ORCA – Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository:https://orca.cardiff.ac.uk/id/eprint/62839/

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Carrier, Judith 2014. The social organisation of practice nurses' knowledge utilisation-an ethnographic study. PhD Thesis, Cardiff University. Item availability restricted.

Publishers page:

Please note:
Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See http://orca.cf.ac.uk/policies.html for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.

ORCA – Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository:https://orca.cardiff.ac.uk/id/eprint/62839/

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Carrier, Judith 2014. The social organisation of practice nurses' knowledge utilisation-an ethnographic study. PhD Thesis, Cardiff University. Item availability restricted.

Publishers page:

Please note:
Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See http://orca.cf.ac.uk/policies.html for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.

Title

'The social organisation of practice nurses' knowledge utilisation-an ethnographic study'

Thesis submitted for the degree

of

Doctor of Philosophy

Judith A.K. Carrier

2013

School of Healthcare Sciences

Cardiff University

SUMMARY

In the study reported in this thesis a conceptual framework drawing on a range of social, organisational and educational theories was used to underpin an investigation into the social organisation of practice nurses' knowledge utilisation. Particular attention was paid to the concept of 'clinical mindlines'.

Changes in healthcare delivery, particularly in primary care, have resulted in changes to practice nurses' roles. Macro level policy has focused increasingly on standardisation of care within the primary care environment, specifically in relation to management of chronic/long term conditions. Practice nurses have additionally taken on roles that include diagnostic and treatment elements for which they were not prepared for in their initial training. Set against this background ethnographic data were generated relating to meso level organisation of knowledge utilisation in two study sites. Interviews, observation and documentary analysis of available knowledge sources including guidelines and protocols were used to generate data relating to how knowledge is accessed and subsequently used at the micro level of the clinical patient encounter.

Findings illustrated that a mixture of organisational and individual factors impacted on knowledge utilisation. Practice nurses used a combination of knowledge which they applied within the context of the individual patient encounter. This was accessed partly through their 'mindlines' developed from education, clinical experience and social learning and partly through accessing a 'bricolage' of knowledge which included seeking advice from a variety of sources.

Specific elements of note were enthusiasm towards evidence based practice, both amongst the nurses and at practice level and a supportive organisational culture towards continuing education and sharing of knowledge. Standardisation embedded into computer templates that guided the chronic disease management consultations had both a positive and negative influence, positive in its focus on improving evidence based care, whilst negative in promoting template driven care that takes little account of individual patient need. Organisational elements constraining effective knowledge dissemination and use included information being disseminated to the practice nurses through vertical rather than horizontal networking; professional training that had not prepared nurses to deal with uncertainty; the part time nature of the practice nurse role; limitations in accessing evidence in 'real time' and lack of applicability of evidence to all patient scenarios.

DECLARATION

This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

Signed …… (candidate) Date ……

STATEMENT 1

This thesis is being submitted in partial fulfilment of the requirements for the degree of PhD

Signed …… (candidate) Date ……

STATEMENT 2

This thesis is the result of my own independent work/investigation, except where otherwise stated.
Other sources are acknowledged by explicit references. The views expressed are my own.

Signed …… (candidate) Date ……

STATEMENT 3

I hereby give consent for my thesis, if accepted, to be available for photocopying and for inter-library loan, and for the title and summary to be made available to outside organisations.

Signed …… (candidate) Date ……

STATEMENT 4: PREVIOUSLY APPROVED BAR ON ACCESS

I hereby give consent for my thesis, if accepted, to be available for photocopying and for inter-library loans **after expiry of a bar on access previously approved by the Academic Standards & Quality Committee.**

Signed …… (candidate) Date ……

ACKNOWLEDGEMENTS

Thanks to the staff and patients of Mountainside and Riverside, this study would not have taken place without your kind co-operation.

I would like to extend great thanks to my supervisor Professor Davina Allen, who has been incredibly patient and supportive and kept me on track throughout. Thanks also to Professor Anne Williams for her support in the early stages of this thesis. Special thanks to Dr. Annette Lankshear, for her vital input in the past year from the first full draft to completion of the final draft and her friendship and encouragement throughout.

Thanks are also due to a number of other people, without whose help this thesis would not have been completed; Kerri Costello, Julia Rees, Shelley Morgan for her faultless transcribing, my primary care colleagues who encouraged and supported me and gave me the space to enable me to analyse and write up my data and to Ben Hannigan for his support, sage advice and encouragement throughout. Last, but by no means least, Debs Edwards for her meticulous proof reading. Debs your support at the final stages has been invaluable.

Finally thanks to my family, John for keeping me fed and watered and keeping me going, and Ben and Sam for their encouragement, love and constant refrain of 'When are you going to finish your PhD Mum?'

This thesis is dedicated to my Mum who sadly didn't see it completed, but who was always my greatest ally and supporter.

Contents

Table 2: Type of Process/Mode of Cognition *115* 9

1. Chapter One: Introduction 12

1.1 Introduction to thesis 12

1.2 Research question 14
1.2.1 Principal research question 15

1.3 Evidence Based Medicine and Evidence Based Practice 15
1.3.1 The historical context 15
1.3.2 Evidence Based Medicine and Evidence Based Practice 19
1.3.3 Evidence based guidelines and standardisation 22

1.4 New Technologies and Health Informatics 28

1.5 Why study practice nurses? 30

1.6 Policy influences on primary care 37

1.7 About this thesis 41
1.7.1 Overview/organisation of thesis 43

2. Chapter Two: Knowledge utilisation in nursing – a scoping review 47

2.1 Introduction 47

2.2 Scoping the literature 47
2.2.1 Historical background 49
2.2.2 Identifying the review questions 52
2.2.3 Identifying relevant studies 53
2.2.3.1 Inclusion criteria 53
2.2.3.2 Search strategy 54
2.2.3.3 Methods of the review- charting, collating, summarising and reporting findings 55

2.3 Findings 55

2.4 Theme 1: Barriers and facilitators 56
2.4.1 Introduction 56
2.4.2 Sub theme i) Individual determinants 57
2.4.2.1 Discussion 59
2.4.3 Sub theme ii) BARRIERS: the Barriers to Research Utilization Scale 59
2.4.3.1 Discussion 62
2.4.4 Sub theme iii) Studies using questionnaires specifically developed to determine attitudes towards knowledge of and factors influencing EBP implementation 64
2.4.4.1 Discussion 72
2.4.5 Sub theme iv) The development and implementation of the PARIHS framework 73
2.4.5.1 Discussion 78

2.5 Theme 2: Clinical Judgement and Decision-making 79
2.5.1 Introduction 79
2.5.2 Clinical judgement and decision-making 81
2.5.3 Discussion 87

2.6 Theme 3: Practice nurses' attitude towards guidelines 87
2.6.1 Introduction 87
2.6.2 Practice nurses' attitude towards guidelines 88
2.6.3 Discussion 90

2.7 Knowledge translation *91*

2.8 Conclusion *95*

3. Chapter Three: Developing a conceptual framework **98**

3.1 Introduction *98*

3.2 Diffusion of innovations *100*
3.2.1 Diffusion of Innovations in Service Organisations 103

3.3 Knowledge management *105*
3.3.1 Knowledge creation 105
3.3.1.1 Knowledge management within healthcare organisations 107
3.3.2 Knowledge transfer-internal stickiness 109

3.4 Propositional and personal knowledge *111*

3.5 The 'messiness' of EBP utilisation -Clinical Mindlines *116*

3.6 Communities of practice *120*

3.7 Standardisation and clinical practice guidelines *124*

3.8 Towards a conceptual framework-drawing the threads *127*

3.9 Conclusion *130*

4. Chapter four: The Research Process **132**

4.1 Introduction *132*

4.2 Philosophical perspective *133*

4.3 Positivism or naturalism? *134*

4.4 Methodology-qualitative research and ethnography *141*

4.5 Sampling and negotiating access *145*

4.6 Methods of data collection *151*

4.6.1 Participant observation *152*
4.6.2 Fieldnotes 157
4.6.3 Overt v covert approaches to research 157
4.6.4 Interviews 158
4.6.5 Documentary acquisition and analysis 160

4.7 Gaining ethical approval *161*
4.7.1 Ethical issues 163

4.8 Data analysis and synthesis/Interpretation of findings *164*

4.9 Conclusion *166*

5. Chapter five: Mountainside and Riverside-organisational influence **169**

5.1 Introduction *169*

5.2 An overview of primary care *172*

5.3 Mountainside - an introduction *173*
5.3.1 Practice population 173
5.3.2 Team composition 173
5.3.3 Organisation of service provision in Mountainside 174

5.4 Organisational Dissemination in Mountainside *176*
5.4.1 Overview 176
5.4.2 Dissemination through formal meetings 177

5.4.3 Dissemination through educational meetings 180
5.4.4 Informal approaches and attitudes towards dissemination 183

5.5 Riverside-an introduction 187
5.5.1 Practice population 187
5.5.2 Team composition 187
5.5.3 Organisation of service provision in Riverside 188

5.6 Organisational Dissemination in Riverside 189
5.6.1 Overview 189
5.6.2 Dissemination through educational meetings 190
5.6.3 Informal approaches and attitudes to dissemination 194

5.7 Conclusion 198

6. Chapter six: Sources and types of knowledge 202

6.1 Introduction 202

6.2 Sources of knowledge 205

6.3 Individual knowledge 206
6.3.1 Propositional knowledge (Education) 207
6.3.2 Non-Propositional knowledge (Tacit/Experiential) 214
6.3.3 Individual knowledge - discussion 219

6.4 Practice knowledge 220
6.4.1 Knowledge from colleagues 221
6.4.2 In house protocols 226

6.5 Global knowledge 230
6.5.1 Quality and Outcomes Framework and in house computer templates 230
6.5.2 Evidence based guidelines/ reference guides-paper and online 235
6.5.2.1 Clinical Knowledge Summaries 238
6.5.2.2 National Institute of Clinical Excellence, National Collaborating Centre for Chronic Conditions and Scottish Intercollegiate Guidelines Network 239

6.6 Conclusion 242

7. Chapter Seven: Knowledge use in the clinical encounter 245

7.1 Introduction 245

7.2 Developing autonomy 248
7.2.1 Growth and change 248
7.2.2 Developing autonomy-diagnosis and decision-making 249
7.2.3 Developing autonomy - chronic disease management and minor illness 252

7.3 EBP - related to experience or task? 257

7.4 Impact of standardisation on the clinical encounter 264
7.4.1 Protocols and templates 264
7.4.2 Guidelines 268
7.4.3 Standardisation v catering to individual patient need 273

7.5 Bringing evidence into the clinical encounter 277

7.6 Dealing with complexity-acknowledging gaps in individual 'mindlines' 279

8. Chapter Eight: Discussion 285

8.1 Introduction 285

8.2 Consideration of the conceptual framework 286

8.2.1 Knowledge sources-propositional and non-propositional 286

8.2.2 Standardisation and global guidelines *286*
8.2.3 Organisational context and its influence on dissemination of knowledge *289*
8.2.4 Individual Knowledge Conversion *290*
8.2.5 Specific influences on decisions made in the clinical encounter *291*
8.3 More than Mindlines? *291*
8.3.1 Communities of Practice *292*
8.4 Autonomy and professional power *293*
8.5 A bricolage of knowledge *296*

9. Chapter Nine: Conclusion and recommendations **298**
9.1 Summarising the study *298*
9.2 Key lessons learnt *301*
9.3 Original contribution *309*
9.4 Recommendations *311*
9.4.1 Recommendations for practice *311*
9.4.2 Recommendations for education *311*
9.4.3 Recommendations for research *312*

References **313**

Appendices **332**
Appendix 1: Search Strategy *333*
Search History EBSCO Host: CINAHL PLUS with Full Text; MEDLINE *333*
Appendix 2: Summary table mapping demonstrating key features, reason for inclusion and emergent themes *335*
Appendix 3a: Staff Participant Information Sheet: Practice nurses *341*
Appendix 3b: Staff Participant Information Sheet: GPs and practice managers *344*
Appendix 3c: Staff Participant Information Sheet Observation of meetings *347*
Appendix 4a: Consent form [Staff] *350*
Appendix 4b: Consent form [Observation of meetings] *351*
Appendix 5: Interview schedule/Topic guide *352*
Appendix 6: RRESC APPROVAL *354*
Appendix 7: S.E. Wales REC approval letter *355*
Appendix 8: Cardiff University RACD Sponsorship Agreement *358*
Appendix 9: Research & Development Research Scrutiny Committee *360*
Appendix 10: Patient Information Sheet *361*
Appendix 11: Initial Coding frame *362*
Appendix 12: Sources of Knowledge *363*
Appendix 13: Clinical Knowledge Summaries guidance *364*

Figures

Figure 1: Conceptual framework *129*
Figure 2: Atlas Ti™ Screen shot *167*

Tables

Table 1: SECI processes applied to healthcare *108*
Table 2: Type of Process/Mode of Cognition *116*
Table 3: Mountainside participants *150*
Table 4: Riverside participants *151*

ABBREVIATIONS AND GLOSSARY

APN – Advanced Practice Nurses

ATTRACT - Ask Attract To Rapidly Alleviate Confused Thoughts

BARRIERS Scale - Barriers to Research Utilization Scale

BNF – British National Formulary

BTS – British Thoracic Society

CDM - Chronic Disease Management

CHD – Coronary Heart Disease

CKD – Chronic Kidney Disease

CKS - Clinical Knowledge Summaries formerly PRODIGY

COPD - Chronic Obstructive Pulmonary Disease

CoPs - Communities of Practice

DEBP - Developing Evidence Based Practice

DEXA- Dual energy X-ray absorptiometry

EBID – Evidence Based Individual Decision-making

EBM – Evidence Based Medicine

EBP – Evidence Based Practice

ECG-electrocardiogram

FTE – Full Time Equivalent

GMS - General Medical Services Contract

GPN - General Practice Nursing

GPs - General Practitioners

HCA – Health Care Assistants

INR-International normalised ratio

IT – Information technology

JBI – Joanna Briggs Institute

KT – Knowledge Translation

KTA – Knowledge-to-action

KTE – Knowledge Translation and Exchange

HOWIS - Health of Wales Information service

LES - Locally enhanced service

LHBs - Local Health Boards

LHCs – Local Health Cooperatives

LHGs – Local Health Groups

MRHA - Medicines and Healthcare Products Regulatory Agency

NCC-CC - National Collaborating Centre for Chronic Conditions

nGMs – new General Medical Services Contract

NHS – National Health Service

NICE – National Institute for Clinical Excellence

NMC – Nursing and Midwifery Council

NoPs - Networks of Practice

NPC - National Prescribing Centre

PARIHS – Promoting Action on Research Implementation in Health services

QOF – Quality and Outcomes Framework

R&D - Research and Development

RCGPs – Royal College of General Practitioners

RCN – Royal College of Nursing

RCTS - Randomised Controlled Trials

SECI - Socialization to Externalization to Combination and eventually Internalization

SIGN – Scottish Intercollegiate Guidelines Network

STS - a science, technology and society and medical sociology perspective

TPB - theory of planned behaviour

TRAVAX -Travel Health Information Service

TRIP - Turning Research into Practice

UHB - University Health Boards

UK – United Kingdom

WAG – Welsh Assembly Government

WeMeRec - Welsh Medicines Resource Centre

WHO – World Health Organisation

WIPP – Working in Partnership Programme

1. Chapter One: Introduction

1.1 Introduction to thesis

This thesis is about the social organisation of general practice nurses' knowledge and how this is operationalised within the primary care environment. It examines how nurses access and use knowledge, including evidence based guidelines in the clinical encounter and how this is shaped by the biography of practitioners, policy, organisational and cultural context and the singular features of the clinical encounter. Underpinning this thesis and providing a scaffold for the exploration are a range of sociological and organisational theories, used to develop a conceptual framework. Integral to this is an investigation of the relationship between practice, based on clinical experience and individual judgement, and practice, based on a systematic approach anchored by evidence, and this is mediated by the numerous complexities that impact on everyday health care delivery.

> Explicit knowledge, conventionally delivered like pizza (neat boxes with toppings of concepts, theories, best practices and war stories), is consumed by the brain but not metabolized into action. The learning we call intuition, know-how and common sense gets into the blood stream through osmosis. It is shaped by social context (p.146).
>
> (Pascale et al 2010)

Despite the fact that the complexities of implementing evidence based practice (EBP) are well documented (Ferlie et al 2005, Rycroft-Malone 2010a, Estabrooks et al 2011), relatively little is still known about the utilisation of knowledge that informs nursing practice in primary care, a particularly complex health care environment that for most patients and clients provides the entry portal to the United Kingdom (UK) health care system. Numerous clinical guidelines are available in primary care, designed as part of the EBP movement, including interactive online decision aides, which are becomingly increasingly prevalent as the health informatics movement continues to expand and develop. An important area for analysis is an exploration of the range and impact of the variable diffuse influences on the social construction of practice nurses' knowledge. The study presented in this thesis investigates whether practice nurses utilise approaches such as evidence based clinical guidelines and

evidence based individual decision-making to inform their clinical practice and in what context, but also considers the wider range of influences on judgement and decision-making, including the impact of embryonic and alternative sources of knowledge which pre date EBP. A key area focused upon is the organisational and cultural influences that impact on knowledge diffusion and flow, mobilisation and translation, in particular those unique to primary care. This encompasses an analysis of the links between macro level policy, meso level organisation and micro level care provision. 'Macro' is used here to refer to international and national influences, 'micro' to the clinical encounter where actual care is negotiated and provided, with 'meso' falling between the two and used to refer to influences at both local health board influences and practice level.

This study will add to the growing body of understanding around knowledge transfer, knowledge use and the delivery of EBP, with the aim that this will contribute to ongoing theory development with specific regard to knowledge utilisation in primary care. This first chapter sets the scene. I begin with an outline of my research questions; this is followed by a review of the historical context of evidence based medicine (EBM), the subsequent wider focus of EBP and an introduction to the current proliferation of technological advances developed to aid evidence utilisation and knowledge flow amongst today's practitioners. I then provide an overview of the development of the practice nurse role and an introduction to the macro level policies that influence current primary health care delivery prior to summarising the contents of the chapters contained in this thesis.

The research began in 2008, a time when delivery of primary care services in Wales had been subject to a ten year period of flux, beginning with the establishment of Local Health Groups (LHG's) by the Welsh Assembly Government in 1999, progressing with the demise of Health Authorities and the merging of LHG's into Local Health Boards (LHB's) and/or University Health Boards by the Welsh Assembly Government in 2003 and continuing at a time when re-organisation was again taking place with the merger of the seven NHS Trusts

and twenty two LHB's in Wales into seven new LHBs (Welsh Assembly Government 2009a). Delivery of effective and efficient primary and community services continues to be a key focus for National Health Service (NHS) development, the intent of the latest reorganisation being to meet the Welsh Assembly Government's vision for the NHS in Wales "to create world-class health and social care services in a healthy, dynamic country by 2015" (Welsh Assembly Government 2009a:1). One of the key elements of this vision is the development of a health service that moves the balance of care away from traditional hospital care into people's homes and communities. In the Foreword of the Community Nursing Strategy for Wales (Welsh Assembly Government 2009b), the then Minister for Health and Social Services Edwina Hart, emphasised that:

> Community and primary care nursing are central to meeting the range of population health need from promoting health and preventing ill health to dealing with more complex needs through to end of life care
>
> (Welsh Assembly Government 2009b Foreword)

Running in parallel with these changes, the new General Medical Services Contract (nGMS) (Department of Health 2003) (first implemented in 2004), had created a number of opportunities for practice nurses, who had increasingly taken on the responsibility of meeting the demands of the Quality and Outcomes Framework (QOF), particularly in relation to the care of people with chronic diseases/long term conditions. Education and preparation for the practice nurse role, however, remains fragmented and a key aim of this thesis is to determine whether practice nurses are given the educational preparation and organisational support to access, utilise and translate into practice the evidence made available to them. The thesis utilises ethnographic methods in the form of observations and interviews to explore the context in which knowledge transfer and utilisation is generated.

1.2 Research question

The broad aim of the research is to explore the educational, organisational and contextual issues impacting on the utilisation of knowledge by general practice nurses including the role of evidence based guidelines, and to further explore the way in which this knowledge is

accessed and implemented in relation to the clinical and nursing management of patients. My research question and the key objectives which further developed during the review of the literature are listed below:

1.2.1 Principal research question

How do practice nurses access and use knowledge, including evidence based guidelines, for implementation in the clinical encounter?

The overall objectives are to investigate the following issues in relation to practice nurses and their use of knowledge within the clinical encounter:

- How does context, specifically cultural and organisational issues influence knowledge utilisation?
- Do practice nurses make use of evidence based guidelines (written and/or interactive) to inform the clinical encounter?
- What other types of information sources are used to inform practice nurses' knowledge?
- What rationales are used for the information selected to inform practice nurses' use of knowledge within the clinical encounter?
- Does the level and type of educational preparation practice nurses receive for the role have an effect on how they access and use knowledge?

1.3 Evidence Based Medicine and Evidence Based Practice

1.3.1 The historical context

Evidence based practice has been at the forefront of effective health care for some time. It has evolved as the dominant theme of practice, policy, management and education within health services across the developed world (Rycroft-Malone et al 2004). Controversy continues about the role of EBP in the wider context of health care delivery and it remains a topic of considerable interest to practitioners and policy makers, as Plsek and Greenhalgh (2001) note:

> There is an insoluble paradox between the need for consistent and evidence based standards of care and the unique predicament, context, priorities and choices of the individual patient (p.626)

The underlying principles of EBM and subsequently the now more commonly used term EBP, familiar to many today, developed in the Department of Clinical Epidemiology and Biostatistics at McMaster University in Canada in the 1980's, where a group of practitioners wanted to find new ways of locating, appraising and using research and to develop systematic and scientific principles to help clinicians make decisions based on the best information available (Evidence based Medicine Working Group 1992, McMaster 1997). An Internal Medicine Residency Program was initiated and implemented within the Department of Medicine to teach the skills and principles associated with EBM (Evidence based Medicine Working Group 1992). This movement focused mainly on evidence based individual decision-making (EBID) (Evidence based Medicine Working Group 1992, Eddy 2005), a process that involved educating physicians to integrate research and evidence into their individual decisions about individual patients through defining a clear question, developing a systematic search strategy and finally applying this to the individual scenario. The term evidence based medicine, from which EBP was derived, was first proposed in the 1990's by Gordon Guyatt, the leader of the international group of clinicians formed to consider results of recent research when treating patients, the initial focus of EBM being on bedside decision-making (Glasziou 2011). The term first appeared in print as follows:

> A NEW paradigm for medical practice is emerging. Evidence based medicine de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision-making and stresses the examination of evidence from clinical research.
>
> (Evidence based Medicine Working Group 1992, p.2420, emphasis in original)

Despite the relatively short history of EBM, Glasziou (2011) observes that the ideas underpinning it have been evolving for centuries, with roots in psychology, sociology and philosophy, in addition to a large part of the vocabulary underpinning it having been invented and developed by statisticians and epidemiologists. Greenstone (2009) discussing the roots of EBM suggests that philosophical foundations date back to the 18th and 19th century, some

time before the terms EBM and EBP entered the health care vocabulary, with three pioneering physicians; Drs James Lind, Pierre Louis and Ignaz Semmelweis, laying the groundwork and opening the door to the movement later christened as EBM. In the mid eighteenth century Dr James Lind carried out an early experimental study demonstrating the importance of fresh fruit in the prevention of scurvy amongst seamen, although his findings were not widely implemented until 50 years later (Greenstone 2009). In the mid nineteenth century Dr Pierre Charles Alexander Louis introduced statistical analysis to the evaluation of medical treatment in Paris, and showed that blood letting was a valueless form of treatment (Weatherall 2006, Greenstone 2009). Dr Ignaz Semmelweis brought about significant reductions in maternal and perinatal mortality from puerperal fever, through a natural experiment involving two groups of patients cared for at two different maternity clinics. The differences in mortality between the two clinics, combined with astute observation and methodical thinking, enabled Semmelweis to link the cause of postpartum fever with inadequate hand washing (Greenstone 2009).

The roots of EBM are closely linked with the history of clinical trials, indeed the Evidence based Medicine Working Group (1992) state that EBM's foundations lie in developments in clinical research over the preceding thirty years. The principles of experimental design first started to make an impact on clinical practice after the Second World War, following the work of Sir Austin Bradford Hill and British epidemiologists Richard Doll and Archie Cochrane (Weatherall 2006). Austin Bradford Hill's 1946 study to determine the effect of streptomycin on tuberculosis (Medical Research Council 1948) is generally accepted by medical historians as the first randomised controlled trial (Yoshioka 1998). Double blind methodology for drug trials became mandatory for approval in the United States by the late 1960's, and standard in most other Western democracies by the late 1970's (Timmermans and Berg 2003). Archie Cochrane, whose ground-breaking work was later to lead to the founding of the Cochrane Collaboration, suggested that the most cost effective use of limited health care resources would be to equitably provide health care interventions that had been

shown to be effective. Cochrane's 1972 publication, *Effectiveness and Efficiency*, argued against the medical overuse of techniques with questionable evidence, making a plea for the investigation of medical interventions with randomised controlled trials (RCTs). In addition to stressing the importance of utilising evidence from RCTs Cochrane challenged both his profession and the establishment to produce regularly updated critical summaries of all RCTs, as even when RCTs were done it often took years for physicians to change their practice to incorporate new research information (Eddy 2005).

