelines. Determining the validity of the recommendations, understanding the recommendations and assessing their applicability to patients to use GL.
55.	Daly, M Etc.. 2009 V31, I:2	Evaluation of clinical practice improvement programs for nurses for the management of alcohol withdrawal in hospitals Contemporary Nurse	Audit of medical records	Nurses	*This study reported that nurses who had completed the self-directed competency training adhered to CGL comparing them to nurses who hadn't taken it.* *Results indicated that in three hospitals, where 70 nurses completed the self-directed competency training, there was a higher total compliance*

					score across the nine standards compared to eight hospitals where 238 nurses received the in-service program
56.	De la Sierra, A Etc.. 2009 V27,I:3	Application of hypertension guidelines in clinical practice: implementation of the 2007 ESH/ESC European practice Guidelines in Spain Journal of Hypertension	Survey	Doctors	*The acceptance of hypertension guidelines and their implementation in clinical practice by 'front-line' physicians continues to be less than optimal for a variety of reasons, however, including the gap between academic guideline writers and those whose task it is to implement the guidelines, the physicians' own attitudes and knowledge, the characteristics of the guideline itself, patient-related factors, and external barriers such as a lack of adequate resources*
57.	Deutsch, S. C. Denton, M.	Clinical practice guidelines: a tool to help provide quality care Geriatrics	Audit	Doctors	*One approach to promoting appropriate decision-making is to*

	Borenstein, J. 57/3				*make the most recent and relevant information available to physicians in a practice guideline. Physicians are most likely to accept practice guidelines that address a specific need, are supported with scientific evidence, and offer the potential for improving patient outcomes*
58.	Dodge, J 2007 29/8	Epithelial ovarian cancer surgical staging by Ontario gynaecologic surgeons: is there a gap between current practice and the Canadian clinical practice guidelines? Journal of Obstetrics & Gynaecology Canada: JOGC	Survey Questioners	Doctors	*adherence to the CPGs was determined by self-report, and various physician characteristics were explored for potential associations with adherence to the CPGs*
59.	Doroodchi, H Etc.. 2008 V9	Knowledge and attitudes of primary care physicians in the management of patients at risk for cardiovascular events BMC Family Practice	Survey	Doctors	*This study reported that, guideline adherence was affected by "inversely related to years in practice and volume of patients seen. Cost of medications, adherence to medications, adequate time for counselling,*

					patient education tools, knowledge and skills to recommend dietary changes and facilitate patient adherence were cited as significant barriers to CVD risk management. The authors concluded that innovative educational approaches that address barriers may facilitate the implementation of guideline-based recommendations in CVD risk management.
60.	Dulko, D Ect.. 2010 V22,I1	Implementation of cancer pain guidelines by acute care nurse practitioners using an audit and feedback strategy Journal of the American Academy of Nurse Practitioners	Audit and feedback	Doctors, nurses	*Audit and feedback increases guideline adherence and improved patient care. Implementation of cancer pain guidelines by acute care nurse practitioners using an audit and feedback strategy IMPLICATIONS FOR PRACTICE: A/F is an effective strategy to promote CPG use.*

					Improved functional status in the absence of decreased pain severity underscores the need to consider symptom clusters when studying pain
61.	Eggert, K Etc.. 2009 V61,I4	Awareness and knowledge of the clinical practice guideline on Parkinson's disease among German neurologists. European Neurology	Questionnaire	Doctors	*This study reports that neurologists who were aware of the guideline had a significantly better knowledge of the different clinical features of the disease. The authors concluded that the awareness and the knowledge of the guideline in everyday medical practice limited. Future interventions for a better implementation must include strategies to modify behaviour patterns.*
62.	Farquhar, C Kofa, E Slutsky, J 2002 177/9	Clinicians' attitudes to clinical practice guidelines: a systematic review Medical Journal of Australian & New Zealand Journal of Obstetrics	Systematic review	Doctors	*Clinicians agreed that guidelines were helpful sources of advice, good educational tools and intended to improve*

		& Gynaecology			*quality. However, clinicians also considered guidelines impractical and too rigid to apply to individual patients, that they reduced physician autonomy and oversimplified medicine, would increase litigation and were intended to cut healthcare costs. Conclusions: Surveys of healthcare providers consistently report high satisfaction with clinical practice guidelines and a belief that they will improve quality, but there are concerns about the practicality of guidelines, their role in cost-cutting and their potential for increasing litigation.*
63.	Feldman, E Etc.. 1998 7/1	Clinical practice guidelines on depression: awareness, attitudes, and content knowledge among family physicians in New York	Survey	Doctors	*Physicians are slightly less aware of the guidelines on urinary incontinence and*

		Archives of Family Medicine			*pressure ulcers (30.0%). Respondents are generally knowledgeable about the diagnosis and treatment of depression, and board certification is correlated with increased knowledge about the treatment of recurrent depression. Logistic regression analyses demonstrate that female family physicians, those living in larger communities, and physicians with 3 or more years of training are most likely to have positive attitudes toward guidelines*
64.	Ferrier, B Etc.. 1996 42	Clinical practice guidelines. New-to-practice family physicians' attitudes Canadian Family Physician	Survey	Doctors	*Physician characteristics occasionally influenced agreement with the descriptors. The pattern of agreement was similar to that noted in the study of American internists, but, in general, Ontario physicians were more*

					supportive.
65.	Fife, C Etc.. 2010 $ V18,I:2	Why is it so hard to do the right thing in wound care? Wound Repair & Regeneration	Retrospective study literature	Doctors	*This study highlighted that lack of familiarity with clinical practice guidelines increases the cognitive effort for clinicians which results in non adherence to GL. The authors suggest providing access to guidelines to increase adherence to them.*
66.	Flores, G Etc.. 2000 105/3	Pediatricians' attitudes, beliefs, and practices regarding clinical practice guidelines: a national survey Pediatrics	Survey	Doctors	*The results of this study suggest that practice guidelines are most likely to be followed if they are simple, flexible, rigorously tested, not used punitively, and are motivated by desires to improve quality, not reduce costs*
67.	Frenzel, J Etc, 2010 $ V111,I:2	Ongoing provision of individual clinician performance data improves practice behaviour. Anesthesia & Analgesia	Prospective study	Doctors	*We observed the greatest improvement in guideline compliance with ongoing personal performance feedback. Provider feedback can be an effective tool to modify*

					clinical practice but can have unanticipated consequences
68.	Friedman, L Etc. 2009 V13,I:2	The EDUCATE Study: a continuing education exemplar for Clinical Practice Guideline Implementation. Clinical Journal of Oncology Nursing	Educational example	Nurses	*This study suggests providing clinician education based on principles of adult learning to increase adherence to CGL among nurses. This was characterised by interactive formats, provides feedback, and includes reminder and reinforcement strategies. GL adherence among nurses was noticed.*
69.	Garfield, F Garfield, J 2000	Clinical judgment and clinical practice guidelines		Doctors	*Many clinicians are concerned that guidelines are based on randomized trials and do not reflect the complexity of the real world, in which a decision's context and framework are important. Their reluctance also may be due to the difficulty of applying general*

					guidelines to specific clinical situations. The problem will only increase in the future. The patients of the 21st century will be older and have more complex disease states. Physicians will have more patient-specific therapies and need to exercise more sophisticated clinical judgment. They may be more willing to use guidelines in making those judgments if research can demonstrate guidelines' effectiveness in improving decision making for individual patients
70.	Genuis, S 2005 18/5	The proliferation of clinical practice guidelines: professional development or medicine-by-numbers? Journal of the American Board of Family Practice		Doctors	*Providing educational directives and securing widespread adherence to specific clinical practice standards as a means to ensure a consistent acceptable standard-of-*

					care. On the other hand, the increasing tendency to regard authoritative documents as dogma may hinder ongoing medical progress and facilitate the adoption of a "follow-the-recipe" approach to medical practice
71.	Gifford, W 19/4	Leadership strategies to influence the use of clinical practice guidelines Nursing leadership	Qualitative research Grounded theory	Nurses	*Findings indicated a different pattern of leadership in organizations that sustained guidelines, when compared to those that did not. Three broad leadership strategies emerged as central to successfully implementing and sustaining guidelines: (1) facilitating staff to use the guidelines, (2) creating a positive milieu of best practices and (3) influencing organizational structures and processes. Leadership for guideline*

					implementation was found to include such behaviours as support, role-modelling commitment and reinforcing organizational policies and goals consistent with evidence-based care.
72.	Giles, M 2005 45/3	Management of preterm prelabour rupture of membranes: an audit. How do the results compare with clinical practice guidelines? Australian & New Zealand Journal of Obstetrics & Gynaecology	Audit	Doctors	*The current clinical practice guideline should be modified to reflect the current evidence in the literature.*
73.	Goebel, L 1997 23/4	A peer review feedback method of promoting compliance with preventive care guidelines in a resident ambulatory care clinic Joint Commission Journal on Quality Improvement	Peer review feedback	Doctors	*A low-cost, continuous peer review feedback program significantly and durably improves resident physician compliance with clinical practice guidelines on preventive care services. However, the effectiveness of the poor review feedback method may not generalize to private practice or other settings*