Despite all this, trials of clinical outcome did not become a widely accepted practice until the early 1970's when the key principles defining the movement began to take shape and the 'art of medicine' or 'clinical judgment', the processes by which physicians determined the best course of action for patients, first began to be questioned (Evidence based Medicine Working Group 1992, Eddy 2005). The introduction of EBM and its effect on changing medical practice was introduced as a new paradigm, one that assumed a lower value on authority and expert opinion and an increased understanding of underlying evidence (Evidence based Medicine Working Group 1992, McMaster 1997), although others have since argued whether the term 'paradigm shift[1]' should be applied to methodological innovations in medicine (Howick 2011). Some referred to it as the next stage in evolution of a focus on critical appraisal of evidence (Steinberg and Luce 2005). The rise of EBM was largely attributed to two key elements; developments in clinical research, which began to demonstrate that many practices carried out by physicians were ineffective when subjected to clinical trials, and the documentation of wide variations in practice patterns. At the time of the rise of EBM, Eddy (2005) notes that it was estimated that only 15 percent of medical practices were based on solid clinical trials, although Howick (2011) argues that many of the treatments that clinicians consider strongly supported by evidence have never been supported by randomised trials, for example the use of automatic external defibrillation in cardiac arrest, notwithstanding the inherent ethical issues involved.

[1] A term first introduced by Thomas Kuhn (1962) in The Structure of Scientific Revolutions

1.3.2 Evidence Based Medicine and Evidence Based Practice

A key aim of the national research and development programme, launched by the Department of Health (1991), was to close the gap between health care demonstrated to be effective through research and the health care actually delivered, a concept that emphasised the importance of not only knowledge transfer, but knowledge utilisation. The EBP movement embraced this philosophy with its overall aim of ensuring that all health care practice is firmly grounded in a sound evidence base that also takes into account individual patient need and preferences, and continued to move on with increasing speed and vigour. Within the UK, centres for both EBM and EBP were developed, supported by modern disciples such as David Sackett and colleagues (1996). Sackett et al's (1996) classic definition of evidence based medicine stated that:

> Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research (pg 71).

Evidence based medicine was radically expanded, and adopted and adapted under the guise and term of EBP (French 1999) to include all aspects of health care, rather than being limited to medicine. Kitson (1997) had previously warned, however, that the notion of EBP cannot be easily transferred directly to individual elements of health care, arguing that the translation of EBM to EBP may be inappropriate without alteration to some elements of the underlying conceptual framework, which she suggested focused on the rigour and level of the evidence, with a lack of consideration towards the environmental context and facilitation of how the evidence is implemented. Coupled with this was the shortage of research in some areas of nursing that identified the 'effectiveness' of nursing care, alongside a lack of research literacy among nurses (Moule and Goodman 2009).

Initiatives to improve access to research findings have developed rapidly over the past 15-20 years as a result of the international commitment to EBP. Organisations such as the Joanna Briggs Institute, an international nursing and health care professional collaboration, have

built on the EBM work initiated by the Cochrane collaboration, providing a definition for EBP as:

> The melding of individual clinical judgement and expertise with the best available external evidence to generate the kind of practice that is most likely to lead to a positive outcome for a client or patient
>
> (http://www.joannabriggs.edu.au/Home)

They further provide a definition of evidence based nursing as:

> Nursing practice that is characterised by these attributes. Evidence based clinical practice takes into account the context within which care takes place; the preferences of the client; and the clinical judgement of the health professional, as well as the best available evidence
>
> (http://www.joannabriggs.edu.au/Home)

Many leaders in the field have expanded upon Sackett's (1996) initial definition to signify the importance of EBP to all health care professionals and to further emphasise the value of taking into account individual patient/client need and preferences when considering appropriate evidence. Four years after his original definition Sackett et al (2000) reemphasised the professional rationality behind EBP stating that the essential caveats of EBP should include not only evidence from research but also professional expertise and patient preferences, to ensure that the individual circumstances of decisions are taken into account. Flemming and Fenton (2002) sum up some of the criticism of EBP, noting that opponents of the movement claim that it encourages a 'cook book' approach to decision-making by relying on research evidence alone.

The importance of using a broader definition of evidence when considering nursing practice including clinical experience, differentiating between scientific, empirically based knowledge; patient knowledge derived from understanding patients' location in the health care system and knowledge derived from personal biography of individual patients has been emphasised by Gerrish (2003a). Rycroft-Malone et al (2004) argue that information derived from local context should play a part in EBP, along with research, clinical experience and patient experience. In addition Nolan (2005) stresses the importance of recognising patients and

carers' tacit knowledge of their own condition as a legitimate source of evidence and for EBP to take into account patients' tacit expertise.

Allen and Lyne (2006) argue that Sackett et al's (2000) model, which was initially developed around individual decision-making, can be thought of as a 'professional' model. This 'professional' model of EBP emphasises that EBP is a tool for professional autonomy, assisting front line staff in accessing research to make decisions. However they observe that some commentators see EBP as a "hybrid form of organisational governance", which contains some contradictory elements through its attempt "to meld management and professional discourses in a single system" (Allen and Lyne 2006 p.19) resulting in a governance of professional practice and a creation of divisions between those who generate evidence and those on who it is imposed. They note that critics of the movement, such as Freshwater and Bishop (2004) suggest that EBP "confirms the dominance of management discourse which seeks to reduce nursing practice to the unthinking application of best practice guidelines" (p.19).

Similar arguments were put forward in relation to EBM with Dopson et al (2003) noting that EBM may be seen as a way of moving "away from medicine as a mysterious art form to one which can be codified, standardised and made transparent" (p.316). Concern has been expressed that the unthinking generalisation of Sackett's original definition of evidence based medicine is too restrictive when applied to evidence based nursing and that there is a lack of clarity regarding the concept of EBP (Gerrish et al 2007). Kitson (2008a) supports this suggesting that evidence is still viewed as a product to be 'put into' a system, rather than a complex construction of facts, propositions, experiences, biographies and histories, an exercise of judgment bounded by time and context (Rycroft-Malone et al 2004). McKenna (2010) adds to this debate and argues that the term evidence based practice is in itself troublesome, implying as it does that clinicians should follow research directives unquestionably. He argues that empirical evidence can on occasions be superseded by

ethical, aesthetic and personal evidence, decisions being made in relation to the nurse's moral code, clinical judgement or intuition, or personal experience, that can lead them to legitimately ignore the empirical evidence presented as a resource. He suggests that the term 'evidence informed practice' more accurately reflects what clinicians need to do, use evidence to inform patient outcomes and use these outcomes to evaluate the effectiveness of the evidence.

1.3.3 Evidence based guidelines and standardisation

In addition to the EBID approach outlined earlier (p.15), the underlying principle of evidence in the form of evidence based guidelines also began to develop in the 1980's, with organisations such as the American Cancer Society documenting the importance of guidelines being based on a systematic review, critical analysis and synthesis of all available evidence, including balancing of benefits and harms and providing clear recommendations for practitioners, underpinned by a detailed rationale (Eddy 2005). Timmermans and Berg (2003) suggest that the recourse to guidelines became centre stage in the 1980's, when spiralling costs, more informed consumers, information overload and critical scrutiny of experts and professionals in society led to the medical profession feeling it had to take unprecedented action to 'maintain its position as exclusive safe keeper and wielder of medical knowledge' (p.16).

In the context of guidelines the term 'evidence based' was first published in a series of articles for the Journal of the American Medical Association, where Eddy (1990) argued that guidelines and policies should be clearly founded on evidence, not based on subjective judgement or expert professional consensus. Eddy (1990) further comments that, until forty years ago, 'medical decision-making' as a field worthy of study did not exist and guidelines were merely a way for experts to 'pass occasional pieces of advice to non-experts'. Guidelines became the new tool that shortened the distance between accumulated medical knowledge and daily clinical decisions, the limitations of the physician's expertise moving

from clinical uncertainty and ‘ a lack of familiarity with statistical methodologies (p.90)’ towards the limits of accumulated medical knowledge (Timmermans and Berg 2003). Eddy (2005) notes that there are several different routes by which the principles of EBM are introduced into practice and that Sackett’s (1996) definition addresses only one of them, that of evidence based individual decision-making, failing to incorporate the broader influence of the roles played by guidelines, quality improvement, performance measurement and policies. Indeed he argues that it is precisely the use of evidence based guidelines and evidence based policies that transform EBID, something done by individual physicians, into EBP, a more integral approach to evidence utilisation that incorporates a far wider range of health care professionals (including nurses). He suggest that EBID tends to be a very individual (and time consuming) approach to EBP, involving teaching health care providers about evidence based methods and then relying on them utilising this process to make decisions about individual patients and directly determine their care. Thomas et al suggested in 1999 that despite limited research relating to guidelines in professions allied to medicine, there appeared to be some evidence that issuing of clinical guidelines may reduce variations in practice and improve patient care. Eddy (2005) suggests that evidence based guidelines, which he notes tend to be omitted in the oft quoted definitions of EBM, is something written by:

> Multi-disciplinary teams, using explicit rigorous methods, to produce generic guidelines and other policies that affect the needs of groups of people and that affect individual patients indirectly by influencing the decisions of physicians and other health care decision makers (p.4)

Timmermans and Berg (2003) provide a number of invaluable arguments relating to the increasing standardisation of health care, with their interest being the impact of EBM on the practice of medicine at both micro and macro level. Using EBM as their reference point they explore the politics of standardisation via clinical practice guidelines, taking a step back from the viewpoint of both supporters and critics of standardisation and looking at how standards, protocols and guidelines actually affect health care. *Standardisation* they define as ‘the process of rendering things uniform’ and *standards* ‘as both the means and outcome of

standardisation' (p.24). Despite the focus of their arguments on EBM, they take into account health care in general and I consider them here within the wider focus of all evidence based health care. As they note:

> Of all the kinds of standardization attempts that have affected medicine in the twentieth century, evidence based guidelines represent the farthest reaching and most direct attempt to prescribe and preset the actions of health care professionals
>
> (Timmermans and Berg 2003 p.14)

They suggest that guidelines gave clinical autonomy a deductive quality, derived from rules and statistical principles, as opposed to the inductive and individually based skills previously relied upon. They further propose that for less established professions, in which nursing can be included, guidelines have been used to claim status and jurisdiction over a technical domain, endorsing a profession's jurisdiction with a scientific and empirical base. Rather than use guidelines to take stock of available knowledge, reduce uncertainty and assist in decision-making, their objective is to articulate a domain of expertise and unite members, the process of standardisation forming an attractive strategy (Timmermans and Berg 2003). Furthermore they argue that in addition to enhancing visibility, formalised systems can unite diverse aspiring professions in a common set of activities. Jamous and Peloille, French sociologists, proposed in 1970 that professional work could be understood as a combination of technically defined activity and the formation of expert judgements made by individuals who have social qualities distinctive to their profession. Traynor (2009) reasons that if, as Jamous and Peloille's indeterminacy (uncertainty) and technicality debate proposes less powerful subgroups within professions or groups on the edges of established professions are more likely to promote reforms based on increasing technicality, then it would be expected that nursing would be found to be an enthusiastic proponent of both EBP and other measures that promote the technical aspects of practice (such as protocols and guidelines). He maintains that despite both promotion and resistance within nursing and medicine towards EBP there is some evidence that a technicising tendency has held a particular attraction for nursing. As Timmermans and Berg (2003) argue, in addition to enhancing the visibility of the profession formalised systems provide the advantage of uniting a diverse

profession in a common set of activities. Rycroft-Malone et al (2007) maintains the use of standardised care approaches such as guidelines, protocols and algorithms facilitates and supports the extension of nurses' roles, increasing their autonomy and having an 'underplayed, yet powerful affect on professional identity, boundaries and work' (p.872). Paradoxically she notes that despite the mechanistic model of practice that standardisation promotes, 'practice is rarely straightforward or predictable', with the result that use and impact of standardised approaches tends to be varied, and context and professionally specific.

Rycroft-Malone et al's (2007, 2008, 2009) exploration of the impact of protocol based care on both doctors and nurses' clinical decision-making, argue that protocols, guidelines, care pathways and algorithms were blended and intertwined with other sources of knowledge and did not necessarily lead to standardised care approaches. This work was methodologically underpinned by the process of realistic evaluation, a model developed by Pawson and Tilley (1997), which Rycroft-Malone (2007) notes acknowledges the importance of context in the understanding of why interventions and strategies work, for whom, how and in what circumstances. She uses this framework to determine how, and outline the relationship between, standardised care approaches and the practices they prompt (*causal mechanisms*) operate in clinical settings or circumstances (*contexts*) to create impacts or *outcomes* in the form of roles, team working and service delivery. Use of standardised care approaches Rycroft-Malone et al (2008) suggest is patchy and influenced by individual, professional and contextual factors. Despite perceptions about doctors being described as rule breakers and nurses as advocates of standardisation, in reality this was not as clear cut, the critical factor being the underlying motivation or incentive for using them. Interestingly for General Practitioners (GPs) this motivation was financial reward and for nurses the support to be able to practice autonomously (Rycroft-Malone et al 2008). To successfully implement approaches such as guidelines they argue that it cannot be assumed that a standardised care approach will be used in the way that it was originally intended and successful

implementation lies in achieving the right balance between standardisation and allowing practitioners some decision-making latitude (Rycroft-Malone et al 2008). Kitson (2009) moves this argument on and suggests that:

> Guidelines are not 'literal' objects – they are complex communication vehicles that are used as catalysts to stimulate discussion, learning and debate across knowledge boundaries (p.124)

Evidence based guidelines are intended to enable, guide and motivate practitioners to deliver certain types of care shown to be generally effective, not to directly determine individual patient care (Eddy 2005). Unlike early guidelines, which tended to be strongly influenced by expert opinion and subjective judgment (Eddy 2005, Steinberg and Luce 2005), guidelines produced over the last ten years have been developed using far more rigorous and explicit procedures, with many of those in use today developed using systematic review methodology. Adherence to guidelines is a different matter and the probability that physicians will follow guidelines has been estimated at about 50%, with barriers such as lack of awareness, familiarity, self-efficacy, inertia of previous practices and various other patient and environment related reasons cited as the rationales for this behaviour (Timmermans and Mauck 2005). An analysis of the use of National Institute for Clinical Excellence (NICE) guidance produced mixed results in relation to whether it had made a difference to either the quality of care or to variations in practice, variations were noted both in implementation of the individual guidelines produced and in relation to the implementation process within different NHS trusts (Sheldon et al 2004, Wathen and Dean 2004), once again emphasising the influence of context. Gerrish et al (2007) cautions that the development of evidence based guidelines is just one step in a complex process of ensuring that nurses base their practice on evidence. Indeed Pakenham-Walsh (2012), albeit in relation to developing nations, argues that the whole paradigm of starting with evidence and pushing it to health workers as guidelines and algorithms is fundamentally flawed. He suggests a reversal is necessary, starting with an understanding of the

information needs of health workers and improving their access to reliable and appropriate material at the right technical and educational level.

Mere provision of guidelines is therefore unlikely to change clinical practice, however, Timmermans and Mauck (2005) provide examples of multi-faceted approaches to guideline implementation that appear to be effective. Although they note that it is difficult to determine which components are most useful they suggest that strong leadership; sufficient resources; multistage education; and feedback to providers all seem to improve the capacity of changing health care professional behaviour. This organisational context is one of the areas that I draw out in the study presented in this thesis. Where (and if) guidelines appear to work and have an effect on health care provider behaviour, what are the key organisational elements influencing this behaviour? Foxcroft and Cole's (2000) (last updated 2003) systematic review noted the paucity of rigorous studies relating to the extent in which organisational infrastructures are effective in promoting the implementation of high quality research evidence on the effectiveness of nursing interventions. As well as the organisational context within which knowledge transfer occurs, knowledge management theorists have long suggested that other broader influencing factors such as the nature and source of the knowledge and who receives it play their part with regard to implementation (Szulanski 1996). Rashidian et al (2008), in a qualitative examination of GPs awareness and perception of guidelines argue that implementation needs to target perceived needs, improve ownership and get things right in the first implementation attempt.

It is suggested by Kitson (2009) that three phases can be recognized in the development cycle of guidelines: the introduction of EBM leading to the creation of an infrastructure to develop evidence and translate it into products that could be used in practice; the growth of national governmental bodies and professional networks to develop and disseminate guidelines; and alongside this, systematic testing of interventions thought to have an impact on effective guideline implementation. Kitson argues that fundamental questions now need

to be asked about how guidelines are conceptualised, that it is the way they are understood and valued that determines how they are used in practice and that when researchers are considering the complexities of how evidence gets into practice guidelines should be:

> Perceived/defined as one type (amongst many types) of knowledge that has to be transferred, translated and transformed in order to achieve an improvement in practice (p.125)
>
> Kitson 2009

In order to understand effective uptake of guidelines in practice Kitson (2009) argues that a more interpretative approach is required, viewing guidelines as complex mechanisms through which complicated expert knowledge is communicated. This is a key area for this thesis wherein lies its original contribution.

1.4 New Technologies and Health Informatics

Health information technology strategies that bring evidence based information to the point of decision-making, such as evidence based reminders and clinical decision support systems have been shown to improve quality and efficiency and reduce errors (Clancy and Cronin 2005). The term itself is a broad umbrella framework for tools that support the delivery of care (Chaudhry et al 2006), referring to the connection of information science, computer science and health care, all managed through computerized systems that support the storage, sharing and use of health care information and knowledge for communication and clinical decisions. Evidence based guidelines are increasingly being incorporated into computer systems, enabling clinicians to access evidence at the point of consultation. Clancy and Cronin (2005) propose that bringing this evidence to the point of care requires more than investment in health care technology. They suggest that development of new vehicles to deliver information at the right place and time, and an appropriate structure to ensure that the evidence relating to what works in clinical decision support (reminders, alerts etc.) remains paramount.

At the time data collection for the study presented in this thesis was taking place two developments were leading the way in which health informatics were managed and disseminated in England and Wales; the National Health Service *'Connecting for Health'* and the Welsh Assembly Government's '*NHS Wales Informatics Service'* (previously known as *'Informing Healthcare')*. Professor Michael Thick in his Foreword to '*Learning to Manage Health Information: a theme for clinical educators'* emphasised that an essential area for doctors (and this applies equally to all other health care professionals, including nurses) is:

> Accessing information sources and using the information in relation to patient care, health promotion, advice and information to patients, and research and education
>
> (NHS Connecting for Health 2009 –Foreword)

Health informatics covers a wide area and a number of technologies. The term e-health has been used to describe health care practice that is supported by electronic processes and communication. These include: electronic health records; telehealth and telecare; public health education and information; internet and e-learning tools; health knowledge management; virtual health care teams, mhealth (mobile telemedicine); and medical research using ehealth grids (NHS Connecting for Health 2009). Although all these new technologies impact upon each other, the main focus within this thesis is on evidence based guidelines and related technology that brings EBP to the centre of the clinical encounter.

Among the initiatives promoted by *'Connecting for Health'* and *'Informing Health care'* is the Map of Medicine, an online clinical knowledge resource, providing 24-hour access to evidence based clinical pathways and guidelines through a web based interface. This, however, is just one example in a proliferation of new technologies available to today's practitioners. Examples of easily accessible evidence based guidelines sites relevant to primary care practitioners include amongst others: Bandolier, Clinical Evidence, Clinical Knowledge Summaries (CKS), NHS Evidence, Turning Research into Practice (TRIP), as well as organisations such as the Cochrane Collaboration, Joanna Briggs Institute (JBI), the National Prescribing Centre (NPC), the National Collaborating Centre for Chronic Conditions

(NCC-CC) and the National Institute for Health and Clinical Excellence (NICE). Some of these (for example Bandolier), although relevant at the time of data collection, have since been discontinued, often due to lack of funding, combined with the NHS focus on centralising all funding to NICE and NHS Evidence. Practitioners' awareness of the resources available to them and whether and how they integrate this information into their knowledge base when making decisions about patient care provided a further avenue of exploration.

1.5 Why study practice nurses?

A key focus of health care policy today is delivery of services in the primary and community setting (Welsh Assembly Government 2009a, 2009b, Department of Health 2000a). Practice nurses form a significant part of the primary care workforce and are increasingly taking on responsibility for a wide variety of direct patient care. In the previous decade this was one of the fastest growing fields of nursing, with the number of full time equivalent (FTE) practice nurses in England increasing by 42% from 9745 to 13,793 between 1995 and 2005, with almost 25,000 practice nurses estimated to be working in the UK by 2005 (Royal College of General Practitioners 2007). The Royal College of General Practitioners (RCGPs) in 2004 suggested that an estimated 10% of workload could be transferred from GPs to nurses by 2007/2008 with a consequent increase in the ratio of practice nurses to GPs from 60 per 100 to 70 per 100. Figures from the Technical Steering Committee (2006/2007) indicated that practice nurses covered an estimated 28% of total patient contacts in practice, compared to 60% covered by GPs and worked an average of 22.8 hours a week in comparison to the 38.2 hours per week worked by GPs. The part time nature of the workforce and their employment status were important areas to consider in relation to organisational dissemination of information.

Cross (2006) noted that *Securing Our Future Health: Taking A Long-Term View - The Wanless Review* (Department of Health 2002a) suggested that up to 70% of the work

undertaken by GPs might be moved to general practice nurses, and there was an expectation that nurses working in these extended roles would safely substitute for doctors in a wide array of services, both enhancing quality and reducing the direct costs of service. Recent figures from the Centre for Workforce Intelligence (2012) indicate that the number of practice nurses employed rose steadily from 1999 to 2006, with a ten percent decline in numbers between 2006 and 2010. Despite this drop in numbers, practice nurse consultations have continued to rise, doubling in number between 1996 and 2009, which the report notes could be a response to the reported increase in the number, length and complexity of consultations, or alternatively may have enabled the additional required consultations to take place. Whatever the reason, practice nurses clearly play an important part in primary health care delivery. How practice nurses utilise knowledge to deliver this care, and how they are prepared and supported to deliver this role is therefore of paramount importance and it is worth at this point exploring the historical development of the role.

In 2003 Carey commented that the historical development of practice nursing had resulted in a situation where they have no specified knowledge base, their domain being subject to the continuing domination of individual GPs in “shaping and dictating the boundaries of practice” (p.215). Practice nurses continue to be a rapidly increasing group of health care professionals whose role in the delivery of primary health care is constantly changing and expanding, and who are increasingly the providers of NHS first contact care, in addition to becoming the key providers of care to patients/clients with chronic diseases/long term conditions. Gemmell et al (2009) note that since the implementation of the nGMS contact (Department of Health 2003), practice nursing staff in primary care have increasingly dealt with more complex visits and absorb a higher proportion of the clinical workload. Development and education for the role however remains haphazard.

Education for the role of general practice nurse is wide-ranging. Practice nurses possess a variety of qualifications varying from attendance on study days and foundation programmes

to diploma qualifications specific to practice nursing (such as for example asthma, diabetes and Coronary Heart Disease (CHD), to degree level specialist practitioner preparation. Unlike other community specialisms there is no mandatory training requirement to adopt the title of 'general practice nurse', other than initial registration with the Nursing and Midwifery Council (NMC) as a registered nurse. The same applies to those practice nurses adopting the title 'nurse practitioner', some have been prepared at diploma level, some at degree and some at masters level, but others have received only in house training, adopting the title without having a specific qualification in order to undertake the role. An NMC proposal to introduce an additional level of registration for advance nurse practitioners, with defined standards for advanced practice linked to competence in assessment and treatment at a minimum of honours degree level had still not been implemented at the time of this study. The NMC specialist practitioner programme (NMC 2001) made transitional arrangements for experienced practice nurses to acquire a recordable qualification when its policy for community nurse education came into operation in 1996, since this time the route to specialist practitioner qualification has been at degree level provided by Higher Education Institution's. This qualification is now seen by many organisations to be outdated, and the need to modernise education to prepare nurses for specialist and advanced roles has been recommended (Welsh Assembly Government 2009b)

For many years practice nurses strived to develop their own voice and identity, the role being viewed for a long time as one that was pursued only by part time workers and a role that was inferior to the more fashionable nursing roles in other areas of the NHS, particularly the acute sector. Indeed Baker (1988) once made the comment that practice nursing was 'not a step forward in a progressive career'! In part this was due to the origins of practice nursing, the role originally evolving from GPs wives, who were nurses, assisting them in their everyday practice and also from the 'treatment room' services traditionally provided by district nursing teams. These treatment room services tended to constitute provision of services, such as wound care for both chronic and post-operative wounds, routine

monitoring of patients with conditions such as hypertension and diabetes, and routine procedures such as injections, for patients who were not considered to be house bound. The origins of the role have had a clear impact on the way the role has developed; in the majority of areas GPs continue to be the practice nurses' employers, a situation unique in the NHS environment. In the community sector, roles such as district nursing and health visiting (now designated specialist practitioners in community public health nursing) were seen as having more defined career pathways and were thus a more fashionable calling. This view was soon to change; the Department of Health (1990) GP contract provided the first impetus for nurses interested in a primary care career to move away from other nursing roles into general practice.

The 1990 contract laid the foundations for today's practice nursing by moving primary care services away from a curative, illness led service to that of a preventative health promotion led service. General Practitioners were encouraged to promote health, as well as treating illness, through a system of financial reimbursement for providing services such as well person health checks and chronic disease management clinics. In order to provide these services GPs employed more practice nurses. Although some practice nurses had been employed directly by GPs in the late 1960's/early 1970's it was the 1990 contract that provided nurses with the opportunity to develop a new role which Carey (2003) suggested, was "unconstrained by traditional NHS nursing management hierarchy", the flat structure of the role allowing nurses to develop autonomously. Parallel to the introduction of the contract, GPs were given the opportunity to take control of their own budgets under GP fundholding (abolished by the incoming Labour government in 1997), which gave them further flexibility in employing staff to meet the needs of their particular practice population. Hibble's (1995) study on practice nurse workload, before and after the 1990 contract, noted significant changes in the volume and range of work undertaken by practice nurses and suggested they use the results for negotiating both better pay and improved access to relevant education.