74.	Goetz, L Etc.. 2005 28/5	Provider adherence to implementation of clinical practice guidelines for neurogenic bowel in adults with spinal cord injury Journal of Spinal Cord Medicine	Medical record review	Doctors	*While publication of the CPG alone did not alter rates of provider adherence, the use of a targeted implementation plan resulted in increases in adherence rates with some (3 of 6) CPG recommendations for neurogenic bowel management*
75.	Goldman, R 2006 24/1	Payment for performance: in sickness and in health. For better or for worse? Blood Purification		AHPs, doctors and nurses	*The updating process for CPGs should include evidence-based statements concerning their impact on real patients with multiple chronic illnesses.*
76.	Goolsby, M 2001 13/1	Evaluating and applying clinical practice guidelines Journal of the American Academy of Nurse Practitioners		Nurses	*Nurse practitioners should become aware of the range of available CPGs and methods by which they can be evaluated for us*
77.	Gorton, T Etc.. 1995 4/2	Primary care physicians' response to dissemination of practice guidelines Archives of Family Medicine	Survey interviews	Doctors	*Further efforts to disseminate clinical guidelines should include a variety of formats with an emphasis on short,*

					concise summaries and frequent reminders. Social influence appears to play a role and will be a fruitful area for further research.
78.	Goud, R Etc.. 2010 $ V79,I:6	The effect of computerized decision support on barriers to guideline implementation: a qualitative study in outpatient cardiac rehabilitation. International Journal of Medical Informatics	Semi-structured interviews	AHPs	*Our results suggest that computerized decision support can improve guideline implementation by increasing the knowledge of preferred practice, by reducing inertia to previous practice, and by reducing guideline complexity. However, computerized decision support is not effective when organizational or procedural changes are required that users consider to be beyond their tasks and responsibilities*
79.	Graham, I Etc.. 2007	Ontario doctors' attitudes toward and use of clinical practice guidelines in oncology	Cross-sectional, self-administered postal survey	Doctors	*Our ratings of practice guidelines as good educational tools,*

13/4 $	Journal of Evaluation in Clinical Practice			*convenient sources of advice, and tools to improve quality were higher. Our respondents were also less likely to agree that practice guidelines were intended to cut health care costs were oversimplified cookbook medicine or were too rigid to apply. Survey has demonstrated that doctors' attitudes toward practice guidelines are correlated with their intentions to use them. While clinicians' intentions to use a specific guideline involve more than simply their attitudes towards guidelines in general, viewing the guideline negatively could be a significant barrier to its use. Assessing clinicians' attitudes towards guidelines may be a useful strategy to assist*

					guideline developers in helping to ensure that the documents they produce are meeting the needs of their audiences.
80.	Guiberteau, M Etc.. 2004 1/4	Practice guidelines: the radiology perspective Journal of the American College of Radiology		Doctors	*GL use by physicians has met with resistance from barriers including concerns of "cookbook" medicine, a loss of autonomy, and increased professional liability. The recent experience of the ACR in addressing these challenges illustrates that physicians are receptive to steps perceived to mitigate the risks accompanying the use of guidelines as well as to efforts to increase their understanding of implementing guidelines in clinical practice.*
81.	Guihan, M Etc.. 2004	Lessons learned in implementing SCI clinical practice guidelines Journal of Spinal Cord Medicine	Focus groups	Doctors	*a) use of local opinion leaders ("clinical champions"), (b) patient-mediated interventions, (c) standardized*

					documentation template/standing orders, and (d) social marketing/outreach visit
82.	Guihan, M Etc.. 2003 26/1	Spinal cord injury providers' perceptions of barriers to implementing selected clinical practice guideline recommendations	Focus groups	Doctors, nurses, AHPs	*(a) Lack of knowledge, (b) lack of agreement, (c) lack of ability, or (d) lack of systematic reminders for implementation.*
83.	Guindon, E 2010 V182,I:9	Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of health care providers. CMAJ	Survey	AHPs	*Locally conducted or published research has played an important role in changing the professional practice of health care providers surveyed in low- and middle-income countries. Increased investments in local research, or at least in locally adapted publications of research-based evidence from other settings, are therefore needed. Although access to the Internet was viewed as a significant factor in whether research-based evidence led to concrete*

					changes in practice, few respondents reported having easy access to the Internet. Therefore, efforts to improve Internet access in clinical settings need to be accelerated.
84.	Gupta, L Etc.. 1997 166/2	Clinical practice guidelines in general practice: a national survey of recall, attitudes and impact Medical Journal of Australia	Questioners	Doctors	*GPs' recall of each of nine guidelines ranged from 52% to 94%; 49% consider that their practice had changed as a result of a guideline. While 92% of respondents agreed that guidelines were "good educational tools", 85% indicated that guidelines were "developed by experts who don't understand general practice". Factors most frequently identified as important in deciding whether to follow the guideline recommendations were*

					whether the guideline was based on evidence and credible endorsement.
85.	Halm, E Etc.. 2000 160/1	Understanding physician adherence with a pneumonia practice guideline: effects of patient, system, and physician factors Archives of Internal Medicine	Survey	Doctors	*Physicians with more pneumonia experience were more likely not to follow the guideline, patient preference. No adherence to a pneumonia guideline was associated with a variety of patient, system, and physician factors. Guideline implementation strategies should take into account the heterogeneous forces that can influence physician decision making.*
86.	Handley, M Etc.. 1994 8/2	An evidence-based approach to evaluating and improving clinical practice: implementing practice guidelines Hmo Practice	Framework/review	Doctors	*Guideline implementation, evaluation and improvement efforts are most likely to be successful when they are*

					part of an explicit, evidence-based process for evaluating and improving clinical practice.
87.	Harrison, M 2010 $ V182,I:2	Adapting clinical practice guidelines to local context and assessing barriers to their use. CMAJ	Review	AHPs, doctors and nurses	*Clinical practice guidelines can be adapted to local circumstances and settings to avoid duplication of efforts and optimize use of resources.* • *The ADAPTE process is an approach to adapting guidelines to local contexts through the explicit participation of relevant decision-makers.* • *Assessing barriers to and facilitators of the use of knowledge is closely linked to the adaptation and uptake of the evidence.*
88.	Harrison, S Etc.. 2003	General practitioners' uptake of clinical practice guidelines: a qualitative study	Interviews	Doctors	*The findings are attributed to GPs' awareness of policies for*

| | 8/3 | Journal of Health Services & Research Policy | | | *evidence-based medicine, of new health service institutions and of the clinical governance activities of primary care groups. Behaviour change reflects GPs' decisions about what to record in case notes as well as their clinical decisions, so that findings may reflect changing perceptions about accountability rather than about preferred treatment regimes. CONCLUSIONS: Guideline production and dissemination is best seen in the broader context of policy change. Studies of guideline implementation should report before and after data and incorporate significant qualitative components in order to identify important* |

					contextual factors.
89.	Hayward, R Etc.. 1997 159/12	Canadian physicians' attitudes about and preferences regarding clinical practice guidelines CMAJ	Survey	Doctors	*Concerns about loss of autonomy, the rigidity of guidelines and decreased satisfaction with medical practice. Endorsement by respected colleagues or major organizations was identified as very important by 78% and 62% of the respondents respectively in deciding whether to adopt a set of guidelines in their practice. User friendliness of the guidelines format was thought to be very important by 62%; short pamphlets, manuals summarizing a number of guidelines, journal articles and pocket cards summarizing guidelines were the preferred formats (identified as most useful by 50% to 62% of the respondents).*

90.	Heselmans, A Etc.. 2009 $ V10	The attitude of Belgian social insurance physicians towards evidence-based practice and clinical practice guidelines. BMC Family Practice	A cross-sectional survey study	Doctors	*Providing resources and access are factors to increase adherence to CGL*
91.	Heselmans, A Etc.. 2010 $ V83,I:2	The attitude of Flemish occupational health physicians toward evidence-based occupational health and clinical practice guidelines International Archives of Occupational & Environmental Health	A cross-sectional survey study	Doctors	*Most reported perceived barriers to GLA were time, followed by skills. Other important barriers lack of control in the practice, GL too difficult/theoretical to apply to practice, social and legal factors and lack of evidence. Were potential barriers*
92.	Higashi, T Etc.. 2010 V22,I:2	Opinions of Japanese rheumatology physicians regarding clinical practice guidelines. International Journal for Quality in Health Care	Two cross-sectional questionnaire surveys	Doctors	*GLA decreased slightly after the introduction of new guidelines. One reason for this was due concern about the use of the guidelines in malpractice litigation. To facilitate implementation, trends in physician support for the guidelines should be closely monitored.*

93.	Holroyd, B Etc..	Uptake of validated clinical practice guidelines: experience with implementing the Ottawa Ankle Rules	Retrospective cohort study	AHPs	*directed education and personalized feedback*
94.	Horvath, A Etc.. 2010 $ V242	Guidelines for the use of biomarkers: principles, processes and practical considerations. Scandinavian Journal of Clinical and Laboratory Investigation Supplement	Literature Review	AHPs, doctors and nurses	*Guidelines should be outcome oriented; reliable and free from any forms of bias; based on high quality research or on formal consensus when evidence is conflicting or lacking; multidisciplinary; flexible and applicable to various clinical circumstances and patient preferences; clear; cost-effective; appropriately disseminated and implemented; amenable to measurement of their impact in practice; and regularly reviewed and updated. Therefore until guideline-making and reporting standards are improved, all CPGs should be carefully*

					scrutinized for methodological and content validity before being adopted, adapted and used in clinical practice.
95.	Idell, C Etc.. 2007 34/3	Alignment of pain reassessment practices and National Comprehensive Cancer Network guidelines Oncology Nursing Forum	Audit	Nurses	*One on one feedback. pting research recommendations allowed staff to create unit-specific solutions, evaluate practice changes, establish research partnerships, and use research in bedside care. Staff increased their proficiency in pain reassessment practices after the intervention.*
96.	Irving, M Etc.. 2006 185/6	Implementing iron management clinical practice guidelines in patients with chronic kidney disease having dialysis Medical Journal of Australia	On-site review	Doctors	*Implementation barriers included lack of knowledge, lack of awareness of or trust in the CARI guideline, inability to implement the guideline, and inability to agree on a uniform unit protocol*