Atkin et al (1993) carried out some influential work in a national census of practice nurses, identifying their role as ranging from chronic disease management and health promotion to more practical tasks such as venepuncture and wound care. 12,859 questionnaires were returned, a response rate of 81% of all practice nurses employed in England and Wales at that time. Considerable diversity was noted in roles and responsibilities, educational preparation and grading. In 2001 Eve and Gerrish reported on the results of two studies of practice nursing in Sheffield and noted that practice nurse roles and responsibilities had undergone spectacular development with nurse triage, nurse practitioner roles and clinical governance becoming an established part of the scenery. They added a cautionary note, however, that the variety of work seemed to be more dependent on historical precedent, than in direct response to the needs of the population. Practice nurse activity continued to fall into four broad areas: chronic disease management, health promotion, treatment room activities and domiciliary visiting. Reassuringly Eve and Gerrish (2001) noted that nearly three quarters of practice nurses had undergone a validated practice nursing course and study days attended had gone up to an average of 8.5 days a year, a considerable improvement from Atkin et al's (1993) survey which reported that only 36% of the practice nurse survey respondents had attended more than five study days in the previous year.

Because of both practice nurses themselves, who have lobbied to ensure they are a recognised discipline, and the influence of subsequent governmental health care policy, the role has continued to expand. The General Medical Service (GMS) contract (Department of Health 2003) created a further expansion, establishing new challenges for practice nursing along with further opportunities. The contract was seen as part of a programme of health service modernisation, with nurses seen as key players in delivering the agenda (McDonald et al 2009). *'Liberating the Talents'* (Department of Health 2002b) and the subsequent Welsh Assembly Government white paper *'Setting the Direction'* (Welsh Assembly Government 2010) set the context for the shifting of services from hospital to primary care settings and paved the way for primary care nurses to be given greater freedom to innovate and make

decisions about the services and care they provide. At a micro level of care, McDonald et al (2009) suggests that the impact of the GMS contract (Department of Health 2003) has intensified practice nurse workloads with the responsibility of meeting contract targets. Additionally it has realigned their role from one of task orientation to one of first contact care, particularly in the management of chronic disease, a process that had its origins in the 1990 GP contract and has continued to be influenced by both NHS organisational restructure and subsequent changes brought on by the GMS contract (McDonald et al 2009).

Practice nursing is now seen as a popular career choice, not only for experienced nurses, but also for the newly qualified starting out in their profession. A valid career pathway has rapidly developed, enabling those who enter the profession to have specific goals to aim towards, planning their personal and educational development needs towards a definite purpose. Carey (2003) commented that "delegation and relinquishment of traditional roles is crucial to the provision of primary care." However, she argued that whilst taking on these delegated duties it is important that practice nurses continue to establish their own knowledge base and define their own role, determining how they can contribute to care delivery in primary care, rather than the role becoming one that is simply based on delegation of GPs work. The shift in focus from care provided by doctors to that provided by nurses in the primary care environment has been an area of debate with reviews conducted on: *Substitution of doctors by nurses in primary care* (Laurant et al 2004), *Advanced nurse roles in UK primary care* (Sibbald et al 2006) and *What is the impact of advanced primary care nursing roles on patients, nurses and their colleagues?* (Bonsall and Cheater 2008). The general conclusion of these reviews is that nurses working in these roles generally provide safe and effective care with high patient satisfaction, although evidence relating to cost effectiveness, efficiency and impact on other health care professionals roles is inconclusive.

The role changes in practice nursing have taken place at a time in which the means in which the medical profession has had to legitimise itself, in the context of state provided health services, may be summarised as a shift in Weberian terms from substantive to formal rationality, transforming from a traditional model of self regulation to one of increased bureauticrisation (Harrison and McDonald 2003). This is partly attributed to an escalating emphasis on clinical routinisation, with professional adherence to clinical guidelines or protocols a key factor (Harrison and McDonald 2003). This changing model, which they advocate has resulted in an increasingly bureaucratised medical system subject to greater control and demonstrations of legitimacy (Harrison and McDonald 2003), has in turn contributed to changes in the practice nurse role, a role governed by the needs and requirements of general practice and consequently general practitioners. Targets in practice have to be met and the practice nurse role has been developed, diversified and expanded in order to meet this need.

Furthermore, historic trends indicate an increase in practice nurses' workloads due to the enhanced responsibilities they have taken on (Centre for Workforce Intelligence 2012). With the current focus on the movement of health care from secondary based services to primary and community based care it is likely that the role will continue to grow and expand. As a recent King's Fund report (2011) suggests:

> If general practice is to meet the workforce and quality challenges of the future, GPs will need increasingly to focus their time on 'intuitive' medicine and complicated cases while nurses take over more of the rules-based care – especially in the realm of managing patients with long-term conditions (p.18)

At policy level the Welsh Assembly Government (2009b) are considering the best ways to enable a strategic approach to delivery of high quality patient care by practice nurses and how to address the need for a career framework and future workforce development. In England the Working in Partnership Programme (WiPP)- General Practice Nursing (GPN) initiative set out to develop a range of core principles to support practice nurses. A toolkit developed in conjunction with WIPP and Staffordshire University, published on the Royal

College of Nursing (RCN) website (2012) provides guidance to general practice nurses, general practice employers and patients, in addition to strategy advice. The guidance acknowledges the increasing range of work undertaken by GPN's, noting that:

> GPNs should look critically at the work that GPs are expecting them to undertake and ensure that they are adequately prepared in terms of resources and skills. GPNs who work in small practices, with little peer support, may be at risk of being overworked and undertrained if their GP employers are not properly aware of their competences. In order to attain competence, there needs to be adequate provision of standardised, recognised and credible training at a local level. If, as a GPN, you prefer to practice traditional clinical skills and not take on advanced roles, this should be respected and valued by your employer. The key to safe practice is clear identification of all GPN roles within the practice.
>
> (RCN 2012, p.2).

1.6 Policy influences on primary care

Structural reorganisation at macro level inevitably impacts on the meso level of primary care practice organisation. This section provides a brief history illustrating the policy influences that have shaped and continue to shape primary health care delivery. As noted earlier both the LHB's re-organisation specific to the devolution of health care delivery in Wales, and the national GMS contract, affect service delivery and primary care practice goals in terms of setting out anticipated achievements and targets related to the provision of evidence based patient care.

The NHS, in particular primary care services, has been subject to a number of changes since its inception, including twenty major reforms and reorganisation since the 1980's (Walshe 2003). An increasing emphasis on primary care as a key provider of health care was first seen with the general practitioner contract in the 1960's. The introduction of the internal market in 1990 saw the separation of purchasing and provision with health authorities purchasing health care from hospitals and other health organisations. This led to an increasing focus on primary and community services, with the overall intention that NHS Trusts would challenge the domination of hospital based health care provisions (NHS Choices 2010).

The introduction of GP fundholding in 1991, a scheme subsequently abolished in 1998, created a different set of rules for participating practices, giving them the freedom to negotiate secondary care contracts, to decide which providers and services they would use and how patients would benefit from surplus funds generated (Kay 2002). Fifty seven percent of GPs had opted to be fundholders by 1997/1998, a figure that had increased on a yearly basis, although Kay (2002) argues that GPs were motivated not from choice, but by fear of the alternative, the consequences of not being a fundholder. The introduction and abolition of this scheme within a seven-year period, following a change of government, highlighted the effect that governmental changes in health policy have on health care delivery (Kay 2002). Fundholding determined how GP practices were run and how services were delivered; effectively making GP practices self-governing trusts and encouraging a more business-like approach to health care delivery, taking responsibility for purchasing secondary and community services and retaining budgetary surpluses to improve their facilities. Gosden and Torgeson (1997) commented on the lack of a substantive evaluation of the scheme, emphasising Kay's view that 'the motivating factor for abolition seems to have been the history of fundholding as a political issue (p.143)'. Political influence, as opposed to the success or failure of the scheme in relation to its impact on quality of patient care, was the change driver.

Since 2003, the main national policy influence throughout the UK on general practice has been the GMS contract (Department of Health 2003), particularly the QOF, with the financial impact associated with achieving quality targets (constituting on average 25% of practice income). Quality and Outcomes Frameworks rewards practices in the form of financial incentives, which are provided for achieving targets related to improvement of quality of care to patients, these targets consisting of a number of process indicators, largely evidence based. These indicators are mainly linked to chronic disease management although some are linked to the quality of care provided to groups of patients, for example those with

learning disabilities. Quality and Outcomes Frameworks is voluntary but most practices signed up to the GMS contract, 99.6% participating in QOF (Dixon et al 2011). Quality and Outcomes Frameworks has, however, caused some concern within GP practices, with the framework criticised for assessing treatment processes rather than clinical outcomes, failing to take into account issues such as age, and the suggestion that it encourages the substitution of evidence for sound clinical judgement (Health et al 2007). The 'watering down' of the evidence base within the indicators has also been highlighted as an issue, with Gillam (2010, p.c2710) noting that 'the framework's evidence will only ever be partial'. This concern is highlighted by the development of locally enhanced service (LES) agreements which provide primary care practices with further financial incentives to deliver a quality service and evidence based targets. These voluntary agreements are developed by the LHB's and are based on achievement of specific indicators, for example a higher percentage of patients in the practice achieving tighter clinical indicators in relation to glycaemic control, blood pressure and cholesterol, which more closely resembled the evidence base than QOF targets.

In April 2009 a significant change took place in relation to QOF indicators. In a bid to ensure a more independent and transparent process for reviewing and developing indicators, NICE became responsible for developing the QOF clinical and health improvement indicators (BMA/NHS employers 2011). The National Institute for Health and Clinical Excellence now has responsibility to prioritise areas for new indicator development, develop and select indicators for inclusion, make recommendations for the retirement of indicators and consult with individuals and stakeholder groups, with recommendations based on current clinical evidence and cost-effectiveness.

The introduction of health targets, through schemes such as QOF, is seen by Geher and Rihani (2010) as an example of 'the pursuit of perfection of greater order on messy societies (p.3)', a focus of public policy in the twentieth century, which has extended into the twenty

first century. They note that failure of policy makers to acknowledge the complexity of health care puts the NHS, initially a successful complex system, at risk of being crippled. Gabbay and le May (2011) discuss for example, in their ethnographic study of knowledge utilisation in primary care, how the GPs they were observing, were discussing a group of hypertensive patients which they labelled the 150/90's, and wondered if the target cut off had been set at 155/85 then the 155/85's would have become clinically important instead. Failure to acknowledge the complexity of health risks undermines the importance of considering all the factors that impact on health outcomes. Dixon et al (2011) notes that evidence of pay for performance schemes such as the GMS contract suggest that physicians do respond to incentives, including incentives for primary and secondary prevention activities. However, he adds that GP behaviour is not solely driven by financial incentives and that research highlights the importance of other factors such as professional pride, peer pressure and the desire to improve patient care. Furthermore he argues that incentives tend to focus on the activities that are easily measured, physicians focus on activities with incentives at the expense of other activities and a more holistic approach to care. Indeed, he purports that incentives may lead to over-treatment or risk selection and can lead to gaming with subsequent unintended consequences on practitioner behaviour, including goal displacement and a focus on rule following rather than patient care.

A recent Cochrane review supports Dixon's (2011) assessment, noting that there is little rigorous evidence of the impact of incentive schemes, including QOF, on improving the quality of primary health care (Scott et al 2011). Gabbay et al (2003) found in their empirical study that information introduced to groups of people attempting to formulate local policies for health care was 'batted about until it became unrecognisable'. Timmermans and Berg (2003) likewise concluded from their seminal studies that practitioners transform evidence so it fits the context of their practice. What may appear to an outside observer as practitioners ignoring evidence based guidance is often in fact a re-jigging of the evidence to meet the requirements of practice and the context in which clinical care is delivered.

1.7 About this thesis

At the time of undertaking fieldwork, as outlined earlier, seven NHS Trusts and twenty-two LHBs in Wales had merged into seven new LHBs and/or University Health Boards (UHBs) (Welsh Assembly Government 2009a). The new Health Boards became responsible for delivering all NHS services as opposed to the previous two tiered Trust and LHB system. General practices that had been under the governance of a small LHB were now part of a much larger primary, community and secondary care health care service provider, with locality offices to provide local guidance. Despite policy dictating a move of health care services from a secondary to a primary/community environment the merging of primary focused LHB's with the much larger NHS trusts had generated concern in primary care regarding future funding priorities. Prior to the changes LHB's took financial and organisational responsibility for primary care services and commissioned secondary and community services from the Trust. The new structure removed the internal market with the new LHB's taking financial and organisational responsibility for the delivery of primary, community and secondary care services. *'Setting the Direction'*, the report outlining the WAG's Primary and Community Services Strategic programme (Welsh Assembly Government 2010) set out a clear vision for primary and community services emphasising the role of primary care in continuing to provide crucial core services led by a strong primary and community based approach.

Against this context and in light of the complex issues outlined, understanding how practice nurses use the considerable health information resources available to them, to deliver high quality patient care is paramount. Relatively little research has been undertaken into the way practice nurses derive and use knowledge in practice. Over the last ten-fifteen years primary care practitioners have been bombarded with a surfeit of clinical guidelines, both paper and computerised. An empirical study of evidence based clinical guideline implementation in general practice by GPs noted that previous research tended to focus on change initiatives, not on change processes (Dowsell et al 2001). They found that although guidelines were

welcomed as a means of improving care, general practices did not generally have well functioning internal arrangements for the management of evidence. Studies to determine their effectiveness have mainly concentrated on general practitioners, although some, for example Harrison et al (2002), have looked at the attitude of practice nurses to clinical guidelines in the context of nurse/physician relationships. Gabbay and le May (2004, 2011) explored how primary care clinicians (general practitioners and practice nurses) derived their individual and collective health care decisions, in relation to sources of knowledge, and concluded that 'clinicians rarely accessed and used explicit evidence from research but relied on mindlines, reinforced, tacit guidelines informed by their own and colleagues experience and other sources of largely tacit knowledge.' Despite the multi-disciplinary focus of Gabbay and le May's (2011) study the main attention appeared to be on GPs and it is difficult to draw out the specific elements that impact on the practice nurse role.

Transfer and utilisation of knowledge and the impact of this on health outcomes is increasingly being recognised as an important area of study. This thesis is being undertaken within Cardiff University School of Nursing and Midwifery Studies' research programme, as part of the sub theme *Knowledge Management* which fits within the theme of *Organising and Delivering Health and Social Care* (School of Nursing and Midwifery Studies, Cardiff University 2012).

My background as a practitioner is in primary care, with the majority of my nursing career spent in general practice before moving into an education role in 2001. In addition to working as a practice nurse and practice nurse facilitator, I was the nurse representative and shared clinical governance lead on a LHG, part of which included setting up systems to promote dissemination of relevant NICE guidelines to practices, at the time a relatively new organisation. In addition I spent time working for a Welsh based primary care organisation: TRIP, the main aim of which was to make evidence easily accessible for primary care practitioners (GPs and nurses), through provision of an evidence based clinical query

answering service (ATTRACT) and a user friendly database. During this time I co-authored a Cochrane systematic review, which further stimulated my interest in EBP and evidence utilisation.

My MSc Nursing dissertation explored the impact of self-directed and problem based learning on research implementation. The work I undertook for ATTRACT and subsequently the National Library for Health Question and Answer service resulted in a regular monthly column in *Practice Nursing*, directing practice nurses to easily digestible 'bite' sized nuggets of evidence based information to inform their clinical decisions, as well as other publications relating to finding and implementing evidence (Carrier and Brassey 2006, Carrier 2009). In 2010 I became the Director of the Wales Centre for Evidence Based Care, a collaborating centre of the JBI within Cardiff University School of Nursing and Midwifery Studies, and have co-authored two JBI systematic reviews (Edwards et al 2011, Eynon et al 2012). In addition, in my role as a JBI trainer, I have trained a number of staff in the systematic review process and run a Masters systematic review dissertation module and a Professional Doctorate module, teaching and supervising home and international MSc and professional doctoral students systematic review methodology. My continued interest in knowledge implementation and utilisation, specifically in the rapidly expanding primary care field is demonstrated throughout this thesis

1.7.1 Overview/organisation of thesis

Work on the production of this thesis began with formal registration in 2007. The investigation reported here involved the use of ethnographic methods to explore the macro and meso level influences on practice nurses' knowledge and the impact of this on implementation of the micro delivery of patient care within the everyday clinical encounter in two study sites. Through direct observation of clinical practice and practice meetings, the analysis of written and computerised guidelines and protocols, followed by interviews with practice nurses, I was able to build up a unique picture of the numerous influences on

nurses' knowledge and the subsequent implementation of this knowledge. My analysis of these data, drawing on a conceptual framework derived from the literature enabled me to build up a picture of the context in which practice nurses accessed and interpreted knowledge and executed this in the 'real time' (Smith and Farquhar 2000) of the clinical encounter.

My purpose in carrying out this study is to make a theoretically informed contribution to an area of nursing that previously has received little attention. This thesis explores how practice nurses access and use knowledge, including evidence based resources, tacit and experiential knowledge, within the organisational and cultural context in which they operate, and implement this within the clinical encounter.

In Chapter two I pick up the threads from the discussion on EBP in chapter one and present an overall picture of literature that thus far has investigated evidence utilisation in nursing, considering the questions that people have asked, the methodologies that they have used and the conclusions that have been derived. I take a broad historical approach using a systematic search strategy, scoping and mapping the key approaches in this field up until the present to determine what questions have been asked and what methodologies have been used, paying specific attention to studies that have included practice nurses. I discuss how a body of earlier research used self report to determine nurses' perceived barriers to research and evidence utilisation, arguing whether this is an appropriate methodology to understand the underlying complexities and map out work that has increasingly focused on ascertaining the role of organisational context as well as individual factors. The chapter concludes with a discussion on the body of work now concentrating on the more recent concept of knowledge translation and exchange.

In Chapter three I set out the key theories on which I have drawn to develop a conceptual framework on which to map my data analysis. I present and analyse a number of theoretical

concepts arising from organisational theorists and social scientists, to allow a deeper understanding of the problem at macro, meso and micro -levels through theoretical triangulation. Clinical mindlines, a concept developed by Gabbay and le May (2004, 2011) provides a thread throughout the thesis that draws the elements of the data together. Chapter four sets out the methodological approach that I take to this study considering the research process issues. I discuss how I decided on an ethnographic approach comparing and contrasting this approach to other methodologies including the credibility, dependability, confirmability and transferability issues to be considered when carrying out in depth qualitative research (Lincoln and Guba 1985). The process of obtaining ethical approval for the study is addressed along with the reasons behind my selection of the research sites in which I located myself.

Chapters five, six and seven present analyses of my findings. Chapter five introduces the two study sites in detail with an overview of the organisational structures and culture within each practice. Local meso level influences and data are provided and analysed relating to diffusion and dissemination of knowledge. Chapter six analyses the sources and types of knowledge that influence nurses' practice, outlining what they consider as evidence and how the different sources of knowledge to which they are exposed impacts on the development of their mindlines. These in turn are influenced by the everyday organisational and cultural context to which they are exposed, resulting in a bricolage of knowledge, defined by the English dictionary as "something that is made or put together with whatever materials happen to be available". Chapter seven considers how this bricolage of knowledge is subsequently implemented within the clinical encounter. Data are presented relating to how this knowledge is managed, transformed and applied to patient care in the 'real' time of the clinical encounter, with decisions subject to a further authority, that of the individual patient and their expectations which are influenced by their own social construct of disease and illness.

Chapter eight synthesises the findings in relation to the conceptual framework presented in chapter three, providing a critique of the mindlines concept and demonstrating how the notion of the use of a bricolage of knowledge adds both new theoretical and practical insights to what is currently known. A discussion is included that explains the findings and the nature of knowledge utilisation in relation to professional power and the influence of medically prescribed knowledge on practice nurses' decision making and their autonomy with regards to knowledge use.

Chapter nine concludes this thesis, drawing together the strands and presenting the key findings arising from the study in relation to practice, education and research. The implications of the investigation on the practice and education of practice nurses are considered and future areas of enquiry discussed.

2. Chapter Two: Knowledge utilisation in nursing – a scoping review

2.1 Introduction

This chapter charts the contours of the literature investigating knowledge utilisation in nursing and provides both the groundwork for chapter three, where I introduce the theoretical frameworks that I draw upon to interpret, understand and examine my data and the rationale for my subsequent use of ethnography, as outlined in chapter four. The aim of this chapter is twofold, firstly I scope and map the literature and provide an historical overview of research that has examined nurses' attitude to, and use of research; knowledge and EBP; with a specific focus on empirical work that has included practice nurses. This includes reference to frameworks that have been developed to assist implementation and identification of theories that have been used to structure this work. Secondly I discuss the current wider focus on knowledge mobilisation and translation that has recently begun to impact on the nursing agenda, which draws on knowledge management strategies within and beyond healthcare outlining how investigations into nursing knowledge are moving forward.

2.2 Scoping the literature

Within this chapter I begin with a scoping review of literature related to research and knowledge utilisation and implementation of EBP using a systematic search strategy and provide clear definitions for the different terms used. The purpose of this process in this thesis is to examine and map the range of methodologies and frameworks that have contributed historically to the understanding of research and knowledge utilisation and EBP implementation in nursing, synthesise the existing evidence and identify gaps, particularly in relation to practice nursing. Scoping reviews are characterised by the identification of broad

themes and patterns in a research area with a high volume of published work providing an important foundation for future study (Rumrill et al 2010). This was particularly apt as a systematic review would have been an inappropriate methodological approach for the broad questions posed. Although some scoping reviews have been criticised due to variation in methodological rigour (Davis et al 2009), scoping is considered to be a valuable method of clarifying a complex concept and refining subsequent research inquiries (Levac at al 2010). Arksey and O'Malley (2005) propose that scoping reviews can either precede systematic reviews, or facilitate an examination of the literature to identify gaps or to summarise and disseminate research findings. My intention in this review was to review the historical approaches taken thus far in nursing and identify gaps in relation to practice nursing. Arksey and O'Malley (2005) suggest the use of five steps which include: identifying the initial research question; identifying relevant studies; study selection; charting, collating, summarising and reporting the results. Studies are selected on the basis of refining inclusion and exclusion criteria with regard to the studies initially identified, data is then organised to represent the core descriptive elements of the scoping review, with the aim of displaying trends in the literature without giving distinction to methodological quality or empirical 'weight' (Arksey and O'Malley 2005). I did however take a critical approach to the literature discussing the strengths and weaknesses of the approaches used as part of the process of laying down the intellectual foundations to justify my own research approach. Additionally I have taken into account some of Levac et al's (2010) proposed recommendations, which they argue clarify and enhance Arksey and O'Malley's (2005) framework. These include: clarifying and linking the purpose and research question and balancing feasibility with breadth and comprehensiveness. I therefore defined the concept, target population and outcomes of interest to clarify the focus of the scoping review and establish an effective search strategy, using specific questions to guide my decision-making around the scope of the review. Study selection was undertaken as an iterative process, as was data extraction with the data charting form updated as extraction proceeded. Results are reported in themes which relate to the review questions.

2.2.1 Historical background

Research utilisation has been defined as the use of research to guide clinical practice (Estabrooks et al 2004). Interest in the topic within nursing began in the 1970's when one of the first articles *'Adopters and Laggards'* was published (Shore et al 1972). In 1981 Hunt declared that nurses failed to utilise research findings because they did not know about them, did not understand them, did not believe them, did not know how to apply them and were not allowed to use them, intimating early on in the debate that both the organisational context as well as individual factors played a part in successful implementation. Despite waning interest in the 1980's the field grew rapidly in the 1990's with the development of a number of research utilisation models, Stetler's model developed in 1994 and updated in 2001 being one of the first to gain attention. As is the case for much of the early research in this field (e.g. Funk et al 1989, 1991a) a criticism of this approach is its focus on individual aspects of implementation and a failure to account for wider organisational issues. The term knowledge utilisation became increasingly popular in the 1990's, an overarching term that includes research utilisation and evidence based practice and pertains to the use of knowledge generated through research for policy and practice decisions (Rich 1991). Rich argues that the area of knowledge utilisation lends itself to many aspects of inquiry, including the processes of knowledge production, dissemination and utilisation as they all interact with each other. Backer (1991) further defines knowledge utilisation as including research, scholarly practice and programmatic interventions aimed at increasing the use of knowledge to solve human problems.

Since the 1990's, pre and post registration nurse education has changed considerably in terms of understanding and usage of both research and EBP and there have been wider changes in nurses' roles, attitudes and autonomy. Alongside the emergence of evidence based practice in the 1990's was the recognition that dissemination of evidence did not guarantee implementation (Estabrooks et al 2004). A body of work emerged focusing on Sackett et al's (1996) broader definition of evidence based practice (see chapter one, p.9)

with a number of researchers developing questionnaires specifically asking about nurses' attitude to and knowledge of EBP (Upton 1999, O'Donnell 2004, McKenna et al 2004, Gerrish et al 2007). Recognition of the limitations of earlier approaches focusing on individual attributes, and running parallel to the focus on EBP was work drawing on theories of clinical judgement and decision-making which argued that self reported behaviour alone is an inadequate method to understand information use (Luker and Kenrick 1992, Luker et al 1998, Thompson et al 2000, 2005). A body of work also emerged in which translational frameworks were developed which focused on organisational dimensions relevant to translation of research and/or new knowledge into practice. These translational theories and frameworks focused on the interrelationships and complex organisational dimensions that impact on the translation of research and new knowledge into practice (White and Dudley-Brown 2012). In the UK this was led by researchers such as Kitson et al (1998) who were dissatisfied with the lack of attention to rational decision-making, linear processes and the failure to include the influence of context in research translation into practice (McCormack et al 2002).

Two systematic reviews have attempted to map the field of research and knowledge utilisation in nursing. Estabrooks et al (2004) undertook a bibliometric analysis[2] of the research utilisation literature in nursing published between 1972 and 2001 with the objective of mapping research utilisation as a field of study and identifying the structure of the scientific community in the field, including the network of researchers at the time. Results showed that most publications were single authored with no tendency towards increased collaboration, little flow into nursing from other fields and repeated citing of a few references, indicating that the field was still underdeveloped. Only four percent of the references cited were actual research articles about research utilisation and few studies showed how the field had developed within nursing. Despite the acknowledged limitations of bibliometrics which

[2] The term 'Bibliometrics' is thought to have been first used by Alan Pritchard in a paper published in 1969 entitled *Statistical Bibliography or Bibliometrics* and is used to describe a set of methods employed to quantitatively analyse scientific and technological literature.

include the domination of English language in academic publications (Traynor 2011) and evidence from other scientific disciplines that many scientific articles are not necessarily cited despite their evident influence (MacRoberts and MacRoberts 2010), the review recommended further work should focus on more substantive conceptual and empirical work and more collaboration (Estabrooks et al 2004).

Acknowledging that Estabrooks et al's (2004) work was specific to research utilisation in nursing, a further bibliometric analysis of the broader concept of knowledge utilisation in nursing was undertaken by Scott el al (2010). This study was a subset of a larger project that explored the entire knowledge utilisation field, not exclusive to nursing. Scott et al (2010) defined knowledge utilisation as the use of knowledge in practice, noting that prior to EBP the focus in nursing was on the narrower field of research utilisation, with knowledge utilisation gaining increasing importance since the 1990's as a mechanism to promote evidence based practice and policy with the goal of improved health outcomes and fiscal benefits (Scott et al 2010). Progress in the knowledge utilisation field they note has been hampered by a number of gaps and challenges, including a lack of overarching theories; an over treatment of knowledge utilisation as a product or outcome rather than as a process; a lack of appreciation within study designs of the complex and interactive associations among predictors of knowledge utilisation and a lack of progress in crossing disciplinary boundaries to advance knowledge development. Scott et al (2010) mapped data from 1945-2004, results suggesting some emerging trends including significant growth and interest in the knowledge utilisation field and that the structure of the scientific knowledge utilisation community was evolving. Further work is planned to map work from the years 2005-2014.

There remains a lack of conceptual clarity with respect to the construct of research utilisation, which is not a static phenomenon (Estabrooks et al 2011). Authors such as McKillop et al (2012) argue that approaches to evidence implementation have continued to take a push/pull approach with a focus on the nature of evidence, 'science push,' and on

individual implementation behaviour, 'demand pull,' both of which they suggest have failed to consistently influence practice decisions as they fail to understand the messy world of health care practice. This is particularly pertinent in primary care where health care practitioners deal with a wide range of diverse issues and work in a variety of environments that can be isolated from mainstream health care provision. As noted in chapter one practice nurses are additionally subject to a unique doctor/nurse employment relationship which inevitably impacts on the organisational context. The translation of research into decision-making and healthcare practice has continued to be a challenge with variable uptake of evidence and mixed success of various implementation projects (Seers et al 2012), indicating that more groundwork needs to take place to develop deeper understanding of the complexity of knowledge utilisation.

2.2.2 Identifying the review questions

The scoping review was guided by the aim of the investigation reported in this thesis, which includes the investigation of access to, and use of knowledge by practice nurses and the educational, organisational and cultural influences on knowledge utilisation, including the context in which care is delivered. The specific questions guiding this scoping review are:

1. What questions have been asked about research and knowledge utilisation and implementation of EBP in nursing and what do we know currently?
2. How have the questions relating to nurses' utilisation of research, knowledge and EBP been conceptualised and investigated?
3. How has this field of investigation developed and changed?
4. Who are the key authors in the field and what methods have they used?
5. With regard to questions 1 and 2, what studies have specifically included practice nurses?

2.2.3 Identifying relevant studies

2.2.3.1 Inclusion criteria

Types of participants

The participants of interest were registered nurses, with specific focus on studies including practice nurses.

Types of intervention/phenomena of interest

The phenomena of interest were individual, educational, organisational and contextual elements impacting on research and knowledge utilisation and implementation of EBP, determining how the focus of these investigations and the underpinning methodologies used to investigate them has changed and developed as this field of knowledge has grown

The following definitions were used as a guide:

- Research utilisation: the use of research to guide clinical practice (Estabrooks et al 2003)
- Knowledge utilisation: an overarching term that includes research utilisation and evidence based practice and pertains to the use of knowledge generated through research for policy and practice decisions (Rich 1991).
- Evidence Based Practice: an interplay of research evidence, clinical expertise and patient preferences, including research products such as national guidelines and local information such as protocols and audit reports (Gerrish et al 2007).

Types of studies

All empirical and methodological papers that addressed the phenomena of interest were considered.

Types of outcome

The purpose of the scoping review was to map existing literature on the topic and to identify what outcomes were measured by the current research. These included, but were not limited

to, individual and organisational barriers and facilitators including attitudes and education, to research and knowledge utilisation and EBP.

2.2.3.2 Search strategy

A three-step search strategy was utilised.

Stage 1: An initial limited search of MEDLINE and CINAHL was undertaken followed by analysis of the text words contained in the title and abstract, and the index terms used to describe the article. Preliminary keywords searched were: research utilisation, research transfer, knowledge utilisation, knowledge transfer, knowledge mobilisation, diffusion, evidence based practice, decision-making, barriers, facilitators, nurs*, practice nurs*.

Stage 2: The text words contained in the title and abstract of relevant articles, along with the controlled language index terms used to describe the papers, were analysed to develop keywords for stage two. A second extensive search was undertaken of all keywords and index terms identified as relevant to the review across all included databases using Boolean operators 'and', 'or' and 'next' to focus the search. Individual search strategies were developed for each index using the different terminology of index thesauri.

Stage 3**:** The reference lists of all identified reports and articles were searched for additional studies.

Databases

I made use of the following electronic databases: the Cumulative Index of Nursing and Allied Health Literature (CINAHL); MEDLINE; British Nursing Index; the Cochrane Library; EMBASE; Web Of Science; Evidence Based Medicine (EBM) Reviews; Social Sciences Index and Abstracts (ASSIA); Turning Research into Practice (TRIP); Scopus. Studies were limited to the English language. All identified articles were assessed on

the basis of the title and/or abstract and full reports were retrieved for all studies that met the inclusion criteria for the review. When in doubt, the full article was retrieved.

The full search strategy is included in Appendix 1, along with a flowchart detailing the study selection.

2.2.3.3 Methods of the review- charting, collating, summarising and reporting findings

Assessment of methodological quality

Scoping reviews typically do not include an assessment of methodological quality of included studies; therefore no specific critical appraisal tools were used to determine the inclusion/exclusion of individual studies based on quality scores; however I provide an overall critical commentary.

Data extraction, summarising and reporting results

Findings are reported thematically in narrative form. The approach described by Arskey and O'Malley (2005) was followed, an overview of all the included material was summarised in a table which maps the literature. The literature was organised and presented related to the focus of the research, year of publication, characteristics of study population, reason for inclusion and the research outcomes (Appendix 2).

2.3 Findings

The findings are presented as three narrative themes which document how this field of research has developed historically and considers in detail studies that include practice nurses. Twenty five studies were included in the review. Early work relating to research utilisation focused on barriers and facilitators and generated two bodies of work; initial work concentrated on determining individual attitudes, this focus later shifted in the mid 1990s to include the wider influence of organisational and contextual factors. Theme one, barriers and facilitators, includes four sub themes: i) individual determinants, ii)

studies undertaken using the BARRIERS to Research Utilization Scale, iii) studies using questionnaires specifically developed to determine attitudes towards, knowledge of, and factors influencing EBP implementation and iv) the development and implementation of the PARIHS framework. Theme two discusses research focused on clinical judgement and decision-making. This work became established as a field of scientific inquiry in the early 1950's and was taken forward by authors such as Hammond (1988) who developed the Cognitive Continuum Theory, a prescriptive model that argues that reasoning is neither purely intuitive or analytical but is located somewhere in between, and on which much of the empirical decision-making work relating to nurses is based upon. Theme three considers studies that have explored practice nurses' attitudes towards guidelines and the perceived impact on initiatives such as these on nurses' professional status.

2.4 Theme 1: Barriers and facilitators

2.4.1 Introduction

The first narrative theme considers the approaches that have been taken to improve understanding of the barriers and facilitators to both research and EBP within nursing. I begin with two systematic reviews that focus on the impact of individual determinants and provide an overview of the work undertaken in this field. I then consider research undertaken using the BARRIERS to Research Utilization Scale, work using this scale was important to consider as in 2008 over 45 empirical studies in English language alone were noted to have adopted this method (Carlson and Plonczynski 2008). Following this I discuss seven studies, all of which included some practice nurses in their sample, which used self report questionnaires to examine key issues surrounding nurses' perceptions towards EBP. The final section in this theme discusses context, the development and refinement of the PARIHS framework (Kitson et al 1998, Rycroft-Malone et al 2002) and two systematic reviews that report on studies that have used the PARIHS framework. A number of frameworks and models have been developed to

guide implementation of research based interventions into practice since the mid 1990s. The common theme of these frameworks has been the acknowledgement that co-ordination, implementation and dissemination of new knowledge must be guided by the evidence, the clinicians involved, organisational characteristics, barriers and facilitators and the need for evaluation, monitoring and sustainability (White and Dudley-Brown 2012). Although the focus of this review is not on translational frameworks the PARIHS framework was selected for inclusion as it demonstrates the changing contours of the field of study from a focus on individual determinants towards consideration of contextual factors and has generated a substantial body of empirical work.

2.4.2 Sub theme i) Individual determinants

A systematic review undertaken by Estabrooks et al (2003) reviewed studies published between 1982 and 2000 that measured individual influencing determinants on the research utilisation behaviour of nurses. The final review included twenty quantitative studies and identified six categories of potential individual determinants: beliefs and attitudes; involvement in research activities; information seeking; professional characteristics; education and other socio-economic factors; with age the most commonly reported determinant in the last category. Results suggested that the effect of presumed determinants were equivocal, and concluded that apart from some support for a link between beliefs, attitudes and research utilisation the extents to which the other factors influenced research use were largely unknown.

Although the potential determinants were likely to be highly inter-correlated Estabrooks et al (2003) suggests that the study designs did not allow for such an analysis and they remained uncertain about individual determinants, including whether attitude is a precursor, or is determined by other potential determinants such as role. Furthermore they pointed out that the measures used in the included studies relied almost exclusively on self report which often involved significant memory recall over long time

periods. The review noted that many of the included studies did not identify a theoretical framework, and of those which did, all except one used Rogers' diffusion of innovations framework (Rogers 1995). Recommended was that future studies should concentrate less on non modifiable individual determinants (such as age) and should consider a wider range of influencing factors, including research specific and organisational factors (Estabrooks et al 2003). Additionally they suggested future research in the field should be programmatic and aimed at developing a strong theoretical body of work relevant to nursing and related health disciplines. This should enable a more comprehensive understanding of the multi-level factors that influence the use of research in practice so work on the influence of research use on relevant patient and system outcomes can begin. Only one study in the review (Davies 1999) included practice nurses and this study reported on only one self-reported determinant, preparedness for health promotion which in terms of validity was rated as moderate.

A more recent update of this systematic review (Squires et al 2011) added the results of studies published between 2001 and 2008 to the studies published in the previous review. Forty five studies were included, doubling the previous number, although methodological problems inherent in many of the studies meant that robust evidence was scarce. They reinforced the six categories found in the individual review and added in a seventh, critical thinking. A variety of self report instruments were used in the 45 included articles, only one being rated as strong, thirteen as 'moderate strong', eighteen as 'moderate-weak' and thirteen as 'weak' with discrepancies related to sample representativeness, treatment of missing data and appropriateness of statistical tests used, limiting the reliability of overall findings. Positive relationships for research utilisation were found to be statistically significant in four categories: beliefs and attitudes; information seeking; education and professional characteristics. Individual characteristics showing some relation to an increase in nurses' use of research included: positive attitude towards research; having a degree; a current role in

leadership and/or advanced practice; working in a clinical speciality (this included critical care and diabetes specialist nurses) and job satisfaction. Squires et al (2011) suggested that these findings represented a significant increase in knowledge over the previous review, but need to take into account the variability in the studies' methodological quality relating to sample selection, sample size, study methods and rigour, statistical tests and instruments used to measure outcome. Given the heterogeneity of studies the review findings were limited to those associated with research utilisation, not those which predict research utilisation.

2.4.2.1 Discussion

Reviewing these two systematic reviews on the body of work that has been undertaken on individual determinants provided valuable insight into the types of methodologies used and the areas worthy of further investigation. Much of the empirical work that developed in response to the perceived research practice gap in nursing has used self reported methods, undertaken in relation to discovering nurses' perceived barriers to research utilisation, as opposed to investigating what methods and information nurses actually use to inform their thinking and the wider contextual issues that impact on care delivery. A number of authors argue whether self report is an appropriate method to assess attitudes (Estabrooks et al 2003, Estabrooks et al 2004, Thompson et al 2005, Meijers et al 2006) with nurses perhaps more likely to give what they think is the right answer, rather than what they actually think. Level of education, leadership and advanced roles were shown to have some significance and would be areas worthy of further investigation whilst investigating the overall organisational context.

2.4.3 Sub theme ii) BARRIERS: the Barriers to Research Utilization Scale

Despite the initial focus on the individual determinants impacting on research utilisation, some of the empirical work examining implementation barriers has considered a wider range of influencing factors, including organisational factors and research specific attributes. An example of this is studies using the Barriers to Research Utilization Scale

(BARRIERS Scale) (Funk et al 1991a), a tool validated for ascertaining nurses' opinions regarding barriers to, and facilitators of, research utilisation in the practice setting. Developed by Sandra Funk and colleagues in the USA in the early 1990s, the 29 item self reported questionnaire asks nurses to rate their perceived barriers to research on a four point Likert scale, classified into four factors: characteristics of the 'Nurse' (research values, skills and awareness), characteristics of the 'Setting' (work setting and organizational barriers), characteristics of the 'Research' (methodological quality and appropriateness of conclusions), and characteristics of the 'Presentation' (communication and accessibility of the research). The BARRIERS Scale was developed from three sources, a review of the literature, a questionnaire developed as part of the Conduct and Utilization of Research in Nursing project and informal data gathered from nurses (Funk et al 1991a). The scale was based on Rogers' Diffusion of Innovations model (Rogers 1993) and Funk et al (1991a) hypothesised that higher levels of EBP will occur when barriers to use of research are identified and interventions developed to reduce or eliminate them (Carlson and Plonczynski 2008). It was shown to have good psychometric properties and has since been widely used in American, Canadian, Australian, Swedish, Finnish, British, Irish and Spanish studies, although queries have been raised regarding its sustainability in the international context (Marsh et al 2001). Scott et al (2010) identified Funk as the most cited author in the nursing knowledge utilisation literature.

The top three barriers reported in studies that have employed the BARRIERS Scale include: insufficient time to read research/implement new ideas (thirteen studies); lack of authority to change patient care procedures (eight studies); inadequate facilities for implementation (five studies); lack of understanding in relation to statistical analysis (eight studies) and lack of awareness of research findings (four studies), the top three findings were not, however, consistent across all studies (Hutchinson and Johnston 2004). Differences also exist across the studies that have used the BARRIERS Scale in

relation to population size and consistency, sampling, minor rewording of a limited number of items in the tool and inclusion of only 28 of 29 barrier items included in the original BARRIERS Scale (Hutchinson and Johnston 2004) which limits cross study comparisons. Examples of the studies that have used this method are discussed below, including one of the early studies in the UK (included here as it considers the transferability of the scale to the UK) and later studies from both the UK and Spain that have included practice and primary care nurses.

One of the first UK studies to use the BARRIERS Scale (Dunn et al 1996) used a convenience sample of 316 nurses from three different settings (palliative clinical nurse specialists, elderly care and nurses undertaking a one day critical appraisal programme). Their intention was to identify barriers to the use of research in the UK and to compare those findings with those from the USA. Results indicated that nurses appeared not to be fully prepared for using research, had difficulties co-operating with physicians, inadequate facilities for implementation and lacked the skills to evaluate research and the authority to change practice. Dunn et al 1996, acknowledged that research implementation depends on multidimensional facets, including the organisational context.

Relatively few of the BARRIERS studies have included practice nurses. Griffiths et al (2001) used the BARRIERS Scale to survey all community nurses in three community trusts in Yorkshire and all practice nurses in one Yorkshire health authority. The overall response rate was 51.5% (40.5% of the practice nurses replied). Three main barriers were identified: insufficient time to implement research, inadequate facilities for implementation and a lack of critical appraisal skills, particularly relating to statistics. Some significant differences were found between sub-samples, practice nurses identified that the second greatest barrier associated with research implementation was that “doctors will not co-operate with implementation” (p.508). A more recent Spanish

study (Moreno-Casbas et al 2011) used the BARRIERS Scale to review Spanish nurses' attitudes and barriers to research across three groups: nurse investigators (researchers) hospital clinicians and managers and primary health care nurses (similar, but not identical roles to practice nurses). Results suggested that Spanish nurses' attitudes and barriers are comparable with those reported in other studies, with the most consistently identified barriers relating to lack of confidence or skill and time constraints. Primary health centre nurses rated lack of awareness of research, being unable to evaluate quality, and the literature not being available in one place as the top barriers. Moreno-Casbas et al (2011) found that only the hospital nurses in their study cited lack of physician co-operation as a highly rated barrier. They note that this had been a relatively uncommon finding in previous BARRIERS studies, which raises questions of the impact of the doctor/nurse relationship on implementation found in the practice nurse cohort in Griffiths et al (2001) study.

2.4.3.1 Discussion

Studies conducted in the UK have raised questions about the suitability of Funk et al's (1991b) model for UK use without further development. The robustness of the factors was queried by Dunn et al (1996) and they concluded that the USA model was inappropriate. Confirmatory factor analysis, a statistical method used to test a theory or model was undertaken, with attempts to load each item within the scale onto a single identified factor proving unsuccessful. Based on exploratory and confirmatory factor analysis Closs and Bryar (2001), and Marsh et al (2001) have similarly suggested that the model had limited subscale validity in the UK setting which limits the usefulness of findings from studies conducted outside the USA. Self reporting questionnaires such as the BARRIERS Scale have been criticised for over-reporting and mis-reporting of biases with potential for low response rates and the issue that nurses who are less favourable towards using EBP may be less likely to respond (Thompson et al 2005). Furthermore, a systematic review undertaken by Kajermo et al (2010) noted that the validity of the

BARRIERS Scale is doubtful, there is no evidence that it is a useful tool for planning implementation interventions and that no further descriptive studies using the scale should be undertaken, they recommend that barriers need to be measured specific to the context of implementation and the intended evidence to be implemented. They are not alone in their viewpoint, Moreno-Casbas et al (2011) argue that their findings suggest that nurses across countries and over time experience a consistent set of barriers to research driven practice. However, they add that further descriptive research of this type is of minimal value, with continued use of these tools perhaps proving to be of historical interest to track evolution of attitudes towards research in relation to changes in the profession, but unlikely to determine a way forward for nurse leaders and clinicians. As Carlson and Plonczynski's (2008) integrative review of forty five studies using the BARRIERS Scale concluded, the extent of the perceived barriers to nurses' use of research and the most frequently cited barriers have remained consistent over 15 years but no evidence has been found that identifying these barriers influences nursing practice. Indeed they suggest that identification of barriers has been consistently linked to organisational characteristics and contextual factors such as power, authority and culture. The most common barriers consistently identified are related to 'characteristics of the organisation' with 'inadequate facilities to implement research' identified as a predominant barrier in the UK as opposed to other countries (Carlson and Plonczynski 2008). Carlson and Plonczynski (2008) further argue that the identified barriers may only be a partial representation of the variables proposed by Rogers' (2003) model and perhaps the time has come to develop other variables in the model, such as influencing the conditions required to foster the need for additional knowledge and the need and ability to change. As Estabrooks et al (2004) and McCormack et al (2002) suggest, contextual factors need to be explored further as important factors in successful implementation of research findings.

It remains unclear from reviewing studies using the BARRIERS Scale how nursing needs to move forward to identify the context that allows barriers to proliferate and how to promote an environmental culture that fosters changed behaviour to eliminate these barriers. Additionally as the EBP movement has evolved it has been acknowledged that not only knowledge utilisation, but the way in which knowledge can be transformed by both individuals and communities into a form that may not mirror the original evidence but suits individual patients, is becoming increasingly important.

2.4.4 Sub theme iii) Studies using questionnaires specifically developed to determine attitudes towards knowledge of and factors influencing EBP implementation

A number of other studies have used questionnaires to examine the key issues surrounding research implementation, focusing on Sackett et al's (1996) broader definition of evidence based practice (chapter one, p.9) rather than on the narrower concept of research utilisation adopted in earlier studies. This sub theme considers seven studies in detail, published between 1999 and 2010, that have developed or used self report questionnaires to examine nurses' attitudes towards and/or knowledge of EBP. Each of the studies reviewed here included practice nurses within their cohort, however only two studies (Mills et al 2009, Prior et al 2010) provided data purely in relation to practice nurses, the other studies presenting data relating to community nurses as a whole. Two of the studies (Upton and Upton 2006, Gerrish et al 2007) include community nurses but focus on tool development, they are included as they demonstrate the development of data collection tools in the field.

Upton (1999) argued that although the concept of research based practice was not new and barriers to research implementation had previously been identified, it remained uncertain whether these same barriers impeded EBP and whether recent developments, alongside the general culture change required to produce an EBP ethos had impacted on individual attitudes. A postal survey (developed by Upton and Lewis 1997 for the

Clinical Effectiveness Support Unit, a Welsh Assembly policy initiative aimed at improving EBP in the mid 1990's), was used by Upton (1999) to sample 500 nurses, midwives, health visitors and practice nurses across Wales based on the numbers in each professional group, with practice nurses making up the smallest group.

The tool, the Clinical Effectiveness and Evidence Based Practice Questionnaire was a self report measure of nurses' perceptions of their practice and attitudes and knowledge/skills of EBP, the scale was comprised of 24 items organised into three distinct subscales: practice of individual components of EBP (related to evidence based individual decision-making); attitudes towards EBP; and knowledge of EBP. Three hundred and seventy responses were received, 17 of these from practice nurses (an 85% response rate). A positive attitude towards the concept of EBP was noted with a slight non-significant difference noted between the nurses and midwives in comparison with the health visitors and practice nurses, whose attitude was slightly less positive. The level of knowledge of EBP overall was low, as was knowledge of EBP components, particularly technical skills such as computer searching and literature appraisal. Interestingly, as others have shown in relation to colleagues being the most favoured source of information (Estabrooks 1998, Thompson et al 2004, Gerrish et al 2008), personal or interpersonal skills defined as disseminating ideas about care to colleagues and sharing of ideas and information with colleagues, were rated the highest. Respondents were more likely to change practice based on opinion of colleagues from the same profession. Respondents noted that they sometimes or frequently completed the individual components of EBP (including items such as formulating an appropriate question, searching for evidence, appraising studies, applying information to individual cases, etc.). The most frequently undertaken element was noted as involving patients in their care and the least frequently undertaken element being individual critical appraisal of literature. The questionnaire did not ask about the use of evaluated guidelines, possibility in view of their limited availability at this time. Upton (1999) concluded that

the attitude of the nurses was not a barrier to successful implementation of EBP, but suggested that barriers were more likely related to organisational issues, including lack of time.

A postal questionnaire initially developed for GPs (McColl et al 1998) was used by O'Donnell (2004) to survey the attitudes, awareness and use of evidence across key professional groups working in primary care local health co-operatives (LHCs) in Scotland. The areas covered included attitudes towards and beliefs about EBP; access to and awareness of key sources of evidence; understanding of a range of quantitative and qualitative terms associated with evidence based practice; and experience of evidence based practice training and ways of giving evidence based summaries to primary care professionals. Open as well as closed questions were included. Limitations of the study were noted including the use of a clinically focused questionnaire with a range of professional groups, and differences related to the ways in which health professionals are employed by the co-operative. A key barrier identified by all groups was lack of time. GPs in particular cited application of EBP to primary care as a barrier. Inter professional boundaries were considered a barrier by all groups except the GPs, perhaps suggesting that GPs feel their position of power results in them feeling less constrained by other professions. Suggested facilitators to EBP implementation were protected time and training. Awareness of sources of evidence by the lead nurses was high, particularly in relation to Clinical Evidence and Scottish Intercollegiate Guidelines Network (SIGN), 100% of the nurses stated awareness of SIGN, although as this study was conducted in Scotland it is debateable whether this awareness would be replicable across the UK. The nurses sampled were all either lead nurses or public health practitioners working for the LHCs, so although working within a primary care environment were not as representative of practice nurses as the other studies reviewed within this sub theme.

Taking into account that the main focus for research utilisation studies, especially in relation to nursing, has been secondary care, McKenna et al (2004) noted that there may be some idiosyncratic primary care barriers that need identification and addressing. Due to the perceived lack of fit of the two existing tools for use within primary care and for use with multi professionals- the aforementioned BARRIERS Scale (Funk et al 1991a) and the Evidence Based Medicine in Primary Care questionnaire (McColl et al 1998), McKenna et al (2004) devised a new tool. Information gained from focus groups with primary care professionals, a literature review and measurement tools formed the basis of the information used to develop the new questionnaire. Following a pilot study of GPs and community nurses and the formation of an expert panel, face validity and content validity of the tool were established. The final 26 item questionnaire was sent to GPs and community nurses in Northern Ireland, this included district nurses, health visitors, treatment room nurses and practice nurses, with an overall response rate of 65%.The results did not indicate whether there were any differences between practice nurses and community nurses as a group. As in O'Donnell's (2004) study the GPs identified the limited relevance of research to practice as the most significant barrier to EBP. The community nurses reported that they had less access to the internet than GPs and were less likely to access evidence based information sources. A higher percentage of nurses than GPs however, indicated that their practice was evidence based. The community nurses additionally identified patient compliance and influencing changes within primary care as barriers. Time as a specific barrier was rated lower than in other studies, although McKenna et al (2004) reflected that all the high ranking barriers had a time element incorporated within them. They concluded that GPs and community nurses ranked barriers to EBP differently and therefore may require different strategies to alleviate these barriers, along with extra resources to sustain change in practice and ultimately patient care, an important point to note.