97.	James, P Etc.. 1997 45/4	Family physicians' attitudes about and use of clinical practice guidelines Journal of Family Practice	Questioners	Doctors	*Family physicians found clinical guidelines to be valuable educational tools but were divided on their potential regulatory role. If clinical guidelines are to improve quality in practice, they must be more effectively disseminated and implemented. To broaden physicians' adoption of clinical guideline*
98.	Johansson, M etc.. 2009 V18,I:23	Nurses' clinical reasoning concerning management of peripheral venous cannula. Journal of Clinical Nursing	Interview	Nurses	*The study highlighted the importance of knowledge of the clinical information when implementing clinical practice guidelines. This knowledge is also useful in nursing education as student nurses' and nurses' ability to balance between preventing complications and avoiding discomfort is important for enhancing patient care.*
99.	Johnson, D	Clinicians' attitudes to clinical	letter	Doctors	*validity of guidelines and*

	2003 178/7	practice guidelines Medical Journal of Australia			*the influence of external agencies (such as the pharmaceutical industry) on treatment recommendations*
100.	Jones, N Etc.. 2008 V23,i:3	Factors predicting adherence to the Canadian Clinical Practice Guidelines for nutrition support in mechanically ventilated, critically ill adult patients Journal of Critical Care	Secondary analysis	AHPs, doctors and nurses	*Specific hospital, ICU, and patient characteristics influence adherence to the Canadian nutrition support CPGs. Further research is required to illuminate the mechanisms by which female and surgical patients and community hospitals lead to lower guideline adherence.*
101.	Jones, N Etc.. 2007 22/4	Implementation of the Canadian Clinical Practice Guidelines for Nutrition Support: a multiple case study of barriers and enablers Nutrition in Clinical Practice	Interviews	AHPs, doctors and nurses	*Resistance to change, lack of awareness, lack of critical care experience, clinical condition of the patient, resource constraints, a slow administrative process, workload, numerous guidelines, complex recommendations,*

				paucity of evidence, and outdated guidelines were cited as the main barriers to guideline implementation. Agreement of the ICU team, easy access to the guidelines, ease of application, incorporation into daily routine, education and training, the dietician as an opinion leader, and open discussion were identified as the primary enabling factors. Although consistent across all sites, the influence of these factors seemed to differ by site and profession.

| 102. | Kahan, N ETC.. 2009 V84,I:9 | The tools of an evidence-based culture: implementing clinical-practice guidelines in an Israeli HMO. Academic Medicine | Quantitative surveys | AHPs, doctors, nurses | *Personalized feedback alone was sufficient to improve the rate of adherence to the guidelines by 19.4% (95% CI = 16.7, 22.1). CONCLUSIONS: This study provides a template for introducing the component of experimentation essential for cultivating an evidence-based culture. This process, composed of collaborative efforts between academic institutions and a managed care organization, may be beneficial to other health care systems.* |
| 103. | Kaiser, K Miksch, S 2009 V46,i:1 | Versioning computer-interpretable guidelines: semi-automatic modelling of 'Living Guidelines' using an information extraction method | LASSIE methodology | AHPs, doctors, nurses | *To have guidelines implemented by computer-support they have to be formalized in a computer-interpretable form in a first step. Due to the complexity of such formats the formalization* |

					process is burdensome and time-consuming
104.	*Kakkar, A Etc.. 2004 2/2 $	Compliance with recommended prophylaxis for venous thromboembolism: improving the use and rate of uptake of clinical practice guidelines Journal of Thrombosis & Haemostasis	review	Doctors	*Physician-related factors include: a lack of awareness of, or familiarity with, the guidelines; a perception that VTE is not a significant problem or that VTE prophylaxis is ineffective; and concern about potential bleeding risks. The guidelines may also be perceived to be too complicated or difficult to apply in a routine manner. In addition, a lack of facilities or resources may also present a barrier to implementation of the guidelines.*
105.	Kavookjian, J Mamidi, S 2008 V30,i:2	Prescribing of beta-blockers after myocardial infarction: a preliminary study of physician motivations and barriers Clinical Therapeutics	Cross-sectional study, a TTM-based questionnaire	Doctors	*Results of this preliminary study suggest that it would be relevant to increase physician knowledge of the updated CPGs*

					regarding use of beta-blockers in the presence of conditions previously deemed relative contraindications.
106.	Kimura, S. Pacala, J 1997 44/4	Pressure ulcers in adults: family physicians' knowledge, attitudes, practice preferences, and awareness of AHCPR guidelines Journal of Family Practice	Questioners	Doctors	*Approximately 70% of physicians were not aware of the AHCPR guidelines. CONCLUSIONS: Most family physicians fell ill-prepared to manage pressure ulcers, suggesting a need to increase educational efforts for this important problem. Knowledge about pressure ulcers could possibly be enhanced by more clinical exposure to older patients, rigorous residency training, and review of AHCPR guidelines*
107.	Koh, S Etc.. 2008	Nurses' perceived barriers to the implementation of a Fall Prevention Clinical Practice Guideline in	Survey Questioners	Nurses	*The greatest barriers to implementation of clinical practice*

	8	Singapore hospitals BMC Health Services Research			*guidelines reported included: knowledge and motivation, availability of support staff, access to facilities, health status of patients, and, education of staff and patients. CONCLUSION: Numerous barriers to the use of the Fall Prevention Clinical Practice Guideline have been identified. This study has laid the foundation for further research into implementation of clinical practice guidelines in Singapore by identifying barriers to change in acute care settings.*
108.	Lam, W Etc.. 2004 38/9	Identifying barriers to the adoption of evidence-based medicine practice in clinical clerks: a longitudinal focus group study Medical Education	Focus group-based, qualitative study.	Doctors	*(1) Learning environment including prevailing norms for student learning involving examination-oriented, textbook learning, prior*

					availability of clinical practice guidelines, lack of encouragement from teachers and economy of time by utilising teacher expertise. (2) Limitations of evidence consisting of poor point-of-care access to medical literature, difficulty in locating evidence and the perceived low relevance of overseas evidence to Chinese patients. (3) Lack of opportunity to practise EBM due to lack of continuity of care and anxieties about negative teacher attitudes towards EBM use at the point-of-care. (4) Time constraints such as competing study demands and long evidence search time
109.	Larisch, A Etc.. 2009 V 256,I:10	Attitudes and barriers to clinical practice guidelines in general and to the guideline on Parkinson's disease. A National Survey of	Cross-sectional survey	AHPs, doctors and nurses	*Lack of time, inability to reconcile patient preferences with guideline*

		German neurologists in private practice Journal of Neurology			*recommendations, and lack of awareness factors affect GLA. A total of 88.2% of the neurologists were aware of the PD-CPG, of whom 92.6% found it beneficial and 94.6% applied it in daily practice. Nevertheless, only 28.8% of neurologists considered that the guidelines led to an improvement in the quality of care. However,(32%) favoured a special guideline for patients. Qualitative data analysis revealed more positive than negative aspects of the PD-CPG; positive comments included "treatment facilitation", "a stepped therapy schema" and "increasing self-efficacy". Criticism mostly concerned the lack of relevance to everyday practice and*

					the rigidity of the guidelines. Neurologists in private practice have a generally positive attitude to guidelines. The main barriers to guideline implementation were lack of time, inability to reconcile patient preferences with guideline recommendations, and lack of awareness
110.	Lawler, F Viviani, N 44/4 1997	Patient and physician perspectives regarding treatment of diabetes: compliance with practice guidelines Journal of Family Practice	Interview	Doctors	*Lack of compliance with guidelines may indicate deficiencies in physician knowledge, implementation problems, lack of belief in guidelines, or problems in patient compliance*
111.	Lember, M Etc.. 17/6 $	The impact of clinical practice guidelines should not be overestimated	Letter/respond	Doctors	*physician's knowledge, implementation problems, lack of belief in the guidelines, or problems in patient compliance*

112.	Lemmens, V Etc.. 2006 32/2	Mixed adherence to clinical practice guidelines for colorectal cancer in the Southern Netherlands in 2002 European Journal of Surgical Oncology	Medical records	Doctors	*Feedback to surgeons and pathologists should improve adherence*
113.	Lewiecki, M Binkley, N 2010 V15,I:9	Evidence-based medicine, clinical practice guidelines, and common sense in the management of osteoporosis. Endocrine Practice	Review	AHPs, doctors, nurses	*Patient preference, comorbidities, affordability, and availability of care-are important for the actual implementation of GL*
114.	Lineker, S Etc.. 2009	Implementing arthritis clinical practice guidelines in primary care	Survey	AHPs, doctors, nurses	*Providing education session increases GLA. Participants identified team learning, the opportunity to network and the involvement of trained patient educators as strong features of the workshops. At follow-up, participants indicated the greatest impact of the program was on collaborative care, and patient self-management.*
115.	Loh, L Etc..	Perception towards asthma clinical practice guidelines and	Questioners	Doctors	*Doctors considered GL "unworkable" and were*

	2007 62/3	appropriateness of prescribing practices--a comparison between government and private doctors Medical Journal of Malaysia			*reluctant to adopt them in their practice setting, quoting cost as the primary reason. Between those who frequently adopted the CPGs and those who did not, there was an equally high proportion of inappropriate prescribing. Despite the shortcomings of such a survey, our findings suggest that medicinal cost and practitioner's prescribing practices are important in the acceptance and execution of asthma CPGs recommendations.*
116.	MacDermid, Joy Graham, Ian 2009 V 25,I:1	Knowledge translation: putting the "practice" in evidence-based practice Hand Clinics	Audit	AHPs, doctors, nurses	*Audit and feedback, knowledge brokering, clinical practice guidelines, professional standards, and "active-learning" continuing education are examples of KT strategies.*
117.	Mackey, J	Impact of clinical practice	Control trial	Doctors	*Our study show that*

	Etc.. 2009 96/4	guidelines on the management for carcinomas of unknown primary site: a controlled "before-after" study Bulletin du Cancer			*simply distributing CUP CPGs did not change practice and underline the necessity to disseminate and implement CPGs, both to oncologists and organ-specialist physicians.*
118.	Maue, S Etc.. 2004 10/6	Predicting physician guideline compliance: an assessment of motivators and perceived barriers American Journal of Managed Care	Survey	Doctors	*Barriers to guideline implementation, predicted a provider's practice intentions and self-reported behaviour*
119.	Mazza, D. Russell, S 2001 30/8	Are GPs using clinical practice guidelines? Australian Family Physician	Interviews	Doctors	*The most commonly used was a therapeutic guideline with 'prescribing' being the most common reason for accessing a guideline. Most GPs stored guidelines in their consulting room, reading them when they felt they needed to; some also used them during the consultation and showed them to patients. General practitioners used CPGs to assist in making*

					therapeutic decisions more frequently than when deciding when and whether to implement preventive measures.
120.	McCraw, W Etc.. 2010	Improving compliance with diabetes clinical practice guidelines in military medical treatment facilities	retrospective review of charts, electronic records, and system data	Doctors	*Inconsistent delivery of care and lack of staff and patient involvement influenced GLA*
121.	McKinlay, J Etc.. 2007 22/3	Sources of variation in physician adherence with clinical guidelines: results from a factorial experiment Journal of General Internal Medicine	Factorial experiment	Doctors	*Physician adherence with guidelines varies with different types of "patient" and with the length of clinical experience.*
122.	Millard, A 1998 11/6	Planned and reported implementation of clinical practice guidelines	Survey	Doctors	*Audit facilitator*
123.	Miller, C Etc.. 2008 23/6	Are enterally fed ICU patients meeting clinical practice guidelines? Nutrition in Clinical Practice	This was a cross-sectional study	Nurses	*Patients clinical conditions or unit HOB angle protocol explained not meeting guidelines. However, there were cases where reasons for not meeting guidelines were unknown.*
124.	Mittman, B	Implementing clinical practice	Survey	Doctors	*For various reasons,*

	1992	guidelines: social influence strategies and practitioner behaviour change			*including physician resistance or incomplete understanding of the need for guidelines, they have proven difficult to implement.*
125.	Miller, C Etc.. 2008 V23,I:6	Are enterally fed ICU patients meeting clinical practice guidelines? Nutrition in Clinical Practice	Cross -sectional study	AHPs, doctors, nurses	*The proportion of patients meeting clinical practice guidelines compares favorably to similar studies. In some cases, patients' clinical conditions or unit HOB angle protocol explained not meeting guidelines. However, there were cases where reasons for not meeting guidelines were unknown.*
126.	Myers, T 2008	Guidelines for asthma management: a review and comparison of 5 current guidelines Respiratory Care	Review	AHPs, doctors, nurses	*The dissemination and implementation of the early guidelines was inconsistent, and they were criticized for not being evidence-based. As the knowledge of asthma pathophysiology continues to expand,*

					along with basic science research on asthma diagnosis, treatment, and management, as well as education of the asthma patient, it is essential that the asthma guidelines be frequently updated and based on evidence-based-medicine processes.
127.	Nease, R Etc.. 1995 273/15	Variation in patient utilities for outcomes of the management of chronic stable angina. Implications for clinical practice guidelines. Ischemic Heart Disease Patient Outcomes Research Team JAMA	Case series	Doctors	*Our findings suggest that guidelines for the management of ischemic heart disease should be based on the preferences of the individual patient rather than on symptom severity alone.*
128.	Newton, J. Knight, D. Woolhead, G. 1996 46/410	General practitioners and clinical guidelines: a survey of knowledge, use and beliefs British Journal of General Practice	Survey	Doctors	*Doctors felt that the methods of implementation that involved them in educational events and discussion with colleagues were most likely to have an impact on them*
129.	Nuckolls, J	Process improvement approach to	Review	Doctors	*When guidelines are*

		the care of patients with type 2 diabetes. Providing physicians with tools to increase compliance and improve outcomes Postgraduate Medicine			*corrected to real-time reminder protocols (at the time the physician is making clinical decisions with the patient), compliance with recommended tests and procedures is increased. Follow-up analysis of performance and comparison with peers assists physicians in making the necessary clinical interventions that improve the management of these conditions and reduce complications. Integrated electronic medical records are a key initial component for motivating physicians and initiating effective diabetes management plans*
130.	Ouimet, M Etc.. 2006 62/4	What factors induce health care decision-makers to use clinical guidelines? Evidence from provincial health ministries, regional health authorities and	Survey	AHPs, doctors, nurses	*The results indicate that there are large differences between work settings in regard to clinical guideline*

		hospitals in Canada Social Science & Medicine			*utilization. Not surprisingly, work settings like hospitals rely more intensively on clinical guidelines than the other work settings (health ministries or agencies and regional health authorities). The results of the regression models indicate that cognitive factors, social factors, technological factors, organizational factors and individual attributes significantly predict the utilization of clinical practice guidelines by decision-makers.*
131.	Ozdemir, L. Akdemir, N. 2009	Turkish nurses' utilization of research evidence in clinical practice and influencing factors	DESCRIPTIVE DESIGN	Nurses	*The study emphasized the importance of nursing education and organizational support in order to accomplish the implementation of evidence-based nursing (GL).*
132.	Parker, D	Physicians' Perceptions of Barriers	Focus groups	Doctors	*Physicians mentioned*

| | Etc..
2008
11/1
$ | and Facilitators Regarding Adoption of the National Cholesterol Education Program Guidelines
Preventive Cardiology | | | *that the complexity of the guidelines in terms of Structure and risk stratification was a barrier to following them. Difficulty in accessing the guidelines and/or obtaining the latest updates due to practice isolation. Barriers related to patients' concerns were also addressed by the physician participants. A strongly held response to guidelines, in general, was the concern that focusing on one dimension of the patient's care had the capacity to decrease global/holistic care that might have greater influence on the patient's health. Additional barriers that were not under the control of the physician included organizational,* |

					environmental, or practice-based factors. A number of physicians mentioned time limitations during office visits, as well as competing demands, preventing adequate time to discuss the issues related to cholesterol management.
133.	Pathman, D Etc.. 1996 34/9	The awareness-to-adherence model of the steps to clinical guideline compliance. The case of pediatric vaccine recommendations Medical Care	Questioners	Doctors	*The authors propose that when physicians comply with practice guidelines, they must first become aware of the guidelines, then intellectually agree with them, then decide to adopt them in the care they provide, then regularly adhere to them at appropriate times. These data on physicians' use of paediatric vaccine recommendations generally support the awareness-to-adherence model. This model may prove useful in*

					identifying ways to improve physicians' adherence to a variety of guidelines by demonstrating where physicians fall off the path to adherence, which physicians are at greatest risk for not attaining each step in the path, and factors associated with a greater likelihood of attaining each step toward guideline adherence.
134.	Pedone, C Lapane, K 2003 3	Generalizability of guidelines and physicians' adherence. Case study on the Sixth Joint National Commitee's guidelines on hypertension BMC Public Health	Evaluation	Doctors	*We found a weak association between generalizability and physicians' adherence to guidelines. Baseline risk was the major determinant of the decision to treat. CONCLUSION: JNC VI guidelines may not be generalizable to their target population. We found a relatively poor adherence rate to these*

					guidelines. Failing of completely taking into account the clinical characteristics of the patients may be partly responsible for this lack of adherence.
135.	Peters-Klimm, F Etc.. 2008 V14,I:5	Improved guideline adherence to pharmacotherapy of chronic systolic heart failure in general practice--results from a cluster-randomized controlled trial of implementation of a clinical practice guideline Journal of Evaluation in Clinical Practice	Survey	Doctors	*Feedback, training and education to increase awareness of GLA*
136.	Ploeg, J Etc.. 2007	Factors influencing best-practice guideline implementation: lessons learned from administrators, nursing staff, and project leaders	Survey	Nurses	*Factors at individual, organizational and environmental levels were identified as influencing guideline implementation. Facilitators included learning about the guideline through group interaction, positive staff attitudes and beliefs, leadership support,*

					champions, teamwork and collaboration, professional association support, and inter-organizational collaboration and networks. Barriers included negative staff attitudes and beliefs, limited integration of guideline recommendations into organizational structures and processes, time and resource constraints, and organizational and system level change. Similarities and differences in perceptions of these factors were found among staff, project leaders and administrators
137.	*Pogorzelsk a, M Etc.. 2008 27/1	Assessment of attitudes of intensive care unit staff toward clinical practice guidelines DCCN	Survey Secondary analysis of data	AHPs, doctors, nurses	*Agreement with CPGL, doctors' attitude differs from nursing regarding adherence to GL. However nurses with*