In 2006 Upton and Upton noted that despite the enthusiasm for EBP in nurses and the introduction of centres for EBP, dedicated journals and websites, no means existed to measure either this enthusiasm or how other barriers such as lack of time in the working day and lack of skills prevent greater degrees of EBP. Despite the development of early measures to explore attitudes towards, knowledge of and implementation of EBP, (Upton 1999, O'Donnell 2004), Upton and Upton (2006) observed that the psychometric properties of the measures are rarely mentioned making it difficult to judge their reliability and validity. To fulfil the need to develop a measure of attitudes towards, knowledge of, and implementation of EBP they developed the Evidence based Practice Questionnaire (EBPQ). Multi stage cluster sampling was used to recruit hospital and community nurses across Wales to test the tool using two surveys, each with a sample of 500 nurses, with an overall response rate of 75.1%. The final EBPQ had 24 items organised into three sub scales, practice of EBP; attitude towards EBP and knowledge/skills associated with EBP. It was shown to be user friendly, quick and easy to complete, with good internal reliability and construct validity established. Upton and Upton (2006) concluded that the EBPQ was a valid and reliable self report measure which considers three aspects of EBP: day to-day application, individual attitudes and relevant skills, and argue that attitudes are part of organisational culture and play a key role in determining the success of workplace innovations. They emphasised that if EBP is to have any impact it must take account of the level of skills and the local organisation and be implemented through a bottom up strategy. The aim of the study was to validate the EBPQ for measuring the implementation of EBP at grass roots level so little data were provided in relation to nurses' attitude and skills and no separate data was provided related to practice nurses, however the EBPQ was subsequently used by Prior et al (2010) as follows, hence its inclusion.

A quantitative descriptive survey of 110 practice nurses in New Zealand with a 50% response rate (N=55) was conducted by Prior et al (2010). The study was based on the

premise that studies conducted in New Zealand within primary healthcare settings have concentrated on GPs and that very little is known about practice nurses' attitudes towards EBP. The survey tool used was based on the EBPQ (Upton and Upton 2006) with demographic data used to determine the effect of education on practice, knowledge and attitudes associated with EBP. Findings from the study demonstrated that knowledge and skills relevant to the implementation of EBP, nurses' attitudes toward EBP and the educational preparation of the nurses were important factors influencing the practice of individual components of EBP (defined as the frequency of posing a practice related question, tracking down and appraising the relevant evidence and integrating it into practice). Significant relationships were identified between completion of post registration education, the knowledge and skills relevant to the implementation of EBP and the practice of individual components of EBP. Their findings suggested that education positively influences practice nurses' understanding of EBP as well as the skills required to critically appraise and/or undertake research, and translate findings into practice.

Drawing on the limitations of previous bodies of work, including the BARRIERS Scale, Gerrish et al (2007) identified the need for a questionnaire which would examine factors influencing EBP, where other forms of evidence are considered in addition to research evidence- the Developing Evidence based Practice (DEBP) questionnaire. This was extended to include not only Sackett et al's (1996) inclusion of research evidence, clinical expertise and patient preferences but also research products such as national guidelines and local information such as protocols and audit reports, hence the importance of including it in this review. Two surveys were undertaken in England to develop and validate the tool, one involving hospital nurses and the other involving nurses working in the community. The community study used eight additional items, based on testing content validity of the instrument used with the hospital nurses with the community nurses. These modifications increased the list of sources of evidence,

barriers and facilitators to employing evidence in practice, and personal skills. Sixteen hundred community health nurses were sampled in the second study, including equal numbers of health visitors, district nurses, community nurses, practice nurses and school nurses, the response rate of the practice nurses was 37% compared to the overall response rate of 47%.

The questionnaire used for the community study consisted of five main parts with forty nine items, derived from different sources, all items scored on a five point scale. The first part of the questionnaire consisted of twenty two items, sixteen of which were anglicised items based on a scale developed by Estabrooks (1998) about sources of knowledge. The second, third and fourth parts examined barriers to achieving EBP. Developed originally from the Funk et al (1991a) BARRIERS Scale, these were adapted following feedback from the first study involving the hospital nurses. New items took account of a broader understanding of evidence through inclusion of questions related to organisational information (care pathways, clinical protocols and guidelines), an emphasis placed on changing practice based on evidence and encouraging respondents to give a personal rather than a generic response by using 'I' or 'my' rather than 'the nurse'. A fifth section was devised consisting of eight items related to the nurses' skills of finding and reviewing evidence and using evidence to effect change. The study concluded that the DEBP questionnaire is a valid and reliable measure for use with nurses working in hospital and community settings in England, which could be used as an outcome measure in intervention studies assessing the impact of service development, training or other innovations on the extent of evidence based practice. Although this study demonstrates how the field was developing in relation to determining the wider factors influencing EBP data were not specifically provided relating to how these factors influenced practice nurses, the aim of the reported study being to develop and validate the DEBP.

A further study using Gerrish et al's (2007) DEBP questionnaire was conducted by Mills et al (2009) to ascertain the place of knowledge and evidence in the context of Australian general practice nursing. Mills et al (2009) noted that prior to this study no research had identified the place of knowledge and evidence for practice in the context of this group. General practice nurses in Australia carry out similar roles to those in the UK, with the Australian government investing heavily in professional development programmes and development of practice nurse competency standards that focus on the use of evidence to develop and maintain currency of practice knowledge. The questionnaire was sent to 1800 general practice nurses in Victoria, 590 completed questionnaires were returned, a response rate of 33%, exceeding the required sample size for a 95% confidence level, with a 5% margin of error. The primary barrier to changing practice was insufficient time at work, with limited agreement that resources, level and authority and team culture were barriers to changing practice. The primary barrier to finding research reports was also limited time. A significant but weak association was seen between older age nurses (who had significantly less university qualifications, but more years of experience as practice nurses), and difficulty in understanding research reports; not feeling confident about the quality of research reports and finding difficulty in identifying the implications of research findings for their own practice. The most frequently accessed source of practice knowledge was attendance at in-service training and conferences, with clients and their families being key suppliers of knowledge, as were colleagues. Formal research was rarely used, although half the nurses accessed national or local policy documents. Older nurses were more likely to access nursing and medical journals, with younger nurses significantly more likely to use the internet and less qualified nurses more likely to use personal experience. Self-assessment of levels of competence or expertise in finding and reviewing evidence were low. Limitations of the study included the potential for bias in that respondents may have had an interest in translating contemporary evidence or in developing skills. The findings were congruent with other studies with nurses'

conceptualisations of evidence being much broader than research findings and informal interactions with patients and colleagues accounting for the majority of the first seven ranked sources of knowledge.

2.4.4.1 Discussion

A number of issues became evident as a result of reviewing the above studies that were important to consider for my own study. McKenna et al (2004) noted that GPs believed the significant barriers to using EBP were: limited relevance of research to practice, keeping up to date with changes in primary care and ability to search for information, whereas the community nurses identified significant barriers as poor computer facilities, poor patient compliance and difficulties in influencing change. Practice nurses were included in the wider sample of community nurses and were a relatively small group, so it is difficult to determine whether their needs would be more closely allied to community nurses or GPs given their working environment and this would be an area to investigate further. Education was an area of interest for my own study. Two studies, (Mills et al 2009, Prior et al 2010) found that post registration education had a significantly positive impact on nurses' attitudes and ability to use EBP.

The more recent studies in this sub theme; O'Donnell (2004), Mills et al (2009) and Gerrish et al (2007) broadened their definition of evidence to include evaluated guidelines, with Gerrish et al (2007) and Mills et al (2009) including protocols, guidelines and audit reports, reflecting a move away from the assumption that nurses would, or should interpret the significance of research findings in published papers for their practice. O'Donnell's (2004) findings suggested that few health care professionals have the time or inclination to appraise research evidence and as a majority favoured the use of evidence based summaries, guidelines or protocols to guide practice within primary care. Perception of EBP was a key element in implementation throughout all the

studies, as with the studies using the BARRIERS Scale the emphasis of the studies' findings was that organisational culture plays a crucial role.

2.4.5 Sub theme iv) The development and implementation of the PARIHS framework

The sub themes discussed so far have moved from an initial focus on individual determinants to focusing on wider organisational influences, the central thread through this being the use of self report questionnaires to determine nurses' attitudes, skills and practice of EBP. Running in parallel to this empirical work was a focus upon the importance of contextual factors which took into account wider organisational influences, along with the use of facilitation, to support the implementation of evidence, rather than simply individual factors. The final sub theme considered in this section relates to the role of context and facilitation, focusing on the multi-dimensional Promoting Action on Research Implementation in Health Services conceptual framework. This framework was initially presented by Kitson[3] et al (1998) as an unnamed framework, and then modified by Rycroft-Malone et al in 2002 with a further clarification by Kitson et al in 2008b. The initial development and subsequent modifications and adaption of the PARIHS framework are discussed, followed by two systematic reviews. The first of these (Meijers et al 2006) mapped studies reporting a relationship between contextual factors and research utilisation to the elements of the PARIHS framework. The second review (Helfrich et al 2010) undertook a critical synthesis of core articles from PARIHS authors and empirical studies that used PARIHS as an analytical framework.

Initial development

Kitson et al (1998) argued that successful implementation of research into practice is a function of the interplay of three core elements: the level and nature of the evidence; the context or environment into which the research is to be placed; and the method or way in which the process of implementing the evidence is to be facilitated. This represented

[3] Kitson is one of the top 25 cited authors in the knowledge utilisation field in nursing from 1995-2004, only a few of whom are from outside the United States and is noted as a scholar central to the field (Scott et al 2010).

a major shift in the literature at that time away from the focus on individuals. Definitions and scales ranging from low to high were provided for the three core elements that constituted the framework (evidence, context, facilitation), each element consisting of three further sub elements. Evidence was considered as being derived from research, clinical experience and patient preferences, anecdotal evidence for example was considered low on the hierarchy of evidence as opposed to systematic reviews which were rated high research evidence. The elements of context were defined as culture, leadership, and measurement in the environment where the change was to be implemented. Facilitation was defined as the type of support required to help people change, with the three sub elements listed as the characteristics, role and style of the facilitator.

A conceptual framework was proposed by Kitson et al (1998) that challenged the prevailing assumption that the level and rigour of the evidence was the most important factor when considering research implementation. The proposed framework gave equal standing to all three elements, with the intention that it would clarify some of the theoretical debates surrounding the application of knowledge to practice and additionally act as a checklist for staff to successfully implement research findings. To test the framework, four studies were analysed, all of which had used research evidence that proved the effectiveness of certain interventions and had taken into account clinical experience and patient preferences in the overall assessment of the strength of the evidence. These 'test cases' included implementation of a cardiac rehabilitation programme; an evaluation of quality of care in a rehabilitation ward for older people; development and implementation of standards on postoperative pain management through local facilitation of ward based teams; and a pilot study evaluating the effectiveness of three nursing home teams in adapting and implementing national standards on nutrition.

Specific points raised by the case studies included the finding that that poor context may be influenced by appropriate facilitation; although this could take time. Unsurprisingly where contextual conditions were unsupportive and facilitation weak, evidence was unlikely to be implemented. This applied even where the evidence base was strong, for example derived from evidence based guidelines. The development of the framework not only put the issue of context on the map but suggested that facilitation may be a key variable. Kitson et al (1998) acknowledged that a potential weakness was the assumption that the dimensions were causally and linearly related and that the framework had limited construct and face validity, however this work began to stimulate debate in an important but complex area. Context began to be seen as an important consideration and questions were raised about what a receptive context and positive facilitation looked like in practice.

Refinement and adaptation of the framework

In order to provide some theoretical rigour and conceptual clarity to the constituent elements (evidence, context and facilitation) of the original framework Rycroft-Malone et al (2002) conducted a concept analysis of each of the three dimensions, resulting in a refinement. The essential elements remained the same but changes and additions were made to the constituent sub elements as a result of critical thinking around their constitution and how they related to EBP. Evidence was expanded to consider all well conceived, designed and conducted research, acknowledging that different types of research are needed to answer different clinical questions. Patient narratives and experience were included as a valid source of evidence. Key characteristics of environment conducive to research utilisation were identified and reconsideration given to the sub element of context labelled as ‘measurement’. Previously this consisted of ‘hard’ outcome measures such as audit and feedback, and peer review. This was now refined to include broader evaluative techniques such as monitoring and feedback and renamed ‘evaluation’. Facilitation was reconceptualised, with the concept analysis

suggesting that the facilitator has a key role to play but the interaction between facilitation, context and evidence was still not fully understood. Rycroft-Malone et al (2002) proposed that whilst successful implementation was more likely to occur when evidence and context were located towards the high end of the scale and appropriate facilitation had been instigated, more needs to be understood about the relationship between the three elements and implementation of EBP. A key message arising from the analysis was that getting evidence into practice is not realistically represented through models that consider implementation as linear and logical. Rycroft-Malone et al (2002) suggested that given the feedback they had received from practitioners regarding the use of the framework, the potential existed to develop it into a toolkit including a practical self-assessment tool based on the elements within the framework that could be completed in order to determine the type of work required to facilitate implementation. A further evaluation by Kitson et al (2008b) of the theoretical and practical challenges of using the PARIHS framework noted that the framework's contribution to implementation science remained largely untested. They proposed that PARIHS was best used in a two step process: as a preliminary framework to measure the elements and sub elements of evidence and context and to use this data to determine the most appropriate facilitation method. They also acknowledged that there are a number of challenges if the framework is to be of use in the exploration of the complexities surrounding implementation and knowledge translation.

Systematic reviews of studies using PARIHS

A systematic review of the literature on studies reporting a relationship between contextual factors and research utilisation by nurses in clinical practice, mapping these to the PARIHS framework was undertaken by Meijers et al (2006). Ten studies which met the inclusion criteria and were of acceptable methodological quality were included, all of which were designed as cross sectional surveys, with one using a quasi-experimental design. All studies showed some limitations in design, method or statistical

analysis. As with the studies reviewing individual barriers (Estabrooks et al 2003), most of the studies exploring contextual factors were based on self reports from participants, only three used a guiding theoretical framework. Using the PARIHS framework as a mapping tool the findings from the ten included studies were categorised into six contextual factors and then mapped to three sub elements of context: organisational context, culture, and leadership. No factors were found that mapped to 'evaluation' the fourth sub element of context that replaced 'measurement' (see Rycroft-Malone et al 2002). Meijers et al (2006) noted that measuring the concept of context is challenging due to the multi-faceted, complex and varied environments in which nurses work. The six contextual factors identified as having a statistically significant but inconsistent relationship with research utilisation were; education, support, time, access, climate and role. The reviewers recommended that future studies should include observational and interventional methods with less reliance on self report. Time, which was reported as a conceptual factor in one study only, was conceptualised as time on duty and time off duty to read research reports. This is clearly quite different from considering the time limitations to access evidence within a clinical encounter and emphasises the need for clear definitions of factors influencing implementation.

A qualitative critical synthesis of literature on PARIHS was conducted by Helfrich et al (2010) to understand how the framework had been used and to determine its strengths and limitations. Twenty four articles were reviewed. These included, six core concept articles from original PARIHS authors and eighteen empirical articles, ranging from case reports to quantitative studies, that had used PARIHS as an organising framework for analyses- for example examining predictors of nurses research utilisation, or reporting findings. Identified strengths of the framework included firstly, the explicit method described by the developers for using PARIHS to guide diagnostic analysis of evidence and context prior to planning facilitation strategies to accomplish implementation, although it was noted that none of the empirical studies reviewed had done this to date.

Secondly the framework's flexibility and applicability to a range of settings including acknowledgement of what constitutes 'evidence' and the recognition that implementation is complex, multi-faceted, dynamic and often unpredictable. Helfrich et al (2010) recommended a need for greater conceptual clarity around the definitions of sub elements and the nature of dynamic relationships among elements and sub elements, for example in relation to facilitation and the numerous elements this incorporates. An important issue raised was that despite the acknowledgement within the framework of both the dynamic relationship between elements and sub-elements and the often unpredictable nature of implementation, PARIHS would be strengthened by examples of generalisable contextual interactions. An example provided is strong leadership, which is not always identified as a necessary condition for implementation, but may be essential for EBP that involves co-ordination across services, or strong professional endorsement. Successful implementation was considered both a strength and an issue in that, unlike many implementation models, the framework stipulates implementation as an outcome, but provides little information about how it is defined or measured. The empirical studies using the framework subsequently adopted a broad range of outcomes to measure implementation. Helfrich et al (2010) recommend that to move the framework forward, empirical studies should use it as the developers intended, to assess evidence and context prior to implementation, using these findings to prospectively design or comprehensively evaluate implementation activities. Helfrich et al (2010) noted that their findings mirror Kajermo et al's (2010) review of studies using the BARRIERS Scale and that only prospective studies will move the science forward.

2.4.5.1 Discussion

The development and subsequent modifications of the PARIHS framework represented an important change in the focus of the literature. Acknowledged within this work was the shift in thinking away from the view that evidence implementation is straight forward

and linear and the recognition that it is in fact a complex process that requires a whole system change and involves both individuals and organisations (Kitson et al 2008b). The more recent debates about PARIHS link with the current focus on knowledge translation, which I review in further detail later, and the continuing debate about the number of theories drawn from a wide range of areas outside healthcare that can be used to understand or support implementation (Kitson et al 2008b). As with studies using the BARRIERS Scale and the subsequent studies using tools designed to investigate EBP in nursing, the review of the PARIHS literature emphasised that central to any enquiry around implementation is exploration of the influence of organisational factors and the contextual environment. Additionally any identified influencing factors, such as time, require clear definition if they are to inform subsequent implementation work.

2.5 Theme 2: Clinical Judgement and Decision-making

2.5.1 Introduction

This theme reviews work that focuses on the links between clinical decision-making and knowledge utilisation. This body of work takes a different theoretical stance, moving away from earlier bodies of work such as the BARRIERS Scale, which were based on Rogers diffusion model (Rogers 1993), towards work based on decision-making theory (Hamm 1988). The predominant theoretical approaches to nurse decision-making until the late 1990's had occupied two polar positions at either end of a continuum: the systematic-positive approach, dominated by information processing theory derived from cognitive psychology (Hammond et al 1975) and the intuitive-humanistic approach of Benner (1984), who made use of the emerging work of the Dreyfus brothers (Dreyfus and Dreyfus 1986), to develop her five stage model of how nurses develop from novice to expert through acquisition of skills and experience (Thompson 1999). Hallett et al (2000) maintained that the theorists on clinical decision-making could be divided into two main groups, those who viewed decision-making as a linear process and those who

see it as intuitive. Thompson et al (2000) argued that evidence on the use of research in nursing had been characterised by small underpowered studies, divorced from the decision-making context of clinical practice, and that despite attempts to foster research based cultures and the developments of frameworks such as Kitson et al's (1998), progress had been slow. Additionally highlighted was the lack of theoretical clarity associated with studies on research utilisation which limited its value in terms of exactly what was examined (Thompson et al 2000).Thompson et al (2000) suggested that there was a need for robust research in this field in relation to the usefulness of research information available for clinical decision-making, how nurses access this information, barriers to its use and how it can contribute to the quality of their clinical decisions. A number of interchangeable terms are used to describe studies in this field including clinical judgement, clinical inference, clinical reasoning and diagnostic reasoning, overall representing a field describing the operational face of nursing knowledge (Thompson et al 2000). Thompson and Stapley (2011) define the concepts of judgement and decision-making as separate but linked, judgement representing individual evaluation of the knowledge available and decision-making signifying a choice between alternatives resulting in either action (e.g. implementation) or inaction (e.g. watchful waiting).

Thompson (1999) led the nursing field in this approach, arguing that although both systematic-positive and intuitive-humanistic approaches had something to offer, neither offered a solely convincing basis for explaining nursing decision-making, both failing to offer a unitary theory which reconciled the worlds of theory and clinical reality. He argued that a more appropriate stance may be to consider a different framework for researching nurses' decision-making, the 'cognitive continuum'. This theoretical framework introduced by Hamm (1988), in relation to medical decision-making moved away from the dichotomy between 'intuitive art' and 'analytical science' towards a continuum where decision-making varies with task structure and context, with the

thinking adopted by the clinician responding accordingly. Hamm's (1998) work was derived from two theories of intuitive and analytical cognition, the Cognitive Continuum Theory, developed by Kenneth Hammond (1988), which was designed for empirical testing and the Theory of Expert Cognition developed by Hubert and Stuart Dreyfuss (1986), which based on the underlying philosophy of its authors, was not designed for empirical testing. Hammond's work drew on the systems approach to cognition, and, based on an empirical study of engineers, sought to define the specific features of intuitive and analytical thought. Intuition had previously been defined as "the absence of analysis" (p.81), Hammond instead defined intuitive thought as involving rapid, unconscious data processing, combining available information by averaging it, having low consistency and being moderately accurate. Previous arguments had claimed that experts in their clinical judgement make 'configural' use of information; Hammond argued that intuition involved combination of clues by the simplest psychological process- averaging. Analytic thought he described as slow, conscious and consistent; usually quite accurate and likely to combine information using organising principles more complicated than simple averaging. Hamm (1988) points out that there are two central ideas pertinent to Hammond's theory, the features of the task and selection of an appropriate mode of cognition. Hamm's theory, however, additionally encompasses the impact of three key variables, power; social structure and individual knowledge and takes into account the effects of social and constitutional settings. Thompson (1999) suggests that using Hamm's theory as a framework for studies on nursing decision-making allows nursing to be viewed as a form of social action, asking questions about the impact of culture, values, interests and power.

2.5.2 Clinical judgement and decision-making

Five studies are included in this theme, of which three included practice nurses (Luker et al 1998, Thompson et al 2005, McCaughan et al 2005). Two further studies of community nurses reviewed roles (nurse prescribing and wound care) undertaken by

practice nurses as well as community nurses (Luker and Kenrick 1992, Hallett et al 2000) and were considered pertinent for this review.

An exploratory study of the sources of influence on clinical decisions made by 47 community nurses working in four district health authorities was carried out by Luker and Kenrick (1992) in one of the first studies to evaluate decision-making in the context of nurse prescribing, an area previously historically dominated by medicine. Community nursing was considered 'under researched' at the time of this study, with the nurses subsequently not recognising the relevance of research to their role. Using participant observation of clinics and home visits, semi structured interviews, scrutiny of nursing records and group discussions the study aimed to identify what community nurses considered to be the scope of their practice and the sources of influence which informed their clinical decisions. Findings suggested that the distinction between scientific and experiential knowledge is an artificial one. Twenty eight percent of the nurses' work was identified as 'clinical technical' practices, however the data suggested that research did not overtly affect nursing practice. Luker and Kenrick (1992) reason that it is conceivable that when science diffuses into nursing (taking the controversial viewpoint that nursing is not scientific in the first place) it is reclassified and becomes 'owned' by nurses, knowledge described by the nurses as practical knowledge could therefore include reclassified scientific knowledge. The study raised some important questions concerning the nature of nursing knowledge, including the perpetuation of the divide between nursing practice and nursing research, since by definition practice incorporates some research based knowledge which becomes taken for granted over time. Luker and Kenrick (1992) purported that nurses' clinical decisions were informed by three main sources of knowledge: knowledge based on research and tested theories; knowledge based on practice and nursing experience; and knowledge which is common sense and current in everyday life. The most influential was knowledge based on practice.

A further study undertaken by Luker et al (1998) evaluating community nurse prescribing included 49 district nurses, practice nurses and health visitors working across eight demonstration sites in England where prescribing from a limited formulary had just begun for community nurses. Using multiple methods data were obtained four times following the implementation of nurse prescribing over a one year period. Luker at al discuss how nursing and medical literature falls into two models of decision-making, the scientific or rational model involving a logical analysis and the intuitive model (referring to Benner (1984)) where knowledge is based on past experience, rather than on objective knowledge sources. They refer to the model outlined by Hamm (1988), theorising that rather than analytical and intuitive thinking being two separate strategies, all decision-making comprises elements of analysis and intuition, the degree of each used in the decision-making process being dependent on the time and information available. Other potential influences on nurses' decision-making were discussed; which included the experience and attitude of the individual nurse, the patient, and importantly the relationship the nurse has with other colleagues. Luker et al (1998) underline that although they did not specifically set out to investigate the decision-making processes of prescribing nurses, the data allowed certain areas to be identified which either caused anxiety or where a decision about what to prescribe proved to be more difficult. This was where an element of uncertainty about the diagnosis existed. Experience was also found to be strongly influential, with nurses feeling more competent to prescribe in situations where they had more experience (e.g. district nurses and dressings, or health visitors and paracetamol for post immunisation) or extensive knowledge of the patient. Although nurses expressed a desire to 'keep up to date' with research they felt more competent where they had experiential knowledge or knowledge of the patient.

Nurses' clinical decision-making in the context of wound care in the community setting was examined by Hallett et al (2000). They collected data from 62 community nurses (including some unqualified staff) through semi-structured interviews, noting that no

previous studies had been undertaken on this topic. They interpreted the data in the light of a literature review in which a distinction had been made between theories which represented clinical decision-making as a linear or staged process and those which represented it as intuitive. Hallett et al 2000 concluded that the decision-making style examined in their study bore a close resemblance to intuition, with nurses presenting their clinical decisions not as linear or staged processes but as specific individual choices based on a variety of rationales. These included 'pieces' of information which could be seen as 'clinical' or 'biomedical' that they suggested appeared closely allied to medical knowledge. Other pieces of information were more safely located in nursing knowledge which could take any number of different forms including 'research based' or a practice decision based on individual patient need. Clinical decision-making appeared to be rapid and effortless, based on a sound rational knowledge base and applied to situations familiar though experience. This finding however was based on interview alone. Close links were noted with the work on diagnostic reasoning, with the nurses basing their decisions on the basis of a clear diagnosis, the concept of disease classification appearing to be fundamental in wound care. However it must be noted that this study looked at one particular area, wound care in the community, an area where much time and research has been spent to ensure that practice is firmly based on clear evidence of effectiveness. Indeed Thompson et al (2004) confirm this, citing the example of community nurses' management of chronic leg ulcers as an area where nurses are more likely to engage in rational decision-making. In addition the nurses were not asked specifically about the process of decision-making or other options they might have chosen, which is noted as a limitation. What emerged was that in the field of wound care the disparate theories of intuition and diagnostic reasoning appeared to be relatively compatible. Hallet et al (2000) recommended that future work in this field should enable participants to reflect more directly on the decision-making process.

Using a combined case study approach (used in an earlier study of nurses working in acute hospitals (Thompson et al 2000), Thompson et al (2005) report on a 2001 study of nurses working in three primary care trusts in England that examined barriers to nurses' research information use, in the context of clinical decision-making. Rather than rely on self-reported data alone, a triangulation approach was employed with data collected through interviews, non-participant observation and Q-methodology, a research method developed to study peoples' viewpoint. The study included interviews with 82 primary care nurses and 270 hours of non-participant observation. Three perspectives on barriers to research information use emerged: the need to bridge the skills and knowledge gap for successful knowledge transfer; that information formats need to maximize the limited opportunities for consumption; and limited access in the context of limited time for decision-making and information consumption. A key finding of the study was that nurses working in the same environment experience barriers differently and that any strategies aimed at improving clinical decision-making need to incorporate knowledge of the type of decisions nurses face. Additionally the results appeared to concur with their original supposition, that there is a gap between reported and observed behaviour. They suggested that researchers should query whether self reported behaviour alone is an adequate means of describing information use in the context of clinical decision-making.

The same study (Thompson et al 2005), was further reported on by McCaughan et al (2005) who drew only on the data relating specifically to nurse practitioners' and practice nurses' use of research information in clinical decision-making. The sample included 29 practice nurses and 4 nurse practitioners (with appropriate degree or Masters level qualifications) and yet the pattern of decision-making and information seeking behaviour was the same in both groups. The decisions made by the nurses in this study tended to be concerned with undifferentiated diagnosis and treatment, particularly relating to acute conditions and chronic disease management, as opposed

to the decision taxonomy reported in the study involving nurses working in the acute sector (Thompson et al 2000). Mc Caughan et al (2005) note that there is some question over whether nurses receive adequate preparation for the autonomous decision-making associated with diagnostic uncertainty and complexity and that these decisions can provoke anxiety. Unlike doctors who through their training learn to tolerate uncertainty when making treatment decisions (Fox 1979) this is a new concept for nurses. Both the nurse practitioners and practice nurses saw patients with similar symptoms, despite the difference in both title and educational preparation for the role (Mc Caughan et al 2005). The types of decisions made by the nurses were captured in a seven fold typology; assessment, diagnosis, intervention, referral, communication, service delivery and organisation and information seeking. Personal experience (to the extent of being dismissive of research evidence), along with human sources of information such as advice from colleagues (particularly GPs, but also nurse colleagues seen as 'experts,' other clinical experts seen as accessible and in some instances commercial representatives and sponsored 'nurse advisors') was considered as the most accessible form of information. This finding was similar to other research on doctors' use of information in clinical decision-making. Although McCaughan et al (2005) mention that it is feasible that some of the information received from colleagues could have been derived from research they note that this was not the impression gained. Textual and electronic information were accessed in only 25% of consultations and on all occasions was related to drug related enquiries, the main source of information being the text based British National Formulary (BNF). This outcome was similar to Thompson et al's (2000) study of nurses in the acute setting where the only text source referred to frequently was also the BNF. The nurses were generally unaware of online resources provided through the practice or gave reasons for not using them. Levels of awareness of electronic databases were low and internet use was limited at work, apart from some nurses who used it to obtain patient information leaflets. The conclusion of the study was that practice nurses do not appear to be engaging with the

latest advances in information technology offered by the NHS Information Technology (IT) strategy and a national strategy regarding training in IT and critical appraisal skills is required to develop this group of nurses to their full potential.

2.5.3 Discussion

This empirical work on clinical decision-making highlighted some important areas for further examination. The main influences on nurses' decision-making appeared to be experiential and human sources, although it is important to recognise that a number of the studies reviewed took place prior to the current surfeit of evaluated guidelines and may reflect the difficulties nurses had at the time with both accessing and appraising appropriate research for their practice. Although studies are included here relating to wound care and nurse prescribing, both areas relevant to practice nursing, caution needs to be taken in applying results relating to community nurses to practice nurses who are subject to different barriers and facilitators. The studies as a whole appeared to take little account of wider organisational and cultural influences, which have been emphasised previously as prominent influences. Time however, again emerged as an important factor which requires clear definition, along with determining whether later initiatives to provide easily accessible summaries of information have had an impact on knowledge utilisation.

2.6 Theme 3: Practice nurses' attitude towards guidelines

2.6.1 Introduction

As I have discussed in chapter one, whilst guidelines were initially seen by sections of established professions such as medicine as a threat to clinical autonomy, for others they were more attractive and seen as a mechanism for advancing professional status. Three empirical studies are reviewed below which specifically address practice nurses' attitude to guidelines. These studies published between 2002 and 2012 reflect a further historical change, the increasing influence of evidence based guidelines.

2.6.2 Practice nurses' attitude towards guidelines

Work undertaken by Harrison et al (2002) suggested that not only are practice nurses supportive of clinical guidelines, but that they can also influence GP compliance. In a large empirical study of clinical practice guideline uptake in the primary care setting, practice nurses in a sub sample of 29 practices were interviewed on three occasions over a three-year period to determine their attitude to the implementation of clinical practice guidelines relating to asthma and stable angina. The specific focus was to consider the impact of changing clinical context on the 'negotiated order' between practice nurses and GPs. Data were collected about organisational culture, perceptions of the impact of Primary Care Groups, NICE, clinical guideline awareness and adherence. Results indicated that the practice nurses were generally welcomed guidelines, and used them in a way that enhanced their autonomy. They also felt that they offered them the foundation on which to develop a specialised expertise which had several advantages; in training others, becoming the basis for clinical teamwork and also to challenge GPs clinical decisions. Guidelines were seen as a way of negotiating changes in the care provided by GPs, with the nurses gaining strength from both the scientific basis of the guidelines and the 'implied criticism' of the GPs practice which made the guidelines necessary. The nurses were keen to emphasise that they did not adhere blindly to the guidelines. Whilst less likely than the GPs to argue against the scientific basis of the guidelines they were however prepared to argue about their application in all situations and the importance of taking into account "the vagaries of human nature". The conclusion of the study was that the NHS's policy drive towards guideline-based clinical care has provided practice nurses with increased legitimacy in their relationship to both patients and employers and has placed them in a power sharing position.

The theory of planned behaviour (TPB) was utilised by Puffer and Rashidian (2004) to examine variations in practice nurses' intentions to offer smoking cessation advice in

accordance with CHD guidelines. Eighty eight members of a practice nurse group in the North of England were sent a self report questionnaire developed and piloted with a small group of practice nurses. The response rate was 54.5% (n=48), all were female and working in practices that varied considerably in size, with regard to both patient population, practice nurses and GPs. The majority of respondents had a particular interest in CHD and ran a CHD clinic, limiting the generalisabilty of the results to all guidelines. The sample size was also limited to accurately explore the TPB. Nevertheless some findings could be drawn from the study that provided some further information regarding practice nurses attitude towards guidelines. These included that attitude and perceived behaviour controls are important cognitive factors that influence practice nurses intentions to use guidelines. Practice nurses were determined to adhere to the guidelines if they felt they could control whether they followed them or not, had a positive evaluation of the guidelines, and were confident in their own ability to follow them. Lack of time for implementation and insufficient training were suggested as significant barriers.

The use of a guideline aimed at reducing cardiovascular risk in everyday primary health care practice in New Zealand was explored by McKillop et al (2012) using a qualitative descriptive approach. The guideline was chosen as it was a topic that practitioners would be familiar with and was a high priority for implementation as it addressed a major health problem. Twenty practice nurses and four doctors were included in the sample of thirty two participants; data were generated through the use of focus groups. Participants expressed that the difficulties of evidence implementation can be attributed to variation in primary health care practice environments and that solution finding needs to be context specific and achieved through collaborative teamwork. Implementation of the guideline resulted in changes in clinical practice; these changes were seen as more positive for the nurses than for the doctors. The nurses felt they were able to take on a more satisfying role in direct patient care whereas the doctors felt overwhelmed with

treating patients with illness and although they could see the health promotion benefits of screening healthy patients, felt at a loss as to how they could implement this.

Similar to Harrison et al's (2002) study the nurses stated that these changes had resulted in them taking a more active role in patient consultations and that they now worked much better with the GPs as a team, which subsequently had a positive impact on patients. Collaborative relationships were central to the four overarching themes generated from the data portraying the realities of guideline implementation for primary care nurses: self-managing patient, everyday nursing practice and developing new relationships in the health team, and impact on health care delivery; not just between health care practitioners but between clinician and patient to support self management. The nurses noted the importance of building professional knowledge through insights gained from guideline recommendations into their usual care. Data suggested that interdisciplinary collaboration enhanced patient-clinician collaboration. Frustration was noted regarding gaining the resources required for the communication, integration and co-ordination of care to support guideline implementation. Nurses were committed to improving practice but were subject to environmental constraints such as a failure to address health inequity at governmental level and a lack of funding. A key finding from this study was the role of the patient as a principal implementer of evidence, a factor McKillop et al (2012) note is scarcely recognised in the guideline implementation literature. Health professions valued the guideline and were willing to implement it but, as has been identified by Rycroft-Malone (2008), required skilled facilitation to support them in how to implement the recommendations.

2.6.3 Discussion

Despite the limited studies reviewed in this theme, they support nurse enthusiasm for evaluated sources of information that can be used to support their practice and change their relationship with GPs. What emerged was further evidence illustrating the impact of the

variation in primary health care practice on implementation, Mc Killop et al (2012) emphasising that this can only be resolved through context specific solution found through collaborative teamwork. The importance of understanding the organisational context in which knowledge utilisation takes place was once again highlighted, with the further message of taking into consideration the impact of patients on implementation, a factor surprisingly ignored in much of the previous literature and supported by Crilly et al (2009) who argues that patient experience should be at the heart of the EBP debate.

2.7 Knowledge translation

The final section in this review moves on from a focus purely on the nursing literature to a more general discussion of the emerging field of literature related to the newer terms of knowledge translation, knowledge translation and exchange (KTE), and knowledge-to-action (KTA), which takes into account the increasing influence of other disciplines on the knowledge management agenda. As Crilly et al (2009) propose in their scoping review of research utilisation and knowledge mobilisation literature, drawing on other disciplines can enhance the field of knowledge investigation:

> The multi-disciplinary discourses concerning knowledge, evidence and research will never converge. Academics will need to read-up and become acquainted with unfamiliar disciplines, equivalent to learning new languages (p.189).

A great deal of research exists that suggest a significant gap between available research and what actually occurs in clinical practice, and this 'gap' has long been focused on by both the EBM and EBP movement. Within the last ten years researchers have increasingly recognised that despite the efforts of the EBP movement to reduce the gap between research and practice, robust evidence alone is not enough to facilitate knowledge mobilisation within an organisation, resulting in a weak relationship between the strength of the evidence base and clinical behaviour change (Dopson et al 2002, Rycroft-Malone et al 2002). As Gabbay and le May (2011) note, not only does this gap still exist despite massive efforts by the establishment, but there is a glaring disparity between policy makers'

approaches to promoting EBP and what social scientists, psychologists and philosophers have long told us about the nature of knowledge and its use in the real world.

Dopson et al's (2002) review 'No Magic Targets! Changing Clinical Practice to Become More Evidence Based' aggregated analyses of seven studies that all used similar case study based approaches and looked at similar questions relating to diffusion of innovations. A message emerging from one of the themes entitled - Professional networks shape behaviour is that medical behaviour in particular is shaped equally by experience and peer comparison as by scientific evidence from high quality research. They emphasise that within primary care particularly, national evidence required substantial adaptation before use at local level with different patient populations. Everett Rogers (2003) agrees and notes that one explanation given for the phenomenal success in the uptake of breast and colon cancer guidelines in a study by Couquand et al (1997) was that doctors in the centre participated in writing the guidelines so they fitted their situation and increased legitimacy of the knowledge source. Tied in with this shaping of medical behaviour, however, was that physicians as a group retain a high degree of autonomy and authority over work practices, which means that other professionals are more likely to accept medical opinion unchallenged which will then be translated into organisational clinical policy (Rogers 2003). How would this affect the practice nurses who not only work with, but are in the unique position as nurses of being employed by general practitioners? Another of Dopson et al's (2002) themes, which had particular resonance to my study was that *Evidence is differentially available for different professions*. This theme emphasised the scarcity of evidence for the practices of nurses and other professions allied to medicine, and how this has implications, not only on the evidence base available, but also on the perception of EBP by health care professionals. If a lack of evidence is available would nurses be more reliant on socialisation to gain and share knowledge?

Increasingly researchers such as Dopson et al (2002; 2003), Fitzgerald et al (2002), Gabbay and le May (2004, 2011), and Greenhalgh et al (2004) identify that production of evidence is a social as well as a scientific process. Indeed Dopson et al ((2002) argue that there is no such thing as 'the evidence' but rather bodies of evidence capable of differing interpretations. Moreover, they note that there are multiple interpretations of evidence; by stakeholders, by groups, by individuals, and more significantly to this study, by profession, and further priority should be given to available evidence and its use altering over time, dependent on changes in circumstance such as health policy and patient demand (Dopson et al 2002). Gabbay and le May's (2004, 2011) work synthesised and applied ideas from a number of disparate disciplines including organisational theorists, social scientists and philosophers, often for the first time in the world of healthcare. They emphasise that this approach was not to suggest that all these approaches are true or to suppose that they had done them all justice, but instead to alert their audience to the wealth of illuminative analyses that could help explain how clinicians use information. Alongside is the increasing acceptance of the importance of two other forms of evidence, tacit/experiential knowledge and craft skills, both of which are seen to exist in a reciprocal relationship with scientific evidence, despite the acknowledged difficulties in coding and transferring these skills which 'reinforce each other and become woven together' (Dopson et al 2002: p.42).

The continued awareness that research findings are still not making their way into practice, combined with the sustained emphasis on evidence based, cost effective and clinically effective health care has led researchers to describe this gap as the knowledge-to-action gap (Graham et al 2006). The term 'action,' Graham et al note, is more generic than practice and encompasses the use of knowledge by practitioners, policymakers, patients and the public. The KTA process, they suggest, encompasses a variety of terms including; knowledge translation, knowledge transfer, knowledge exchange, research utilisation, implementation, dissemination, and diffusion, with the

term knowledge translation gaining particular prominence in Canada. Graham et al (2006) suggest a conceptual framework for thinking about knowledge translation that incorporates knowledge creation and knowledge application.

One of the areas focused upon in knowledge translation (KT) projects has been that of leadership with increased attention upon the role of the manager-as-leader in supporting clinical staff to use evidence (Kitson et al 2011). This can be seen as an expansion of the emphasis on facilitation seen in the PARIHS framework (Rycroft-Malone et al 2002), an area also noted important by McKillop et al (2012). An ethnographic approach was used by Kitson et al (2011) to investigate the experiences of nurses involved in an initiative using a KT toolkit to implement an initiative aimed at improving the care of older people, demonstrating how the methodological approach has moved on from self reported questionnaires alone to more detailed examination of nurses' experiences. They note that the assumption has been that local nursing clinical leaders have the capacity and capability to lead and champion innovation projects with little previous evidence to support this. The study concluded that clinical nursing leaders can embrace these roles but need managerial support. Crilly et al (2009) propose that ethnography has the potential to offer insights that other more conventional methods may miss and that more research is required at the meso level to determine the influence of cultural issues on knowledge sharing. Gerrish et al (2011b) uses the term knowledge brokering to determine the impact of advanced practice nurses in promoting EBP amongst clinical nurses. They suggest that both knowledge management and promoting uptake of knowledge are key components of knowledge brokering, with the APN's acting both as a source and disseminator of knowledge, promoting evidence uptake by clinical nurses through a number of ways. A case study approach including in depth interviews and observation was used to examine the experience of 23 APN's with regard to knowledge brokering, these were selected from a larger cohort who had taken part in an earlier survey and included one primary care nurse practitioner (Gerrish et al 2011a). Findings

suggested that APN's are uniquely placed to act as knowledge brokers to facilitate EBP, but the precise nature of this impact requires further investigation.

2.8 Conclusion

The overview presented here, along with wider reading around the topic area traced the main historical contours of the literature highlighting primary empirical studies that have included practice nurses. This provided me with a guide, which together with the theoretical framework I discuss in chapter three gave me the structure on which to build the study presented in this thesis. As Gabbay and le May (2011) note, a task such as this is not approached with a blank slate, but is undertaken precisely because of the thinking and reading that takes place prior to the investigation beginning, 'foreshadowing' the problem to be investigated whilst maintaining reflexivity throughout to guard against distorted perceptions based on that prior thinking.

The scoping review began with a brief history of the empirical research surrounding research, EBP and knowledge utilisation in relation to nursing. The scoping review posed five clear questions. The initial focus of the implementation research literature on individual facilitators and barriers to research was detailed in the systematic reviews undertaken by Estabrooks et al (2003) and Squires et al (2011) which mapped the contours of the literature up to that point and suggested that positive relationships for research utilisation were found to be statistically significant in four categories: beliefs and attitudes; information seeking; education and professional characteristics. The body of work using Funk et al's (1991a) BARRIERS Scale suggested a number of barriers linked to organisational characteristics and contextual factors, caution has been recommended in applying this scale to UK studies and recommendations included that further descriptive work using self report scales is of little value. Education and leadership roles were shown to have an influence and worthy of investigation within the wider organisational context. Kitson (1998) and Rycroft-Malone et al (2002)

emphasised the vital importance of bringing the nature of the evidence, the quality of the context and the type of facilitation into the equation when considering implementation. They emphasise that models which propose that implementation is a linear and logical process are unrealistic for getting evidence into practice. Running parallel to this, the work focused on clinical decision-making has also moved from a focus on the individual practitioner and on linear models as seen in Luker and Kenrick's (1992) study to an appreciation that clinical decision-making lies on a continuum between intuition and analytical thinking (Thompson et al 2005). Very few studies have focused purely on practice nurses in relation to attitudes towards and knowledge of, research and knowledge utilisation and EBP implementation, those which have generally used self report questionnaires. Practice nurses have been noted to be generally supportive of guidelines which they felt enhanced their autonomy, lack of implementation time and educational support are both considered as barriers to their use. Following calls from Estabrooks et al (2003), Estabrooks et al (2004), Thompson et al (2005), and Meijers et al (2006) for future studies in the field that use observational and interventional methods with less reliance on self report aiming at developing a more comprehensive understanding of the multi-level factors that impact on practitioner behaviour, a body of work has emerged which has addressed these issues (Kitson et al 2011, Gerrish et al 2011a, 2011b). Alongside the suggestion of drawing on knowledge management strategies from outside healthcare (Crilly et al 2009, Gabbay and le May 2004, 2011) a movement has resulted that addresses the wider field of knowledge translation considering issues such as organisational and cultural impact on knowledge mobilisation, along with an increased focus upon patents, who after all remain the central point of the whole agenda.

I identified a number of areas as worthy of further investigation and clearer definition; education, support, time, access, climate, role and overall context. All these factors clearly play their part in knowledge utilisation but cannot be considered separately from

the nurses' roles in healthcare systems. Relatively little is still known about the influences on practice nurses working within primary care. As both Thompson (2000) and McCaughan et al (2005) have noted, in order to understand how nurses use information we need to understand what decisions they have to make. Gabbay and le May (2004, 2011) note considerable work has been done on determining the factors that help to get research into practice and a large knowledge management literature indicates that tacit, rather than explicit research based knowledge, underpins much professional work. However little detailed observation of the ways in which clinicians derive and use knowledge in practice has been reported, this is particularly true in relation to practice nurses and is where this thesis will make its original contribution. Observation would play a key part in determining the types of decisions that practice nurses have to make within the clinical encounter. This includes the time in which they have to ascertain the nature of the problem presented to them, how they determine what information is required and the knowledge on which they draw and finally how they use this information in the context of meeting the individual patient's needs, including the patient's socially constructed understanding of their condition as well as the nurse's understanding. Documenting the numerous sources of information available to them would assist in interpreting how, if and when these sources were used. Interviewing would enable me to discuss the nurses' thoughts and perceptions in greater depth and investigate where reported and observed behaviour differ. Ascertaining individual barriers to knowledge utilisation alone is not enough, understanding of organisational and contextual factors is necessary to understand how practitioners shape their healthcare decisions and this would be determined through observation and discussion and 'hanging around' with a purpose. Ethnography would be the approach I would take and this is discussed in further detail in Chapter four. Chapter three follows on from the literature review discussing the theories on which I draw to develop a conceptual framework.

3. Chapter Three: Developing a conceptual framework

3.1 Introduction

This chapter illustrates the development of the conceptual framework which I subsequently use to examine the contextual and organisational factors that impact on the transfer and management of knowledge within primary care and how this knowledge is accessed, interpreted and used by practice nurses in the clinical encounter. This framework informs both the design and methods employed in this study (chapter four) and supports the subsequent data interpretation (chapters five, six, seven). The study of knowledge, how it is acquired and communicated is broad and far reaching and it is not the intention of this thesis to provide a historical overview or summarised account of all epistemological theories. A range of literature is drawn upon throughout this chapter with the main focus on discussion of the key theories in the field I have used, alongside brief mention of some influential empirical work emerging from these theories where they are deemed essential in setting up this thesis.

Despite calls over several decades for theory development Estabrooks et al (2006) argue that there remains no overarching knowledge–translation theory. They argue that there are a number of selected perspectives which are useful for developing testable and useful knowledge-translation interventions that can be used alongside complementary adjuvant theories. Drawing on organisational innovation, health, and social sciences theories, they discuss the similarities and differences of these perspectives with regard to knowledge translation. They use the term knowledge translation to encompass: evidence based decision-making, research utilisation, innovation diffusion, knowledge transfer, research dissemination, research implementation and research uptake. They suggest five knowledge translation theories have the potential to serve research design in the health sciences:

Diffusion of Innovations Theory (Rogers 2003), Research Development Dissemination Utilization Framework (Havelock 1969), How to Spread Good Ideas: Greenhalgh's Synthesis (Greenhalgh et al 2004), Promoting Action on Research in Health Services (PARIHS) Model (Rycroft-Malone et al 2004), and the Ottawa Model of Research Use (Logan and Graham 1998). Additionally Estabrooks et al (2006) suggest a number of other theories that they note are crucial depending on the stance the researcher is taking, which include: Hammond's (1988) cognitive continuum theory (in relation to decision-making), Lave and Wenger's (1991) and Wenger's (1998) community of practice theory.

Estabrooks et al (2006) conclusion summed up perfectly the approach I take to the study reported in this thesis and is therefore reproduced in its' entirety below:

> Theories provide maps for different kinds of terrain. The terrain of the health care setting comprises providers and groups of providers from different professions (not always working in harmony) as well as administrators, regulators, patients, and advocacy groups. These people work in complex and varying contexts that are variously resourced and subject to complex internal and external forces. Just as maps must of necessity be geographically specific, so should theory be context specific. The traveller does not use one map on a complex road trip. At minimum, the traveller needs a large map of the country and several detailed maps of provinces and municipalities as he or she plots a cross-country journey. So, too, do we need an armamentarium of maps—in this case, theories—as we attempt to navigate the knowledge-translation field (p.33)

Bearing Estabrooks et al's (2006) recommendations in mind, I use a number of theoretical concepts to illuminate the analysis to allow a deeper understanding of the problem at macro, meso and micro –levels. These were drawn from organisational and educational theorists and social scientists and include: diffusion of innovations theory, knowledge management and educational theories relating to the construction, mobilisation and use of knowledge, clinical mindlines (Gabbay and le May 2004, 2011) and communities of practice (Lave and Wenger 1991). I conclude with a discussion on the impact of standardisation. Denzin (1989) suggests that there are advantages to be gained from 'theoretical triangulation', approaching data with multiple perspectives in mind. Despite the debate between qualitative researchers regarding the logic of comparing analyses of data informed by different theoretical concepts,

drawing on this wide range enabled exploration of different ways in which to make sense of the data and to draw a fuller picture of 'what's going on'. Reviewing this range of sometimes competing approaches assisted me in navigating through the complexities of the field of knowledge utilisation and resulted in the multi-dimensional framework that informed my analysis.

3.2 Diffusion of innovations

Everett Rogers *'Diffusion of Innovations'*, initially published in 1962 with the latest 5th edition published in 2003, focused on the process by which an innovation is communicated through certain channels over time among the members of a social system. The bibliography section in this book, combined with his four previous books, contains most of the published work on innovations. This provided a useful starting point to develop an understanding of this research tradition. A number of earlier studies on research utilisation behaviour in nursing that used a theoretical framework drew on Rogers's diffusion of innovations (see chapter two-Funk et al 1991a, Estabrooks 2003). For Rogers (2003), diffusion is a type of communication in which messages are about a new idea. This diffusion involves a degree of uncertainty which can be reduced by information. He sums up diffusion as:

> A kind of social change, defined as the process by which alteration occurs in the structure and function of a social system. When new ideas are invented, diffused and adopted or rejected leading to certain consequences, social change occurs. (p.6)

The whole process of diffusion of new ideas, Rogers states, is broken down into four elements: (1) an innovation (2) that is communicated through certain channels (3) over time (4) among the members of a social system (Rogers 2003 p.36). He notes that what diffusion of innovations explains is social change 'one of the most fundamental of human processes' (p. xviii). Rogers work began with an interest in the diffusion of agricultural innovations by observing farmers in his home community in Iowa in the 1950's, who delayed for several years in adopting new potentially profitable ideas. Innovations were defined as practices perceived as new by practitioners. At the time Iowa State was one of the centres of diffusion research as a result of earlier agricultural studies and Rogers's doctoral dissertation in 1957

was an analysis of several agricultural innovations, which, as he says, was the beginning of his career as a diffusion scholar. Following initial agricultural innovation studies Rogers (2003) moved out of rural sociology into the field of communication theory, expanding his work to include diffusion in education and in health, with a particular interest in the diffusion process in developing countries. His main findings were that diffusion is a general process, not confined by the type of innovation, who the adopters were, or the place or culture. What was similar was:

> An S-shaped rate of adoption over time, different sources or channels at different stages in the innovation decision process for an individual, and a tendency for innovators to travel and read widely and to have a cosmopolite orientation (p.xvi)

Interventions that supported the spread of innovations included the influence of both opinion leaders:

> individuals able to influence other individuals' attitudes or behaviour in a desired way with a relatively high frequency
>
> (Rogers 2003, p.388)

and change agents:

> an individual who influences clients' innovation-decisions in a direction deemed desirable by a change agency
>
> (Rogers 2003, p27).