	Ordered $				*other profession did not vary. Adherence to GL also varies depending on the type of ICU. Views as "too cook-book".* *Lack of time, increase of age (they see it as inherent part of practice), age, race and ethnicity were also factors for GL adherence. Non- whit adheres less to GL.*
138.	Powell-Cope, G Etc.. 2004 10/2	Provider-perceived barriers and facilitators for ischaemic heart disease (IHD) guideline adherence Journal of Evaluation in Clinical Practice	Focus groups	Doctors	*The main perceived advantages of using the IHD guidelines were improvements in quality and the cost of care. Perceived barriers were the lack of ability of guidelines to manage the care of any one individual patient, the difficulty of accessing guidelines, and high workloads with many complex patients. While providers agreed on the benefits of aspirin, beta-*

					blockers and angiotensin converting enzyme inhibitors, barriers for use of these medications were lack of consensus about contraindications, difficulty in providing follow-up during medication titration, and lack of patient adherence. Sources of influence for guideline use were: professional cardiology organizations, colleagues, mainly cardiologists, and key cardiology journals. However, most providers acknowledged that following guidelines was a personal practice decision.
139.	Quenot, J 2008 V34,I:8 $	Bedside adherence to clinical practice guidelines in the intensive care unit: the TECLA study Intensive Care Medicine	Review	Doctors	*Even when the information is delivered to the target physicians, several hurdles limit the uptake of specific recommendations into*

					routine practice, including difficulty in changing behaviour, an inadequate environment, and factors related to cost or cultural issues.
140.	Raats, C Etc.. 2008 V37,i:3	A generic tool for development of decision aids based on clinical practice guidelines Patient Education & Counselling	Decision aids, evidence-based guidelines	Doctors	*Our generic format facilitated the efficient production of specific decision aids based on evidence-based guidelines. PRACTICE IMPLICATIONS: If guidelines and decision aids are developed in parallel, high-quality patient information can be produced within a short time frame. The process of development should include adequate patient involvement and a strategy for maintenance.*
141.	Ratanalert, S Etc.. 2007	The impacts and outcomes of implementing head injury guidelines: clinical experience in Thailand	Record review	Nurses	*An appropriate implementation strategy and working as a multidisciplinary team*

	24/1	Emergency Medicine Journal			*are key factors for success in implementing the CPG.*
142.	Rätsep, A Etc.. 2007 1/2	Family doctors' assessment of patient- and health care system-related factors contributing to non-adherence to diabetes mellitus guidelines Primary care diabetes	Postal survey	Doctors	*Low awareness of diabetes and its complications as well as patients' low motivation to change their lifestyle were considered to be the biggest difficulties in managing individual patients. In addition to the most often listed problems non-compliance with medical regimen, patients' financial problems and their nonattendance were mentioned. The greatest health care system-related barriers to practices providing desirable care were the lack of special diabetes education for nurses and underfunding, and an inadequate number of patients' educational materials. The patient-*

					related issues were regarded as problems in 96% of the cases and health care system-related factors were mentioned in 79% of the cases. CONCLUSIONS: Family doctors in Estonia consider patient-related factors to be key issues in non-adherence to diabetes mellitus clinical practice guidelines.
143.	Renzi, P Etc 2006 13/4	Paper stamp checklist tool enhances asthma guidelines knowledge and implementation by primary care physicians Canadian Respiratory Journal	prospective, randomized	Doctors	*physicians' knowledge of the CPGs*
144.	Roe, B. Moore, K 2001	Utilization of incontinence clinical practice guidelines Journal of Wound, Ostomy, & Continence Nursing	Review	Nurses	*Guidelines are only as valid as the evidence on which they are based and may not take into account gender or cultural differences or the effect that comorbid conditions can have on treatment outcomes. Finally, guidelines must*

					follow a comprehensive approach that involves management and staff and includes education, facilitation, evaluation, feedback, and an understanding of change strategies
145.	Rosenfeld, R Etc.. 2009 140/6	Clinical practice guideline development manual: a quality-driven approach for translating evidence into action Otolaryngology - Head & Neck Surgery	Quantitative	Doctors	*Increase awareness to improve GLA. As clinical practice guidelines become more prominent as a key metric of quality health care, organizations must develop efficient production strategies that balance rigor and pragmatism. Equally important, clinicians must become savvy in understanding what guidelines are-and are not-and how they are best utilized to improve care. The information in this manual should help clinicians and organizations achieve*

					these
146.	Rutten, G Etc 2010	Adherence to clinical practice guidelines for low back pain in physical therapy: do patients benefit?	Prospective study	AHPs	*GLA improves patient outcomes*
147.	Scott, I Etc.. 2003 33/7	Clinical practice guidelines: perspectives of clinicians in Queensland public hospitals Internal Medicine Journal	Survey	Doctors	*Lack of awareness of guidelines (45%) or inability to access them when needed (44%) prevented greater use. Concise, quick-reference formats were preferred to detailed texts (35%vs. 6%; P<0.001). Sixty percent of respondents became acquainted with guideline recommendations through informal discussions with colleagues rather than through organized awareness-raising (27%) or educational forums (41%; P < 0.001). Guideline endorsement by senior colleagues (68%) and peers (53%)*

					was considered essential to maximizing uptake. Barriers to implementing guideline recommendations were encountered by 62% of clinicians, including insufficient clinical resources (29%) or time (24%), and conflict with accepted practice codes (19%).
148.	Scribano, P Etc.. 2004 8/12	Provider adherence to a clinical practice guideline for acute asthma in a paediatric emergency department	Perspective cohort	Doctors	*There non adherence factors included: lack of at least three nebulized albuterol treatments provided timely within the first hour (5%); delay in steroid administration (6%); lack of pulse oximeter use (0.5%); and failure to record clinical score to assess severity (1.1%). Patient age, illness severity (acute and chronic), first episode of wheezing, and high ED volume periods (evenings and weekends)*

					did not worsen adherence
149.	Shastri, J 2008 18/4	Adherence to K/DOQI guidelines for calcium-based phosphate binders in clinical practice	Retrospective review	AHPs, Doctors and Nurses	*The reasons for this inconsistency are speculative, and may include disagreement with the opinion-based recommendations, insufficient knowledge of the guidelines, or individual patient considerations (including cost, tolerance, and effectiveness).*
150.	Sheehan, S Etc.. 2010	Implementation of guidelines on oxytocin use at caesarean section: a survey of practice in Great Britain and Ireland	Survey questionnaires	Doctors	*GL deviations, these variations may reflect a lack of robust evidence and the need for future research*
151.	Shye, D. Brown, J 1995 9/3	Primary care HMO clinicians' opinions about clinical practice guidelines Home Practice	Survey	Doctors	*clinicians' responses suggest they will not object to the implementation of specific practice guidelines in the HMO. Guidelines' information-synthesizing and consensus-building functions are likely to be*

					welcomed. Increased guideline implementation is apparently not perceived as a threat to professional autonomy
152.	Silagy, C Etc. 2002	The effectiveness of local adaptation of nationally produced clinical practice guidelines	Survey	GPs	*Knowledge, awareness Whilst this study found significant changes in knowledge, attitude and reported practice as a result of disseminating guidelines, it did not find any additional effect from the local adaptation process itself. This suggests that the emphasis and investment in promoting guideline implementation should be placed on multifaceted dissemination strategies rather than local adaptation per se.*
153.	Sinuff, T Etc.. 2005 54/9	Clinical practice guidelines in the intensive care unit: a survey of Canadian clinicians' attitudes Canadian Journal of Anaesthesia	Survey	Nurses and doctors	*Physicians considered endorsement of guidelines by a colleague more relevant for enhancing guideline use than did nurses. Nurses*

				considered low risk of the guideline and whether the guideline is consistent with their practice to be more relevant to guideline uptake than did physicians. Lack of agreement with recommendations was a more important barrier to use of guidelines for physicians than for nurses. CONCLUSIONS: Many Canadian institutions locally develop guidelines, and many ICU physicians and nurses report using them. Planning implementation strategies according to clinician preferences may increase guideline use. The nature of the differences in attitudes towards guidelines between nurses and physicians, and their

					impact on clinician adherence to guidelines requires further exploration.
154.	Slomka, J Etc.. 2000 9/6	Influence of clinicians' values and perceptions on use of clinical practice guidelines for sedation and neuromuscular blockade in patients receiving mechanical ventilation American Journal of Critical Care	Interview	Nurses and physicians'	*Physicians reported following guidelines in 69% of cases, but their actual adherence rate was only 20%. Clinicians sometimes had difficulty distinguishing among anxiety, pain, and delirium. Clinicians justified variations from guidelines by citing the value of individualized patient care. Nurses and physicians sometimes had different goals in the use of sedation. CONCLUSIONS: Physicians may think they are following sedation guidelines when they are not, and they may prescribe incorrect medications if the cause of agitation is misdiagnosed.*

					Differences between physicians and nurses in values and perceptions may hamper implementation of clinical practice guidelines
155.	Sturmberg, J 1999 5/2	Implementing best practice guidelines: the influence of personal characteristics Journal of Evaluation in Clinical Practice	Survey	Doctors	*Clinical practice guidelines (CPGs) have not been widely adopted by general practitioners despite their obvious benefits of improving health care. Personal characteristics have been identified as one factor influencing doctors' attitudes towards guidelines. This study examined the impact of personal characteristics of Australian general practitioners on their attitudes towards guidelines. Favouring a fee-for-service remuneration system is highly associated with a negative view towards*

					guideline
156.	Tan, K 2006 19/2-3 $	Assessing doctors' compliance with guidelines on diabetes management	Retrospective cross-sectional	Doctors	*Time Adherence to ECG and foot assessment parameters was poor among SOC cases, while poor adherence to weight and foot assessment parameters was seen in the polyclinics. There was poorer adherence to blood pressure and ECG parameters in the SOCs, but better adherence was seen for weight assessment. Among the SOC cases, Cluster A fared better than Cluster B in ECG monitoring. In the polyclinics, better adherence was seen in Cluster A for urinary protein, serum creatinine, lipids, ECG, retinal and foot assessment parameters.*
157.	Thomason, S Etc..	Providers' perceptions of spinal cord injury pressure ulcer guidelines	Focus groups	Nurses and doctors	*The focus groups agreed unanimously on the substance of 6 of the 32*

	2007 30/2	Journal of Spinal Cord Medicine			*recommendations. Nurse and physician focus groups disagreed on the degree of CGP implementation at their sites, with nurses as a group perceiving less progress in implementation of the guideline recommendations. The focus groups identified only one recommendation, complications of surgery, as being fully implemented at their sites. Categories of barriers and facilitators for implementation of CPGs that emerged from the qualitative analysis included (a) characteristics of CPGs: need for research/evidence, (b) characteristics of CPGs: complexity of design and wording, (c)*

					organizational factors, (d) lack of knowledge, and (e) lack of resources
158.	Timmerman s, S Kolker, E 2004	Evidence-based medicine and the reconfiguration of medical knowledge	Literature Review	AHPs	*the effects of clinical practice guidelines on the autonomy of health professionals*
159.	Tran, D Etc.. 2009 33/1	Does implementation of clinical practice guidelines change nurses' screening for alcohol and other substance use? Contemporary Nurse	Medical record audits	Nurses	*Factors which may have limited the effectiveness of the clinical practice guideline dissemination included design of the education program, existing level of nurses' knowledge and competence, and strategies in place to ensure sustainability of the program.*
160.	Trivedi, M Etc.. 2009 9	Barriers to implementation of a computerized decision support system for depression: an observational report on lessons learned in "real world" clinical settings BMC Medical Informatics & Decision Making	Narrative report	Doctors	*Issues regarding computer literacy and hardware/software requirements were identified as initial barriers. Clinicians also reported concerns about negative impact on workflow and the potential need for*

					duplication during the transition from paper to electronic systems of medical record keeping. CONCLUSION: the importance of taking into account organizational factors when planning implementation of evidence-based guidelines or decision support within a system.
161.	Van Hoecke, H Van Cauwenber ge, P 2007 101/4	Critical look at the clinical practice guidelines for allergic rhinitis Respiratory Medicine	Review	Doctors	*There is no single effective way to ensure the use of guidelines into practice, but a carefully developed and multifaceted dissemination and implementation strategy and targeting and adapting guideline recommendations to the local and individual level are key elements. The final and most important step of putting guidelines into practice occurs at the level of the patient.*

					Patients should be considered as effective partners in health care. Education of the patient and efforts to change patient's behaviour can maximize compliance, increase satisfaction and optimize health outcomes
162.	Zipoli, R Etc.. 2005 14/3	Evidence-based practice among speech-language pathologists: attitudes, utilization, and barriers American Journal of Speech-Language Pathology	Questioners	Doctors	*Attitudes were predicted by exposure to research and EBP practice during graduate training and the clinical fellowship year (CFY). Clinical experience and opinions of colleagues were used to guide decision making more frequently than research studies or clinical practice guidelines. Only exposure to research and EBP during the CFY predicted use of evidence-based resources. Respondents reported a decline in exposure to research and*

				EBP as they moved from graduate training into the CFY. A lack of time was perceived as a barrier to EBP.

Appendix 3b: Summary of the Included Studies and Main Findings in BNI Database

Summary of results
Total= 70
Selected Total=39
Remove Duplicate=0
Excluded =10
Total= 29

Key to abbreviations
AHPs: Allied Health Professionals
CPG: Clinical Practice Guidelines

	Authors /Year	Article Title/Journal Name	Study design	Participant	Summery outcome
1.	Al-Bermani Desha Y etc 2005	Management of incidental hyperglycaemia in acute medical emergencies	Prospective study. Data were obtained from medical notes, nursing notes, fluid charts and medicine chart	Doctors	*Doctors were reluctant to adhere to hyperglycemias guidelines especially if they were not aware that patients have diabetes. The study reports a modest adherence after an education and awareness training given. The study also reports that nurses were a major factor for joiner doctors to adhere to the guidelines by ensuring that they don't ignore hyperglycemia.*
2.	Beswick, A etc.. 2005	Improving uptake and adherence in cardiac rehabilitation: literature review	Literature review	Nurses	*The study reported that, there have been few studies of sufficient quality to make specific recommendations of methods to improve participation in cardiac rehabilitation GL. Interventions varied widely in their cost implications and evaluation studies are needed, particularly because, as patient numbers increase, the proportions of older and more severely ill patients will increase.*
3.	Boonstra, E Lindbaek , M Ngome,	Adherence to management guidelines in acute respiratory infections and diarrhoea in children under 5 years	Cross-sectional prospective field survey	AHPs	*The study listed that, guideline adherence to diarrhoea depends on a variety of factors, such as health workers' knowledge, case management skills, motivation, supervision, the existence of incentives for health workers, the provision of*

	E 2005	old in primary health care in Botswana			*necessary supplies and essential drug and laboratory facilities. The study also suggested targeting these barriers to improve adherence among health workers and also providing clinical training sessions for staff members.*
4.	Creedon S 2005	Healthcare workers' hand decontamination practices: compliance with recommended guidelines Journal of Advanced Nursing	Quasi-experimental design	AHPs	*The study reported that lack of time is the major factor for non-adhering to hand washing guidelines. Providing health care workers with induction programs and training has provided awareness and also increased the rates of adherence. The study also recommended investigation on HCW skin condition as this might affect guideline adherence and the financial implications "cost".*
5.	Cullen, B. L. Etc.. 2006	Potential for reported needle stick injury prevention among healthcare workers through safety device usage and improvement of guideline adherence: expert panel assessment Journal of Hospital Infection	Prospective survey	AHPs	*The study reported if HCW have adhered to guidelines then needle stick injuries would be prevented; however, the study report that "with 12% of injured HCWs indicating that they knew the guidelines but failed to adhere to them, it is improbable that education and training alone would eliminate the number of incidents deemed to be preventable through such an Intervention".*
6.	Cutter, J. Jordan, S. 2003	Inoculation injuries: inter-professional differences in risk-taking and reporting Journal of Hospital Infection	Survey Postal questionnaires	AHPs	*The study reported HCW did not adhere to CPG because of they disagree with guidelines injury report CPG. The study reported that nurses and midwifes adherence better to injury report guidelines comparing it to surgeons. They authors also report that this could be to due to inter-professional differences in relation to guideline adherence and 'occupational hazards' reflect differences in professional socialization,*

					culture and education.
7.	Cutter J Jordan S 2004	Uptake of guidelines to avoid and report exposure to blood and body fluids Journal of Advanced Nursing	Cross- sectional Survey by postal questionnaire	Doctors and nurses	*This study Highlighted that guideline adherence was influenced by profession, but not by time since qualification. Communication and educational background are also factors for CPG adherence. They also suggest improving environmental factors (ex. providing equipment's) to increase CPG adherence.*
8.	Darmer M Ankersen L Etc.. 2006	Nursing documentation audit; the effect of a VIPS implementation programme in Denmark Journal of Clinical Nursing	Retrospective	Nurses	*Nurses adhered to documentation using VIP model due to providing training, supervision and chart audits*
9.	Dijkstra R Etc… 2004	Patients and nurses determine variation in adherence to guidelines at Dutch hospitals more than internists or settings.	Questionnaire	Nurses	*The authors reported that the major barriers to adherence by nurses include a heavy workload and lack of time as well as a health care system which is designed to deal with acute, rather than chronic illnesses. The authors suggested considering division of tasks within a trained multi professional team this might force reorganization of locally available care. An integrated, multi-professional approach might lead to more effective and efficient health care.*
10.	Ehrenberg A Birgersson C 2003	Nursing documentation of leg ulcers: Adherence to clinical guidelines in a Swedish primary health care district Scandinavian Journal of Caring Sciences.	Retrospective Patient records	Nurses	*The study reports that more research is needed on the implementation and use of CGL to know if adherence to clinical guidelines improves the quality of care and patient safety. They also recommend providing feedback and effective communication with the physicians to support CPG adherence.*
11.	Margot F Meulen	Do patients matter? Contribution of patient	Prospective recording	Doctors and nurses	*The study reports that care provider's acceptance of the CPG were the most important factor in*