Rogers' later work moved on to encompass the impacts of development programmes in developing countries and the impact of changes to communication technology including the Internet, acknowledging the limitation of the original diffusion framework and taking on a more critical stance. What is required, Rogers advocates, is not more of the same diffusion research but to move beyond proven methods and models of the past and to broaden conceptions of the diffusion of innovations. He remarks, for example, that relatively little attention has been paid to the consequences of an individual or social system as to the adoption or rejection of an innovation.

Directly related to the push to apply the principles of EBM into clinical practice, the diffusion of innovations has become 'a burgeoning area of research in health care settings' and thus an important topic within the context of UK health care policy, with numerous statements from policy makers drawing on Rogers' work (Dopson et al 2002). Criticisms of Rogers' earlier work include a focus on individuals (although his later work discusses organisational adoption) and the rational, simplistic and linear approach to change that his model suggests (Dopson et al 2002). Fitzgerald et al (2002) argue that health professionals do not simply apply disembodied scientific research to the situations they face but collaborate in discussion, interpret and (re)construct its' local utility, weighing this against a range of other factors in the decision-making process. Furthermore they suggest the most crucial factors include; weighing up the benefits to the patient including potential adverse outcomes and applicability, favourable patient responses including concordance, neutral cost or financial incentive, and concordance from other professionals (Fitzgerald et al 2002).

Later bodies of work on evidence and knowledge utilisation have moved on to draw on a wider range of theories and develop and use alternative models (Gabbay and le May 2004, 2011, Graham et al 2006, Estabrooks et al 2006, Kitson et al 2011). Rogers (2003) acknowledges that early diffusion studies with teachers and doctors ignored the fact that they worked within organisations as opposed to individual decision makers like the farmers. He notes that later organisational diffusion studies were oversimplified, relying on data from single individuals (often chief executives of organisations) with no way of determining how the data represented the entire organisation's behaviour. Indeed, Rogers states in his 2003 book that this edition takes a more critical stance than previously, acknowledging that standardisation of approaches to diffusion research over the past forty years has constrained the intellectual progress of diffusion research, thus subjecting it to constructive and destructive criticism. Carlson and Plonczynski's (2008) review of the BARRIERS research (discussed in chapter two) suggests that Rogers' framework still has a place in knowledge implementation research arguing that the model was over simplified and under-represented

in the original BARRIERS Scale and that other variables in Rogers' framework could be developed, using these to identify the influence of the context required to bring about change. Helfrich et al (2010) agree, noting that in their systematic review of studies using the PARIHS framework that findings in some of the studies suggested the value of making attributes of the change more explicit. The example they suggest is worthy of further investigation is Rogers' innovation attribute of the 'observability' of a new practice-the extent to which its use by an individual is perceived by others in their social network. Elements of Rogers' framework were therefore still relevant for a conceptual framework drawing on a number of theoretical approaches to examine how innovations such as guidelines entering the primary care environment were diffused, shared and adopted.

3.2.1 Diffusion of Innovations in Service Organisations

An extensive systematic literature review of diffusion of innovations in service organisations was conducted by Greenhalgh et al (2004) identifying thirteen research areas that, independent of each other, provided relevant evidence to the question of how innovations can be spread and sustained in health service organisations. Although not a theory as such this review is considered here as it makes some firm recommendations with regard to future methodologies required to answer the questions that still remain. Using a meta-narrative approach, which they define as the unfolding 'storyline' of research in a particular scientific tradition, Greenhalgh et al (2004) mapped the historical development of concepts, theory and methods in each of the research traditions related to diffusion of innovations. Everett Rogers' initial work in rural sociology, along with three other traditions: medical sociology, communication studies and marketing were classed as 'early diffusion research'. Along with medical sociology Greenhalgh et al 2004 conceptualised rural sociology as the influence of social norms and shared values on adoption decisions and networks of social influence. Of particular note was the observation that despite the robust empirical findings produced by studies in these fields on attributes of innovations, characteristics and behaviour of adopters, and the nature and extent of interpersonal and mass media influence on adoption decisions,

a number of theoretical limitations were suggested. Namely the focus on individual innovations and adopters, an assumption that the innovation is better than what went before, that adoption is more worthy of study than non adoption or rejection, the link between adoption and personality traits and that the findings of diffusion research are invariably transferred to new contexts and settings (Greenhalgh et al 2004). Rogers (2003) himself emphasises that one of the serious shortcomings of later diffusion research is its pro-innovation bias, a failure to recognise sound reasons why individuals for their own good should not adopt the innovation offered to them. Certainly a criticism of EBP and resulting guidelines has been their lack of relevance to individual patient populations and this was an important point to consider during data analysis.

Key overall recommendations from the full review, which considered not only early diffusion studies, but developments and breakaways from the original conceptual models including evidence based medicine and models and studies from the organisation and management literature, were that further intervention trials of the use of opinion leaders and descriptive studies of patterns of adoption by individuals are not required, neither is research into attributes of innovations that promote adoption. In relation to structural determinants, the review authors recommend studies into how the absorptive capacity of service organisations can be met, and how the process by which ideas are captured, circulated, implemented and routinised can be enhanced. Greenhalgh et al (2004) argue that it is not the attributes of the setting or the intervention that influence the adoption rate but the interaction among the innovation, the intended adopter(s) and a particular context. The main unanswered question relates to the processes by which innovations in health service delivery and organisations are implemented and sustained in particular contexts and settings and can these processes be enhanced? This includes identifying how key players of all professional and managerial groups are identified and influenced, and uncovering the nature and extent of social networks, including how they serve as channels for social influence and reinvention and embedding of complex service interventions. The review suggests this question is best

answered through in-depth mixed methodology studies that build up a rich picture of process and impact.

This identification of key players within the professional group of practice nurses and how knowledge was disseminated through social networks, both from within and from outside their organisations was an important question to answer. Later in this thesis particular attention is given to these issues. I have been careful to not just focus solely on individual attributes, but on the influences on key players in relation to the process of knowledge utilisation. Education, experience and the nature and scope of the nurses' inter-professional networks are all treated as influences.

3.3 Knowledge management

The concept of knowledge management (KM) has been defined in a number of ways. These include "the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organising, diffusion, use and exploitation" (Skyrme 1997 p.2). Although KM has captured the interests of practitioners and scholars since the 1990's it remains a broadly defined concept, which unlike other management movements and fads that have appeared and then quickly waned has continued to grow into a clearer, easier understood concept (Ponzi and Koenig 2002). Knowledge management has led to the development of a number of theories and models, these are closely aligned to the knowledge translation theories and frameworks that are increasingly being used to support investigations into how knowledge is accessed, diffused and implemented in nursing.

3.3.1 Knowledge creation

Following the emergence of the knowledge management movement, a scientific discipline that emerged in the 1990's, Nonaka and Takeuchi (1995), two Japanese academics set out to explore how successful Japanese companies create new knowledge, formalising a generic model of organisational knowledge creation. They use a 'rugby' metaphor to

describe the speed and flexibility with which Japanese companies develop new products. As in rugby the ball gets passed around the team borne out of the team members interplay on the field, it does not move linearly or sequentially but is determined on the spot, based on experience and trial and error, requiring intensive and laborious interaction between the team members. The ball, they suggest, contains the shared understanding of the company, its' ideals, values and emotions. The interactive process with which it moves they compare to the creation of organisational knowledge, a process arising from the interaction of tacit and explicit knowledge. Although the focus of their work was on knowledge creation, as opposed to adoption of new knowledge, their model has been adapted to studies of knowledge management in healthcare organisations (Panzarasa et al 2002, Gabbay and le May 2011). Nonaka and Takeuchi (1995) provide a dynamic model of knowledge creation that they suggest is anchored to the assumption that human knowledge is created and expanded through a process called knowledge conversion, a social interaction between tacit and explicit knowledge taking place between individuals. Thus organisational learning takes place through individuals participating in this process, sharing, articulating and making their knowledge available to others. Knowledge creation takes place at three levels: the individual, the group and the organisation (Nonaka and Takeuchi 1995). Two forms of interaction- between tacit and explicit knowledge and between the individual and the organisation bring about four different processes of knowledge conversion which together constitute knowledge creation, what they term as the 'knowledge spiral', or the SECI process, which represents the four stages of the cycle; *socialization, externalization, combination and internalization*. Nonaka and Takeuchi (1995) suggest knowledge enters an organisation through *socialization*, and is then transformed and adapted through *externalization* and *combination* before the final stage of *internalization*. The SECI process is discussed below in relation to its application to the healthcare environment.

3.3.1.1 Knowledge management within healthcare organisations

Panzarasa et al's (2002) empirical study investigated how organisational knowledge management theories could be used to create a more effective infrastructure for managing clinical knowledge in relation to health care delivery. They referred to Polanyi's (1958) investigation of epistemological knowledge that purports that tacit knowledge is personal, context specific and hard to formalise and communicate, whilst explicit is knowledge that is transmitted through any form of formal or semi-formal representation. They then drew on Nonaka and Takeuchi's (1995) organisational theories to implement a system for the evidence based care management of post stroke rehabilitation, suggesting the following definition of knowledge management within a health care organisation:

> Knowledge management is the name given to the set of systematic and disciplined actions that an organization takes to obtain the greatest value from knowledge available to it. Knowledge, in this context, includes both the experience and the understanding of the people in the organization and the information and knowledge artifacts, such as electronic patient records, protocols, and guidelines, available within the organization and the outside world (Panzarasa et al 2002 p.124)

They emphasise that the potential of knowledge management can only be properly evaluated if the basic concepts between explicit and tacit knowledge are taken into account. Furthermore they suggest that the literature-based and practice-based evidence captured by protocols and guidelines in a textual format can be easily diffused within an organisation, but are actually uneasily used in routine work. Thus disseminating them as tools for individual clinical decision support does not meet the goal of knowledge management, which is to increase the performance of the organisation as a whole, not just individual performance. Only co-operative care processes can improve organisational efficiency, effectiveness and quality of care (Panzarasa et al 2002). The four SECI processes as applied to healthcare by Panzarasa et al (2002:125) are reproduced in Table 1.

Table 1: SECI processes applied to healthcare

1. **Externalization** (tacit to explicit) is the process of conversion of tacit into explicit knowledge through some formal or semiformal representation language. By its nature, tacit knowledge is difficult to convert into explicit knowledge. Typical activities in which externalization takes place are those dealing with guideline development, which

start from clinical research findings provided by scientific literature (in this case such knowledge is explicit for some researchers but tacit for most clinical practitioners), adaptation of a guideline to the local organization willing to adopt it and further development of the guideline according to the experience gained in using it (results from clinical practice may suggest how to extend the guideline by either adding, modifying, or refining some guideline recommendations).

2. **Combination** (explicit to explicit) is the process of recombining or reconfiguring bodies of already existing explicit knowledge that leads to the creation of a new body of explicit knowledge. There is often a need to foster knowledge combination, namely to enrich the available knowledge in some way, such as by either restructuring it, so that it is more usable or expandable, or including some new knowledge elements.

3. **Internalization** (explicit to tacit) is the process of individual learning by repetitively executing an activity applying some type of explicit knowledge (e.g., a protocol or a guideline) and absorbing achieved actions' results as new personal tacit knowledge. Moreover, individuals can also re-experience what others previously learned by reading scientific documents. However, this process is becoming very challenging because they have to deal with ever-larger amounts of knowledge sources.

4. Socialization (tacit to tacit) is the process of learning by sharing experiences that creates tacit knowledge as shared mental models and professional skills. Apprentices learn their practical and cognitive skills through socialization by observing, assisting, and imitating the behaviors of experienced practitioners. Knowledge sharing is often done without ever producing explicit knowledge and, to be most effective, should take place between people who have a common culture and can work together effectively. Thus, tacit knowledge sharing is connected to ideas of teams, communities and cooperation. Typical activities in which tacit knowledge sharing can take place are those carried on during both a team meeting, and a scientific society meeting, which discusses the impact of the most recent research findings on clinical practice

These links between tacit and explicit knowledge were an important point to consider when interpreting data for this thesis. Panzarasa et al (2002) suggest that examples of the SECI stages can be seen in everyday healthcare practice, from *externalization* where guidelines or local policies are developed or adapted based on the experience of its users, *combination* compared to combining knowledge from guidelines into local care systems, *internalization* where guidelines/protocols are absorbed into everyday practice without the practitioner obviously referring to the guideline/protocol, and *socialization* where routines and specific local knowledge are shared and discussed among practitioners. In Gabbay and le May's

(2011) mindlines study of knowledge use amongst primary care practitioners they note that although the SECI spiral was useful in distinguishing phases of knowledge development, they did not observe the clear sequence the SECI spiral implies, the stages instead represented simultaneous and intermingled categories that could be identified from their observations. The knowledge spiral they argue has important implications for EBP, as many types of evidence are involved, all undergoing some type of transformation, entering the melee of the SECI spiral to be integrated, examined or discarded (Gabbay and le May 2011).

3.3.2 Knowledge transfer-internal stickiness

A related organisational theory highlights the issues of how knowledge is transferred within an organisation, which again counters the linear approach taken by the early approaches to EBP implementation. Wallace (2007) discusses the issues surrounding transferring knowledge within an organisation in his book *Knowledge Management: Historical and Cross-disciplinary Themes,* within which he draws on work undertaken by Szulanski (1996) who developed the theme of 'internal stickiness'. Internal stickiness refers to the difficulty of transferring knowledge within an organisation. Szulanski's work in turn draws on the diffusion of innovations research by Everett Rogers, whilst emphasising that the transfer of knowledge within an organisation is not a gradual process of dissemination, but a distinct experience depending on the characters of those involved (Wallace 2007). Szulanski's work suggests that transfer of knowledge within an organisation is based on four stages as summarised below:

1. *The initiation stage*-comprising all events that lead to the decision to transfer (including identification of need, determination of what constitutes best practice and the decision-making process that leads to the transfer)
2. *The implementation stage*-the establishment of a relationship between the sources of best practice knowledge and the recipient, adaptation of practice and any other activities necessary to make it possible for the knowledge to be used by the recipient
3. *The ramp-up phase*-when the recipient starts using the knowledge, best practice knowledge is fine tuned and use of the knowledge improved until it reaches a finely tuned level

4. *The integration stage*-use of the transferred knowledge continues and becomes a routine, ingrained process, at this stage the transferred process fades from, memory

(Szulanski 1996 p.28-29)

Stages three and four, *the ramp-up phase* and *the integration stage* closely resemble both Nonaka and Takeuchi's internalisation stage, in which the transfer of explicit knowledge to individuals becomes tacit and part of everyday practice and the later stages of both Benner's (1984) and Dreyfus and Dreyfus' (1986) novice to expert model where experts rely on intuitive knowledge. The difficulty with this process in healthcare is that knowledge is constantly being reviewed and revised as research reveals new findings, with the risk that once the knowledge is ingrained and becomes tacit, practitioners may be reluctant to accept further change, or fail to seek out updated information. Heuristics, short cuts to producing efficient decisions (Gigerenzer 1991) often based on experiential knowledge, can become ingrained in practitioners' thinking, with the potential for introducing systematic errors into the clinical decision. Eraut and Hirsch (2007) argue that relying on integrated knowledge pays scant attention to the occurrence of novel and complex situations that require a problem solving approach involving an explicit search for relevant knowledge, collection of further evidence and critical reasoning.

Szulanski (1996 30:32) further identifies four characteristics of stickiness that can influence the difficulty of knowledge transfer:

1. *Characteristics of the knowledge transferred*-including causal ambiguity, in which the underlying causes for transfer of best practice are uncertain; and unprovenness where there is a lack of track record behind the knowledge being transferred
2. *Characteristics of the source of knowledge*-including lack of motivation to share knowledge; and any situation in which the source is not perceived to be reliant or trustworthy
3. *Characteristics of the recipient*-including: lack of motivation on behalf of the recipient, lack of absorptive capacity to exploit new knowledge; and lack of retentive capacity to make use of knowledge following transfer
4. *Characteristics of the content*-including a 'barren organisational context' in which the structure to support knowledge transfer is lacking; and an arduous relationship between the source of knowledge and the proposed recipient that impedes a relationship developing that is conducive to knowledge transfer

Although I felt that the first two characteristics would be less likely to apply in the primary healthcare environment, with knowledge in the form of guidelines generally being produced from standardised and respected organisations, this was still an area to consider in relation to practice nurses' views of knowledge from all sources coming into the organisation and the relevance to them as a profession. Indeed Dopson et al (2002), discussing the diffusion and adoption of innovations within the context of a review of studies of clinical practice, note that although change is more likely among clinicians where evidence is seen as strong, this in itself is not sufficient. Their review showed no discernible pattern that innovations supported by stronger evidence diffuse faster. Fitzgerald et al (2002) agree, the findings from their empirical study showing that there was no direct association between robustness of scientific evidence and the speed of diffusion. The third and fourth characteristics of knowledge stickiness would be important areas to consider in relation to not only individual characteristics that can impact on the incorporation of new knowledge into practice, but also the organisational structure and support in relation to knowledge management. Fitzgerald et al (2002) suggest that networks can engage people in the diffusion process or halt the process, the differential power and status of professional groups being one of a number of factors that account for 'sticky' knowledge and slow diffusion across heterogeneous groups.

3.4 Propositional and personal knowledge

One of the areas arising from the review of the literature presented in chapter two, specifically with regard to how nurses implement EBP was the impact of educational preparation and the acquisition of knowledge through formal and informal processes. Additionally a focal point of a number of empirical investigations focusing on decision-making has been whether nurses take an analytical or intuitive approach to clinical decisions (Luker and Kenrick 1992, Luker at el 1998, Thompson et al 2000, Cioffi 2002, McCaughan et al 2005). Michael Eraut's (2011) ongoing body of work on the acquisition of professional knowledge proposes that in order to understand the complexities of theoretical and practical knowledge we need to understand both the individual and social perspectives on learning.

Access to, and development of knowledge was an important investigative strand within this thesis and Eraut's (2011) theoretical analysis of learning proved to be central in the development of my conceptual framework

Eraut's (2000) paper *Non-formal learning and tacit knowledge in professional work* clarifies the multiple meanings accorded to commonly used terms such as tacit knowledge, the rules that underpin intuitive decision-making and the underlying theoretical assumptions behind these terms. Within this paper, using a largely theoretical analysis he explores the conceptual and methodological problems arising from empirical investigations of professional education and learning in the workplace, an area highly relevant to this thesis. Eraut (2000) uses two parallel definitions of knowledge:

- Codified knowledge-referred to as public or propositional knowledge which is subject to quality control by external factors and is given status by incorporation into educational programmes and courses.
- Personal or non-propositional knowledge- defined as the cognitive resource which a person brings to a situation enabling them to think or perform.

Codified knowledge is considered formal, explicit, derived from research and scholarship and concerned with generalisability, whilst personal knowledge is informal, implicit and derived primarily through practice, with a dynamic relationship existing between the two. Personal knowledge he suggests is comprised of: knowledge acquired through acculturation; knowledge constructed from experience, social interaction and reflection; skills developed through practice with feedback; episodes, impressions and images that provide the foundations for informal knowledge; and self knowledge, attitudes, values and emotions. Skills are an integral part of this personal knowledge, allowing demonstration of competence, capability or expertise in which skills and codified knowledge are closely integrated (Eraut 2000). Codified knowledge is explicit and identified by its source, whereas personal can be explicit or tacit. Importantly, he emphasises that the process by which codified knowledge is

acquired is affected by the learning context, subsequent use of that knowledge in a different context requiring further learning. Personal knowledge is thus determined by personal history of its use which will have involved integration with other knowledge, resulting in even personal versions of public propositional knowledge having a potential tacit dimension (Eraut 2000).

Eraut (2000) argues that the acquisition of propositional knowledge is not confined to formal learning, but can be a common outcome from episodes of non formal learning. He favours the term non-formal learning over informal and purports that the most fundamental distinction is the level of intention to learn. This ranges from implicit (no intention or awareness of learning), to reactive (spontaneous and unplanned but with some awareness of learning) and finally deliberative (learning in time specifically set aside for the purpose, including engagement in decision-making and problem solving). He notes that the difficulty facing researchers in this field is that implicit learning is difficult to detect without observation and both reactive and some deliberative learning are unlikely to be recalled unless there was an unusual dramatic outcome. Additionally respondents are unaccustomed to talking about learning and are more likely to refer to formal rather than non-formal episodes. Eraut (2000) suggests that to counter these issues there are a number of steps researchers can take, this includes researchers having a repertoire of types of knowledge and knowledge use, having sufficient understanding of the respondent's situation and developing ideas from the repertoire that are appropriate and meaningful to the respondent. The overall process should be pursued modestly and reflexively, whilst being aware that there will be multiple representations of the knowledge embedded in any complex situation.

Furthermore he suggests that no knowledge is solely individual in nature, and puts forward two strong arguments to support this point of view. The first is that of *distributed cognition,* where organisational activities persist despite changes of personnel, performance depending on knowledge from a number of individuals in any given situation. The second is the theory

of *situated learning* which postulates that the personal meaning of a concept, principle or value is significantly influenced by both the situations in which it was encountered and the situations in which it was used. To understand the impact of situated learning Eraut (2000) argues that two complementary perspectives should be adopted, one focusing on the situation itself, taking into account consideration of the knowledge present in established activities and cultural norms and one focusing on the individual perspective of how prior knowledge is resituated in the new setting and integrated with other knowledge acquired through participation. Dependent on the impact, the individuals' knowledge can be expanded, modified or transformed. This was particularly important for me to consider in relation to practice nurses who often come into the role with a wealth of previous experience which then needs to be adapted into a new situation, often resulting in them moving backwards from expert or proficient status to competent or even advanced beginner roles (Benner 1984), although I would argue that rarely do experienced qualified nurses return to a novice status even when taking on a new role.

Eraut and Hirsch's (2007) Economic and Social Research Council paper considers the significance of workplace learning for individuals, groups and organisations. They purport that knowledge and workplace learning are inextricably linked and that to understand the transfer of knowledge between education and practice contexts both individual and social perspectives on knowledge and learning need to be considered. For Eraut and Hirsch (2007:4) individual perspectives enable exploration of: what people know; what they can do; what and how they learn and the variations in how they interpret and use what they learn. The social perspective takes into consideration: the social nature of most contexts for learning; social origins of knowledge shared, passed on or developed by groups, networks or communities and the wide range of cultural practices and products that provide knowledge resources for learning.

The approach they take starts with the real experience of workplace learning, putting the individual at the centre and working outwards to determine how organisations can better facilitate workplace learning. Although my focus was not on workplace learning per se, the theoretical model developed by Eraut and Hirsch (2007) was beneficial in identifying the key aspects at the core, which I would need to examine to determine the approaches taken to knowledge utilisation in the primary care environment. For example Eraut and Hirsch note that in relation to the individual, context is an important aspect to consider, especially the workplace culture and social interactions as well as more formal management processes. They highlight that people often do not recognise how they have learnt without being prompted to reflect on types of experience or changes in their capabilities, resulting in attributions of learning being unreliable unless accompanied by detailed narratives. They return to the theory of situated learning discussed earlier (Eraut 2000) noting that codified knowledge is often discussed in terms of truth and validity whereas uncodified cultural knowledge acquired informally through participation in working practices is discussed in terms of its ownership, location and history: who uses this knowledge, where and when?

Eraut and Hirsch (2007) draw on three aspects of performance: situational understanding, decision-making and action and add in a fourth aspect, meta-cognition to develop a model that illustrates interactions between time, mode of cognition and type of process in relation to how professionals assess and make decisions in everyday practice dependent on their level of experience (illustrated in Table 2). The relation between time and cognition was a particularly important aspect to consider in the context of the time limited clinical encounter which practice nurses are faced with, shortage of time forces people to adopt a more intuitive approach while intuitive routines developed by experience enable people to do things more quickly (Eraut and Hirsch 2007). Additionally routinisation has both positives and negatives, whilst reducing workers' cognitive load and increasing productivity, routinisation also leads to knowledge becoming more tacit, this knowledge can lose value over time and subsequently reduce effectiveness and quality. Routinisation can also lead to inflexibility with

practitioners experiencing disorientation whilst old routines are learnt and new ones gradually developed alongside a loss of control over one's practice and a reduction in the support previously provided through tacit knowledge (Eraut and Hirsch 2007).