	M Etc.. 2000	and care provider characteristics to the adherence of general practitioners and midwives to the Dutch national guidelines on imminent miscarriage Quality in Health Care			*adherence in this study. Nature of the guidelines, the characteristics of the care provider, the characteristics of the patient, or the setting in which the guidelines are applied are other factors for non –adhering.*
12.	Garnerin, P Arès, M Etc.. 2008	Verifying patient identity and site of surgery: improving compliance with protocol by audit and feedback	Audit	AHPs	*Communication problems between patients and professionals, and lack of collaboration with surgical services effect adherence to CPG.*
13.	Grol, Richard 2001	Successes and Failures in the Implementation of Evidence-Based Guidelines for Clinical Practice Medical Care	Survey and phone interview	AHPs	*The study reports that "reasons for lack of adherence provided by the physicians were perceived preferences of patients and following fixed routines. Comprehensive strategy to disseminate the guidelines via various channels, both written and personal, appears to be very important: scientific journals, local networks of peers, and colleagues trained to explain the guidelines should be part of such a strategy."*
14.	Gurses P Seidl K L 2008	Systems ambiguity and guideline compliance: a qualitative study of how intensive care units follow evidence-based guidelines to reduce healthcare-associated infections Quality and Safety in Health Care	Qualitative study Semi structured interviews	Doctors, nurses and AHPs	*Using a grounded theory approach. The researchers identified 5 concepts of explaining non-compliances to clinical guidelines using "systems ambiguity "namely: tasks, responsibilities, methods, expectations and exceptions. Strategies reported to reduce ambiguity included clarification of expectations from care providers with respect to guideline compliance through education, use of visual cues to indicate the status of patients with respect to a particular guideline, development of tools that provide an overview of information critical for*

					guideline compliance, use of standardised orders, clarification of roles of care providers and use of decision-support tools. The concept of systems ambiguity is useful to understand causes of non-compliance with evidence-based guidelines aimed at reducing healthcare-associated infections. Multi-faceted interventions are needed to reduce different ambiguity types, hence to improve guideline compliance.
15.	Håkonsen, G Strelec, P Etc… 2009	Adherence to Medication Guideline Criteria in Cancer Pain Management Journal of Pain and Symptom Management	Retrospective quantitative study Focus Groups	Doctors, nurses and AHPs	*Overall, measured adherence to guidelines was high (medication-assessment tool for cancer pain management). Focus groups reported that time constraints, individual drug response, lack of awareness of the importance of systematic documentation and potential differences in clinical practice between various health care settings are all factors of non-adhering to guidelines*
16.	Hamilton, Sharon McLaren, Susan Mulhall, Anne 2006	Multidisciplinary compliance with guidelines for stroke assessment: Results of a nurse-led evaluation study Clinical Effectiveness in Nursing	Quasi-experimental study design utilising a pre-test/post-test group.	AHPs	*In summery, low levels of team, retention of the old case-note system, time constraints impeding attendance at meetings of the multidisciplinary advisory group and limiting engagement in education sessions. Similar problems in securing medical attendance at meetings were reported in a study to implement care pathways*
17.	Harmsen, Mirjam Giesen, Paul Etc.. 2005	Urinary tract infections in young children: high guideline adherence of triage nurses at general practice co-operatives Quality in Primary Care	Survey study Questionnaires	Nurses	*Availability of equipment was mentioned as a factor that hiders nurses to adhere to CPG.*
18.	Kramer,	Improving adherence to	Literature review	Doctors and	*Training and education in surgical hand*

				Nurses	*disinfection is the most importance in CPG More factors were listed such as: efficiency, dermal tolerance, systemic risks, duration of the procedures, religious restriction, ecological aspects safety and cost*
19.	Kate Kynoch 2008	Implementation of a glucose management protocol to prevent hypo- and hyperglycaemia in critically ill patients	Audit, feedback and re-audit	Nurses	*The researchers reported that nurses did not adhere to hypo- and hyperglycaemia prevention guidelines due to: nurses workload, nurses forget to document, poor attendance at education sessions*
20.	Lymer Ulla-Britt Richt Bengt Etc… 2004	Blood exposure: factors promoting health care workers' compliance with guidelines in connection with risk	Qualitative research, interviews	Nurses	*The study reports that, in charge nurses, informal leaders, students, infection control nurses, type of work, availability of equipment, blood-exposure incidents and media-coverage of infectious diseases are described as potentially important for CPG.*
21.	Manias Elizabeth Aitken Robyn 2005	How graduate nurses use protocols to manage patients' medications?	Descriptive prospective qualitative design interviews	Nurses	*The study reports "that graduate nurses adhere to CPG if they were perceived not to impede with other nursing activities. Participants were also more likely to follow protocols if they felt encouraged to make their own decisions and if there was a decreased likelihood that disciplinary action would be involved".*
22.	Offerhaus, P Fleuren, M Wensing, M 2005	Guidelines on anaemia: effect on primary-care midwives in The Netherlands	Cross- sectional survey study	Nurses	*The study reports that "reading the guideline does not necessarily change the professional routines of midwives. These include professional factors (e.g. negative attitudes, lack of specific skills, self-efficacy); patient/ client factors (e.g. inappropriate patient/client expectations, patient/client willingness to co-operate); characteristics of the guideline (e.g. complexity, relative advantage); and organisational and*

					structural factors (e.g. inadequate organisational culture, staff turnover, existing rules and regulations). It is important to have insight into current practice and into impeding and facilitating factors for improvement, in order to design a targeted and effective implementation strategy that is adapted to these factors".
23.	Petty, C 2004	Hand washing: Essential in the PACU Journal of Pre Anesthesia Nursing	Short paper	Nurses	*The author highlights that, "PACU staff members need to be educated repeatedly of the positive effects hand washing can have on patient outcome. However the author added that, in trying to improve compliance to hand washing it must be recognised that this will require a long-term change".*
24.	Phin, N Rylands, A Etc… 2009	Personal protective equipment in an influenza pandemic: a UK simulation exercise	Real-time pandemic simulation exercise on a typical general medical ward	Doctors, nurses and AHPs	*The study examined GPG through 24hr exercise to the pandemic influenza infection control guidance on the use of personal protective equipment PPE. The researchers found that most of the staff found PPE uncomfortable, simple tasks took longer time than usual and more clinical waste was generated. The researchers suggested having a programme of ongoing infection control education. In addition, researchers reported that "healthcare in a pandemic situation is not simply a case of applying pandemic influenza infection control guidance to current practice; hospitals need to consider changing the way care and services are delivered".*
25.	Shimoni Z Kama N 2009	Empowering surgical nurses improves compliance rates for antibiotic prophylaxis after caesarean birth	Historical prospective study	Doctors and nurses	*A study in Israel found that if nursing adheres to clinical guidelines regarding antibiotic prophylaxis will results in reducing wound infection in women after caesarean birth. Thus improving patient outcome and care.*

					The study highlighted the importance of empowering nurses to ensure medical staff acceptance to adhere to CPG.
26.	Stein, A. Makarawo, T. Ahmad, M. 2003	Survey of doctors' and nurses' knowledge, attitudes and compliance with infection control guidelines in Birmingham teaching hospitals Journal of Hospital Infection	questionnaires	Doctors, nurses and AHPs	*This study reported that nurses adhere more to guidelines comparing them to doctors and phlebotomists. The authors' explained that by nurses having more training and education for taking blood. Therefore, the study suggested providing training courses to HCW to increase CPG.*
27.	Pijnen J Hendrix M Palen J Schellen P 2006	Effectiveness of protocols for preventing occupational exposure to blood and body fluids in Dutch hospitals	Questionnaires	AHPs	*Inadequate knowledge of CPG, lake of managerial support to report CPG, non adherence. The authors reported that compliance does not appear to depend on lack of time or resources but on the degree it impedes provision of care and on uncertainties about responsibilities and obligations. The study recommend better tailoring of information to staff needs, participation in protocol development, training, and social support from co-workers and management.*
28.	Tan K	Clinical practice guidelines: a critical review	General review	Doctors	*The paper suggested a general assessment tool to identify doctors adhering to CPG*
29.	Wilborn D Halfens R Dassen T 2006	Pressure Ulcer: prevention protocols and prevalence Journal of Evaluation in Clinical Practice	Survey	Nurses	*Lack of knowledge and training were the mains factors for non-adherence in this study.*

Appendix 3c: Summary of the Included Studies and Main Findings in CINAHL Database

Summary of results
Total= 78
Selected Total= 28
Remove Duplicate=0
Excluded =17
Total= 11

Key to abbreviations
AHPs: Allied Health Professionals
CPG: Clinical Practice Guidelines

	Authors/Year Volume/Issue #	Article Title/Journal Name	Study Design	Target Group	Main Findings
1	Dodek, P. M. Ottoson, J. M 1996 16/2	Implementation link between clinical practice guidelines and continuing medical education/ Journal of Continuing Education in the Health Professions	Literature review	Doctors	*The purpose of practice guidelines is to improve patient outcomes by changing physician behavior. Continuing medical education (CME) has a similar purpose. Many strategies facilitate implementation of practice guidelines, some of which are also strategies used in CME. By systematically examining the factors that influence implementation of practice guidelines and the factors that influence the effectiveness of CME, many similarities between the two types of interventions are found. Factors considered include those related to the expected change in behavior itself, the method of implementation, the implementing organization, the*

			actors involved in implementation, and the environment or context of implementation. Based on these similarities and other common features, including development and evaluation strategies, we propose that CME programs may provide an existing framework to facilitate implementation of CPGs. In addition, we propose that development, implementation, and evaluation of CPGs may be considered CME activities in their own right.
2	Moulding, N. T. Silagy, C. A. Weller, D. P. 1999 8/3	A framework for effective management of change in clinical practice: dissemination and implementation of clinical practice guidelines/Quality in Health Care	*Theories from social and behavioural science can make an important contribution to the process of developing a conceptual framework for improving use of clinical practice guidelines and clinician performance. A conceptual framework for guideline dissemination and implementation is presented which draws on relevant concepts from diffusion of*		*The framework emphasises the need for preimplementation assessment of (a) readiness of clinicians to adopt guidelines into practice, (b) barriers to change as experienced by clinicians, and (c) the level at which interventions should be targeted. It also incorporates the need for multifaceted interventions, identifies the type of barriers which will be addressed by each strategy, and develops the concept of progression through stages of guideline adoption by clinicians, with the use of appropriately targeted support strategies. The potential value of*

			innovation theory, the transtheoretical model of behaviour change, health education theory, social influence theory, and social ecology, as well as evidence from systematic literature reviews on the effectiveness of various behaviour change strategies.		*the model is that it may enable those involved in the process of guideline dissemination and implementation to direct strategies to target groups more effectively. Clearly, the effectiveness and utility of the model in facilitating guideline dissemination and implementation requires validation by further empirical research. Until such research is available, it provides a theoretical framework that may assist in the selection of appropriate guideline dissemination and implementation strategies*
3	Smith, T. J. Hillner, B. E. 2001 19/11	Ensuring quality cancer care by the use of clinical practice guidelines and critical pathways. Journal of Clinical Oncology	*comprehensive search of the literature from 1966 to the present and a directed review of the literature.*	AHPs	*RESULTS: Improvements have been demonstrated in compliance with evidence-based guidelines or evidence-based medicine, and in short-term length of stay, complication rates, and financial outcomes. The data suggest that patient satisfaction can be maintained despite a shorter length of stay. There has been one example of province-wide improvement in disease-free and overall survival of breast cancer patients coincident with the adoption of CPGS: The components of successful*

					guidelines can be summarized as follows: (1) development is based on evidence, with the guideline formulated by key physicians in the group; (2) the guidelines are disseminated to all affected health care professionals for critique; (3) implementation includes direct feedback on performance to physicians or general feedback on system performance; and (4) there is accountability for performance according to the guidelines. This accountability can consist of voluntary peer pressure to conform to evidence-based medicine, and it does not require a financial reward or penalty. CONCLUSION: Some attempts to improve practice have been moderately successful in achievement of reduced health care costs, reduced hospital length of stay, and possibly improved outcomes. Other methods that are still in use have been demonstrated to have little effect. Programs that have not succeeded have relied on voluntary change in practice behavior without incentives to change or have had no

					accountability component. Further research is needed to assess how guidelines are enacted in organizations other than those demonstrably committed to improvement, ways to improve compliance of health care providers who are not committed to change, and methods to improve accountability.
4	Collins, C. 2003 60/3	Survey of dietetic management of overweight and obesity and comparison with best practice criteria. Nutrition & Dietetics	*Survey.*	AHPs	*Conclusion: This survey indicates that there is a need for the development and dissemination of best practice guidelines for the management of overweight and obesity in Australian adults and children. DAA is well placed to facilitate uptake of current evidence-based treatment recommendations through the ratification and implementation of clinical guidelines that support best practice*
5	Torrey, W. C. Finnerty, M. Evans, A. Wyzik, P. 2003 26/4	Strategies for leading the implementation of evidence-based practices Psychiatric Clinics of North America	Reviews	AHPs	*This article briefly reviews the literature on health care practice change and offers some strategy suggestions for administrators who are leading evidence-based practice implementation initiatives.*
6	Wyne, K. L.	Process improvement approach to the care of	Follow-up analysis of	Doctors	*Diabetes care relies on*

	Drexler, A. J. Miller, J. L. Bell, D. S. H. Braunstein, S. Nuckolls, J. G. 2003	patients with type 2 diabetes: providing physicians with tools to increase compliance and improve outcomes. Postgraduate Medicine	performance and comparison with *electronic medical records*		*patient/physician-initiated programs of periodic evaluation, monitoring, and treatment interventions. Clinical practice guidelines can assist clinicians in diabetes care. To improve outcomes, these methods must be designed and implemented in a way that promotes change in physician behavior. When guidelines are corrected to real-time reminder protocols (at the time the physician is making clinical decisions with the patient), compliance with recommended tests and procedures is increased. Follow-up analysis of performance and comparison with peers assists physicians in making the necessary clinical interventions that improve the management of these conditions and reduce complications. Integrated electronic medical records are a key initial component for motivating physicians and initiating effective diabetes management plans.*
7	Ceccato, Natalie E. Ferris, Lorraine E. Manuel, Douglas Grimshaw, Jeremy M.	Adopting health behavior change theory throughout the clinical practice guideline process. Journal of Continuing Education in the Health	Framework Evaluation	Doctors	*Adopting a theoretical framework throughout the clinical practice guideline (CPG) process (development, dissemination,*

| | | 2007
27/4 | Professions. | | | *implementation, and evaluation) can be useful in systematically identifying, addressing, and explaining behavioral influences impacting CPG uptake and effectiveness. This article argues that using a theoretical framework should increase the utility and probably the implementation of a CPG. A hypothetical scenario is provided using the theory of planned behavior (TPB) to aid in our explanation. While other theories may be viable, the TPB is chosen because it accounts for a wide spectrum of behavioral factors known to influence physician behavior, and because its flexibility allows it to be used for different populations (e.g., specialists), behaviors, and contexts (e.g., hospital, private clinic). In addition, evidence has indicated that the TPB can influence physician behavior. Empirical research examining whether CPG utility can be significantly improved by appropriately selecting and implementing theory throughout the CPG process is warranted.* |

| 8 | Kavookjian, J.
Mamidi, S.
2008
30 | Prescribing of ß-blockers after myocardial infarction: a preliminary study of physician motivations and barriers
Clinical Therapeutics | cross-sectional study, | Doctors | *Results: Among the 309 physicians who received the questionnaire, 103 responded; 55 responses were complete and eligible for inclusion in the analysis. Most (92.7%) responded to the TTM measures in the action and maintenance stages of change for prescribing beta-blockers for post-MI patients. Results also suggested they had significant salience (P < 0.05) for the cons of prescribing beta-blocker therapy to patients with relative contraindications that were indicated in the earlier versions of the CPGs, but not in the latest version. Other specific barriers to prescribing were also identified.*
Conclusions: Results of this preliminary study suggest that it would be relevant to increase physician knowledge of the updated CPGs regarding use of beta-blockers in the presence of conditions previously deemed relative contraindications. |
| 9 | Davis, D.
Galbraith, R.
2009
135/3 | Continuing medical education effect on practice performance: effectiveness of continuing medical education: American College of Chest Physicians Evidence-Based | A comprehensive review | Doctors | *Using live or multiple media and multiple educational techniques, is generally effective in changing physician performance. More* |

		Educational Guidelines. CHEST			*research, however, is needed that focuses on the specific types of media and educational techniques that lead to the greatest improvements in performance.*
10	Friedman, L. Engelking, C. Wickham, R. Harvey, C. Read, M. Whitlock, K. B. 2009 13/2	The EDUCATE Study: a continuing education exemplar for Clinical Practice Guideline Implementation. Clinical Journal of Oncology Nursing	Longitudinal study	Nurses	*A faculty of nurse educators, together with practice champions, carried out an intensive educational intervention comprised of multiple teaching/learning activities during a 12-month period in community oncology practices throughout the United States. In addition to an overview of clinical practice guidelines and educational methods that can be used for implementation of clinical practice guidelines, the obstacles faced and lessons learned through the EDUCATE Study are presented, along with recommendations for implementation in the practice setting.*
11	O'Laughlen, M. C. Hollen, P. Ting, S. 2009 21/8	An intervention to change clinician behavior: conceptual framework for the multicolored simplified asthma guideline reminder (MSAGR). Journal of the American Academy of Nurse	Quantitative study	AHPs	*Multiple factors are presented for lack of adherence to the guidelines. This article discusses the Multicolored, Simplified Asthma Guideline Reminder (*

| | | Practitioners. | | | *MSAGR), an algorithm chart intervention for helping change clinicians' behavior for better adherence to the NAEPP guidelines, and describes the conceptual framework underpinning this intervention as a means of predicting better outcomes for providers and children.* |