Table 2: Type of Process/Mode of Cognition

Type of Process	Mode of Cognition		
	Instant/Reflex	**Rapid/Intuitive**	**Deliberative/Analytic**
Assessment of the situation	Pattern recognition	Discrimination Rapid interpretation	Prolonged diagnosis Consultation, discussion and analysis
Decision making	Reflex response	Recognition primed or intuitive response	Deliberative analysis or discussion
Overt actions	Routinised actions	Routines punctuated by rapid decisions	Planned actions with periodic progress reviews
Meta-cognitive engagement	Situational awareness	Implicit monitoring Short, reactive Reflections	Monitoring of thought and activity/reflective learning/ Group evaluation

Eraut's body of work (Eraut 2000, 2011), (Eraut and Hirsch 2007) and his definitions and typologies of learning reinforced the importance of delineating and understanding the types of knowledge that practitioners draw upon and highlighted the difficulties that can be faced as a researcher trying to determine how knowledge is accessed and mobilised. An understanding of these concepts is essential in order to understand the numerous factors that impact on the decisions the practice nurses make during the clinical encounter. The factors that enhance or constrain learning in the workplace would inevitably impact on the uptake and diffusion of EBP and the accompanying guidelines and support that have been developed to enhance research informed practice.

3.5 The 'messiness' of EBP utilisation -Clinical Mindlines

The design and methods for the study presented in this thesis took its inspiration from an ethnographic study carried out in the primary care environment (Gabbay and le May 2004, 2011) with the concept of '*clinical mindlines'* informing my analysis. The focus of Gabbay

and le May's (2004, 2011) work on how clinicians acquire and use knowledge relates to what they term as:

> The persistent mismatch between the rational, linear approach that the EBP movement demands and the pragmatic, workable approach demanded by the messy world of practice (p.5).

First introduced in 2004 in a study published in the British Medical Journal entitled *'Evidence based guidelines or collectively constructed "mindlines?"* and then published in 2011 as a book *"Practice-Based Evidence For Healthcare-Clinical Mindlines."* Gabbay (a doctor) and le May (a nurse), both self confessed supporters of evidence based practice, who had spent their university careers trying to bridge the gap between academic research and practical healthcare, nonetheless began this work on the premise of both becoming frustrated by:

> The naivety of the views that the proponents of EBP promulgated about the nature of evidence and how it should be implemented (p.6)

With the aim of taking a fresh look at how doctors and nurses in primary care put their knowledge to daily use, Gabbay and le May (2011) conducted a long term ethnography, including a range of primary care staff in one semi-rural UK primary care practice, supplemented by observation and interviews of GPs in a very different inner city practice, in addition to observation of internal medicine teams in a US teaching hospital and a short observation period of third year UK medical students on a psychiatry placement. This was a new and novel approach to research on evidence utilisation, that moved away from determining what interventions worked in encouraging health care professionals to use EBP, towards a focus on 'how' clinicians acquire and use knowledge. The approach to knowledge management in the health services at this point had been to:

> Try and deliver better researched facts to clinicians to try and help them make good use of such facts (Gabbay and le May 2011 p.6)

In contrast to the focus of research carried out thus far on evidence utilisation (as I have illustrated in chapter two), Gabbay and le May's (2011) work incorporated the use of theoretical frameworks on the inherent nature of knowledge and knowledge management, drawing on work by social scientists and appreciating the influence of professional networks

and boundaries, policy, organisational context and historical influences. They suggested that clinical knowledge, in a similar way to knowledge in any organisation also has what has been termed as 'the social life' of knowledge:

> the intricate , convoluted and confusing pathways by which people in an organisation negotiate, adapt and transform new knowledge that is often far from factual (Gabbay and le May 2011, p.6)

and they propose that perhaps this could be the key to overcoming the frustrations associated with integrating evidence into practice.

The idea of '*clinical mindlines'* grew out of Gabbay and le May's (2004, 2011) view that clinical practice, in particular the world of primary care, is a balancing act between clinical care, financial rationalisation, managerial targets and professional standards, '*complexification*' resulting from the conflicting roles each clinician has to adopt. They note that guidelines, like the research on which they are based, deal almost exclusively with clinical aspects of practitioners' roles. In consequence they are very slim when set against the complex subjective judgements that were implicit in both the clinical and practice policy decisions they observed in Lawndale, the semi-rural UK primary care practice where they conducted their long term ethnography. Guidelines alone were clearly not sufficient when considering the multiple issues that constitute clinical decisions: financial costs, managerial concerns, probabilistic science, along with individual patients differing needs and demands. They suggest that this is why guidelines are not used:

> They simply do not live up to being directly applied to the multifaceted blend of knowledge and reasoning that stems from the complex and often incompatible roles and goals that inform clinical decision-making (Gabbay and le May 2011 p.44)

Instead Gabbay and le May (2011) postulate that clinicians relied on their *'clinical mindlines'*, internalised, collectively reinforced and often tacit guidelines informed by their training; their experience; their interactions with their role sets; their reading; the ways in which they have individually developed to handle conflicting demands; their understanding of local context; combined with a host of other sources. Mindlines were therefore far more complex and

flexible than guidelines but allowed the clinicians to adapt them to the many roles they undertook, accommodating 'the vagueness and fuzzy logic of professional and everyday life (Gabbay and le May 2011 p.44)'. Mindlines were developed by practitioners as a bank of all types of theoretical and experiential knowledge that they could draw upon instantaneously when required. Despite the variance between individual practitioners guidelines and the elasticity with which they adapted them to both individual patients and circumstances they could also be shared and developed with colleagues through '*communities of practice'* (Lave and Wenger 1991) to develop '*collective mindlines'*.

Mindlines were rooted in early training and then influenced by experience, both the clinician's own experience and that of others, also through local opinion leaders, recent developments, attendance at courses and conferences, grazing of literature, (professional, scientific, commercial and general media) and through available resources and organisational infrastructure. Mindlines provided more than technical competence but an ability to change, adapt, improve existing knowledge and generate new knowledge. Through discussion and sharing with colleagues these mindlines are continually checked and refined. Mindlines were complex and socially constructed, not only allowing the clinicians to function by linking to a web of sources that build on and reinforce their embedded knowledge and values, but providing them with a sense of who they are and their place in the larger scheme of things. Mindlines, though, as Gabbay and le May (2011) point out, are far from linear and much more complex than mere lines, indeed they cite one of their GP colleagues as suggesting they are: "variable diffuse often bending sets of influences that vary on different days in their impact depending on what else is going on…. (p.46)". Gabbay and le May (2011) compare them to the '*songlines*' of indigenous Australians, the stories that guide a person's wanderings across the outback, explaining how the land came to be and that must be continually sung to keep the land in existence. They suggest that these '*songlines'* are best visualised in the form of "spaghetti…writhing this way and that", consisting as they do of stories that guide a person's wandering across the Outback.

3.6 Communities of practice

One of the many theoretical concepts that Gabbay and le May (2011) used to underpin their work on mindlines was that of '*communities of practice'*, which I felt was an important area to explore when interpreting the data with regard to how knowledge is shared and interpreted in practice within the organisational and cultural context. The concept of communities of practice (CoPs), viewed in the context of the way people learn was introduced by Lave and Wenger (1991). Etienne Wenger was a teacher who joined the Institute for Research on Learning, Palo Alto, having gained a Ph.D. in artificial intelligence from the University of California at Irvine. Together with Jean Lave, a social anthropologist at the University of California, Berkeley, who had a strong interest in social theory, they argued that CoPs are everywhere and that we are generally involved in a number of them - whether that is at work, school, home, or in our civic and leisure interests.

Lave and Wenger (1991) suggest CoPs constitute people engaged in a process of collective learning; these can be wide and varied but ultimately consist of groups of people who share a passion for something they do, and as they interact regularly learn how to do it better. Groups of people who share information, insight and advice, accumulate knowledge and help solve problems are considered to be an ideal way to practically manage knowledge and keep up with the rapid pace of change. Characteristics of these CoPs vary and can be formal or informal; however commonality exists in the joining together in common activities and sharing what they have learned through mutual engagement in these activities. Lave and Wenger (1991) look to social relationships, rather than learning as the acquisition of certain forms of knowledge. Learning comes from active participation in the practices of social communities with a subsequent production of identity that relates to the community.

> Learners inevitably participate in communities of practitioners and… the mastery of knowledge and skill requires newcomers to move toward full participation in the socio-cultural practices of a community. "Legitimate peripheral participation" provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge and practice. A person's intentions to learn are engaged and the meaning of learning is configured through the process of

> becoming a full participant in a socio-cultural practice. This social process, includes, indeed it subsumes, the learning of knowledgeable skills.
>
> (Lave and Wenger 1991: 29)

This work offered a useful addition to the thinking around learning within organisations with regard to the significance of informal networks and groupings. Smith (2003, 2009) suggests that growing interest in the learning organisation in the 1990's alerted those interested in organisational development to the possibility that harnessing the shared learning taking place in CoPs could enhance both organisational effectiveness and hence profitability. Three essential components must be present to link an individual's practice with that of his community and to define it as a CoP; joint enterprise (what it's about), mutual engagement (how it functions) and shared repertoire (communal resources that members have developed over time) (Wenger 1998). Wenger (1998) argues that a CoP is different from businesses, teams, or networks in that it is defined by doing, as members develop among themselves their own understanding of what their practice is about, by knowledge rather than by task and that it is "about" something; it is not just a set of relationships. It has an identity as a community, and thus shapes the identities of its members, a living process defined by knowledge as opposed to task. This is not to say that people do not concurrently belong to organisations, teams and networks, but that the CoP has a different function, that of developing the knowledge that lets them do the other tasks. The communities own the practice knowledge and fulfil a number of functions in relation to how the organisation creates, accumulates, and diffuses knowledge (Wenger 1998). CoPs structure an organisation's learning through knowledge they develop at their core and through interactions at their boundaries, each are equally important and there needs to be enough activity at the boundaries to renew learning and develop radical new insights. They take time to develop effectively and if they are to flourish learning needs to fit with the organisational environment, the art on behalf of the organisation is to help the communities find resources and connections without 'institutional meddling'.

Etienne Wenger's (2006) definition of CoPs states that:

> Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly
>
> (http://www.ewenger.com/theory/index.htm)

Furthermore for the term CoP to apply Wenger (2006) argues that 3 characteristics are crucial:

1. The domain: Members have an identity defined by a shared domain of interest, a commitment to the domain and a shared competence that distinguishes them from other groups
2. The community: Members engage in joint activities and discussion, help each other, share information in pursuing the interest of their domain, the key being interaction and learning together.
3. The practice: Members of a community of practice are practitioners who develop a shared repertoire of resources: Experiences, stories, tools, ways of addressing recurring problems, activities that take time and sustained interaction.

In order for a CoP to function its members must share information and advice through a shared repertoire. They develop resources to contain and carry the community's accumulated knowledge. These resources can include tools, documents, routines, vocabulary and symbols. The community has ways of doing things that are shared among members, or they may develop a shared tacit understanding. The interactions that they share, along with developing the ability to undertake larger or more complex projects binds people together, develops personal relationships and trust and sometimes a common sense of identity. Wenger (2006) suggests key functions of the CoPs include: retaining knowledge in living ways, stewarding competencies to problem solve, discussing novel ideas and keeping up with developments, and providing a home for identities. CoPs reflect the members own understanding of what is important, this may be influenced by outside constraints or directives but members develop practices that are their own response to these external influences. The community, not the mandate, ultimately produce the practice (Wenger 2006). Eraut (2002) however, challenges the usefulness of the term CoP, arguing that trends in the organisations of healthcare make them less and less achievable for variable reasons including that occupational identity is still linked to membership of a profession, which is a much larger and more diverse community than any CoP. He argues

that Wenger's three dimensions of participation-mutual engagement, joint enterprise and shared repertoire can provide a model of inter professional learning without needing to refer to the problematic concept of a CoP. Ormrod et al (2007) similarly argue that both CoP and the wider networks of practice (NoPs) perspective which are looser epistemic networks with weaker internal relationships than CoPs have been helpful and have influenced diffusion of new work practices. They recommend that there is now a need to develop sharper analyses to determine how the possession and use of organisational power shape such processes.

Gabbay and le May's (2011) study noted however that the practice evening meetings, developed initially to prepare Lawndale, one of their study sites, for a Quality in Practice award but whose focus then changed towards successful implementation of the (at the time) new GMS contract proved to be an extremely successful enterprise. This appeared to be for a number of reasons, firstly the opening up of the meeting to the whole primary care team (including nurses, HCA's and reception staff). The meetings were initially dominated by the GPs, practice manager and the more experienced nurses, over time, however, the group dynamics changed with growing participation of non clinical members that resulted in the clinical participants able to expose and fill gaps in their clinical knowledge through comparing, refining and readjusting their clinical work, whilst also taking into account the underlying logistics that affect each practice. Gabbay and le May (2011) emphasise the importance of CoPs, not only within formal group settings, but having the opportunity to participate in informal communities, such as coffee room discussions, having the opportunity to share knowledge in the form of storytelling and through formal and informal interaction with colleagues. They suggest that in their study CoPs overlapped and supplemented each other. Some were informal, such as the coffee room, others were set up more formally for a specific purpose, but evolved into CoPs and I was keen to see whether this held true for my data.

3.7 Standardisation and clinical practice guidelines

Finally to further inform my conceptual framework I turn to the work around standardisation and the theories guiding this work, having previously introduced in chapter one the debate around standardisation and its relevance to EBP. Noteworthy empirical contributions to this field have been made both by Timmermans and Berg (2003) in regard to evidence based medicine, and Rycroft-Malone et al (2007, 2008, 2009) on the impact of protocol based care on both doctors and nurses clinical decision-making.

Timmermans and Berg's (2003) work was of particular interest, as the focus of this work lay in the impact of EBM on the practice of medicine at micro and macro level. Drawing on the interactionist sociology of work, science studies and ethnomethodology, instead of arguing about the merits and needs of standards they ask the questions: Who does the ordering, what is the difference and how does it change medical care? Their work was not purely inductive or geared at concept development but was aimed at dynamic engagement with the social science literature on standardisation from a science, technology and society and medical sociology perspective (STS). Studies using this framework consider how social, political and cultural values affect scientific research and technological innovation, which in turn affect society, politics and culture. A STS helps in understanding the complexity of contemporary and historical problems, with work in this discipline generating methods for understanding the interplay between science, technology and socio-political formations.

Timmermans and Berg (2003) advance the idea that standardisation is a 'dynamic process of change', that standards are not one uniform thing, with one uniform effect, but part of the ongoing scaffolding of a medical infrastructure, bringing into existence new ideas, entities and values. Their approach to exploring standards and standardisation rests on three central tenets:

1. *Situated knowledge*-standardization from the viewpoints of particular actors, with every interaction viewed as an intersection of multiple trajectories rendered meaningful from various perspectives

2. *Blurred agency*-standards viewed as exerting agency in a particular situation with other agents
3. *Emergent politics*-standards as political entities as part of a network, with an important aspect being power

(Timmermans and Berg, 2003, p.22)

They explore four typical categories of standards: design standards; terminological standards; performance standards and procedural standards. The fourth and final category, procedural standards was a category central to my study, the clinical practice guidelines which delineate the steps health care professionals should take when faced with specified conditions and it is this concept on which I focus here, with performance standards also addressed in the guise of the QOF (Department of Health 2003).

Exploring procedural standards in practice Timmermans and Berg (2003) drew attention to the fact that health care providers' orientation towards guidelines is pragmatic, they follow them because they consider them useful. The guideline becomes something on which they draw to advance their own goals and professional trajectories. They see guidelines not as simple input-output systems but as coordination devices, with active collaboration and submission required if they are to be a professional tool. Prior to using the guideline the complex task of evaluating the clinical situations and sifting through patient symptoms needs to be undertaken before a decision is made as to which, if any, standard applies. Timmermans and Berg (2003) observe that guidelines can change clinical practice in quite subtle ways. On occasions where standards incorporate a number of detailed steps guideline use may be evident, it may also be evident where guidelines are actively ignored, but in between are the guidelines that are

> constantly and routinely reappropriated in light of the organisational demands of medical practice and the situational requirements of each case
>
> (Timmermans and Berg, 2003, p.99)

These can be more difficult to see as they become part of work routines. Rather than radical behaviour change being observed the effect of the guidelines can be less obvious, with professionals adapting and implementing guidelines in a variety of ways, thus maintaining

their clinical autonomy. This appeared to be congruent with the idea of the SECI cycle discussed earlier, combining guidelines with clinical knowledge and internalising knowledge until it becomes part of everyday practice without obviously referring to a guideline, implying that guideline use is not the same as guideline compliance.

Furthermore is the fine line that guidelines draw between professional autonomy and accountability. Timmermans and Berg (2003) note that professional organisations develop criteria for a number of reasons, not just to improve quality of care, but to reduce practice variance and preserve the profession's control over medical care. Moreover they argue that professions do not impose clinical guidelines through reward or penalty, but see them as guiding behaviour through education and decision support functions. Outsiders such as government agencies, through dovetailing on the professional authority invested in guidelines and the scientific process underlying them can use guidelines to hold professions accountable (Timmermans and Berg 2003). This then erodes the leeway provided to professionals, changing guidelines from guidance into prescriptive behaviour, with the key mechanism for this being financial accountability, as has been seen in the QOF (Department of Health 2003).

The understanding of standardisation drawing on theories from science and technology studies and the impact of standardised care on professional behaviour provided an important theoretical element for my conceptual framework and an area to consider when interpreting data related to the impact of macro level standardisation on both the meso level organisation and subsequently micro level patient care. Timmermans and Berg (2003) conclude that western health care practices are far from effective, efficient, patient centred, timely and equitable, with work around individual patient trajectories fragmented because of intra and interorganisational boundaries that have little to do with patients' needs but instead relate to organisations and professions histories. The issue, they suggest, is not about the pros and cons of procedural standardisation but how it should be done, what shape EBM and

guidelines should take and how they should be put to work. To do this knowledge of the characteristics of health care work and the synergy between the standard's activity and the professional's embodied expertise, as well as an understanding of the different worlds aligned and transformed in the standardisation process is crucial if it is to be successful. What became apparent to Timmermans and Berg (2003) was their constant encounter of *different universalities.* Whichever standards they were studying, they were struck by the differences they encountered as much as the continuities. EBM was defined differently, not standardised but appropriated and re-appropriated by different health care professionals. The politics of standards they note does not lie in the debate about quality, dehumanisation, professional autonomy or de-professionalisation but in 'elucidating the specificities of the socio-material networks that emerge' (p.200), a key area for my study.

3.8 Towards a conceptual framework-drawing the threads

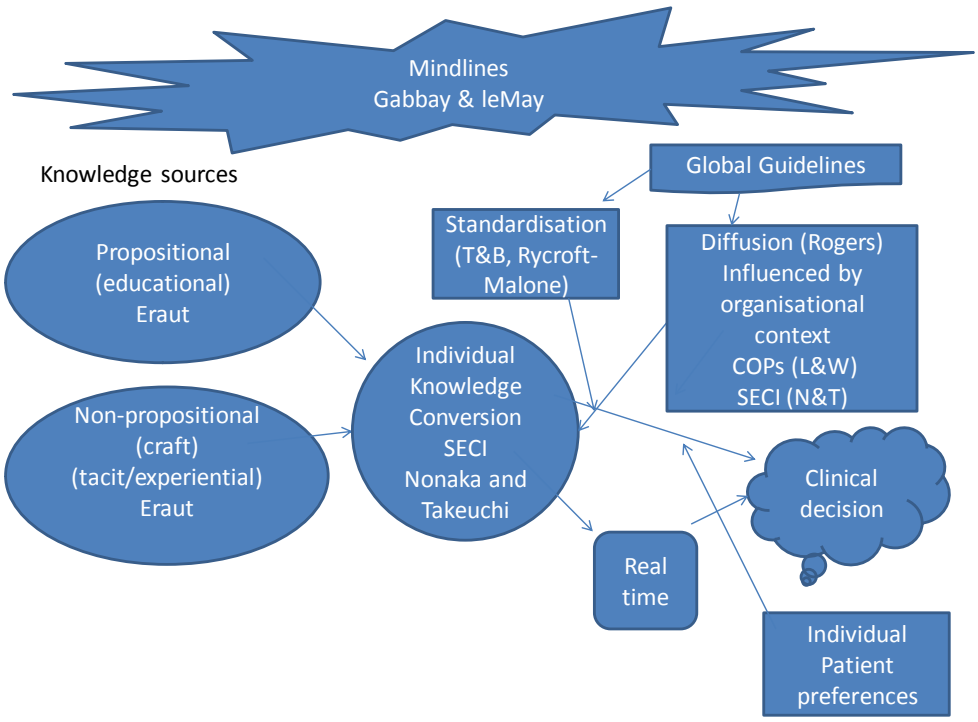
This chapter began with an account of a range of sometimes dissimilar theories that I have drawn upon to develop a broad conceptual framework on which to organise the data arising from the study presented in this thesis. Rogers' (2003) diffusion theory provided the basis for a number of the earlier studies considering EBP implementation, the main criticism for this approach is that evidence implementation in healthcare is far from linear or straightforward. However elements of this theory are still considered to have some intrinsic value, in particular the innovation attribute of observability and Rogers' theory is taken into account when considering data relating to the organisational and cultural approach to dissemination and diffusion of knowledge. Knowledge management theory was introduced and how the Nonaka and Takeuchi's (1995) rugby ball analogy can be applied to the implementation of new knowledge into health care organisations, particularly in relation to knowledge transformation and how evidence from guidelines can be incorporated into practice through the SECI spiral and this was considered when exploring data related to knowledge sources and its application. The issues surrounding knowledge 'stickiness' followed, this theory suggests that there are places where knowledge can stick prior to entering the organisation

and also within the organisation itself and this was investigated to isolate any particular area that causes knowledge to stick during the dissemination process. Referring to Eraut's (Eraut 2000, 2011), Eraut and Hirsch 2007) body of work on learning in the workplace, I outlined definitions of the types of learning that impact on all practitioners and considered typologies of learning that impact on knowledge utilisation. This work outlined investigative techniques to elicit sources of tacit knowledge and is used to determine the links between formal and non-formal learning on acquisition of knowledge, considering the workplace culture and social interactions on this process. I then proceeded to review Gabbay and le May's (2004, 2011) perspective on *clinical mindlines* as an overarching framework for investigating the social constitution of practice nurses knowledge, including their use of evidence based guidelines and the knowledge they subsequently use in the clinical encounter. The role of how knowledge can be shared transformed and integrated into practice through *communities of practice* was introduced (Lave and Wenger 1991, Wenger 1998, 2006) and this was considered in relation to the data on organisational and cultural context. Finally the increasing focus on standardisation in healthcare viewed within the framework of STS was discussed including how this impacts on everyday clinical practice (Timmermans and Berg 2003). Practice nurses work is increasingly influenced by standardisation and was an important aspect to consider for analysing data at both meso and micro levels.

Mindlines provide a useful construct to determine how practitioners develop and integrate knowledge. They denote the complexity of trying to develop understanding of the numerous social and psychological influences practitioners are faced with on a daily basis. Knowledge transfer, translation and utilisation are all part of the social process of knowledge transformation (Gabbay and le May 2011). The concept of mindlines was developed from a number of diverse theories and is similarly used within this thesis to provide an overarching framework, the other theoretical concepts explored within this chapter each contribute to different aspects of knowledge utilisation. Analysis in this study encompasses the numerous influences that practice nurses are presented with on a daily basis, including investigating

whether communities of practice (Lave and Wenger 1991) exist within their organisations and if they do whether they contribute to knowledge sharing and mobilisation. Knowledge both tacit and explicit is subject to reformulation and translation, a process that is far from linear and knowledge implementation is subject to both the practitioner and patients' social construct of their condition and dependent on differing needs. Within this study I analyse these differing influences and situate them in the overall picture of how decisions are made about care. Standardisation has an increasing influence at macro and meso levels and this influence is explored and analysed alongside the impact of increasing financially motivated standards, the relationship between increasing standardisation and nurses' autonomy is then outlined. My final conceptual framework taking into account the variable influences explored within this chapter is illustrated in Figure 1.

Figure 1: Conceptual framework



3.9 Conclusion

This chapter has advanced a conceptual framework to better understand how practice nurses access, use and implement knowledge including EBP and has discussed how theories drawn from a range of fields can support in underpinning the data in this study. The reading and use of a broad range of theories, including drawing on those from other fields such as knowledge management and education, in parallel to considering the approach taken by other researchers in the field subsequently shaped both the methodological approach I took to the data collection and accordingly the data analysis and its interpretation. Walker and Avant (2005) note that for the first several years of the EBP movement little mention was made of theory as a basis for empirical work surrounding evidence utilisation and implementation, but there is now a call for better theoretical underpinnings for both EBP and the knowledge development work that is driving these movements forward. Since this time a number of multi-dimensional theoretical frameworks have been developed in relation to knowledge translation to underpin empirical research on implementation (Rycroft-Malone 2010b), however there remains a lack of understanding of the influences that impact on knowledge utilisation amongst practice nurses.

Chapter four presents the research design and methods. My pre PhD interests were in evidence utilisation and the still evident 'gaps' between research and practice despite the proliferation of easily accessible guidelines and tools available to support practitioners working within primary care. My particular interest lay in practice nurses. Although Gabbay and le May's (2004, 2011) study included GPs and practice nurses working in primary care, the main focus of their investigation was on GPs, in particular the elements of the study relating to educational foundations and social origins of clinical knowledge which included data drawn from medical students and newly qualified doctors preparation for 'doctoring'. The decision to undertake a study of a primary care based professional group (practice nurses), who are a relatively under researched population, using in depth ethnographic methods seemed fitting, particularly in light of Gabbay and le May's (2011) recommendation

of the need to replicate their study with other types of practices and clinicians of different professions, ages, career stages, competence levels and consultation styles. Practically I was able to draw on considerable methodological expertise related to ethnography through my supervisors, who when I first posed my initial research question supported the type of in depth investigation that an ethnographic approach would deliver. Moreover it was important that I took a reflexive approach to both the theories that would underpin my study, the values and interests shaped by my own socio-historical location (Hammersley and Atkinson 2007), and the methodological approaches that I undertook as they unfolded, in addition to the later data analysis and presentation of findings. Chapter five onwards presents and discussed the findings from the study, with a particular focus on a context specific analysis of the way practice nurses develop and implement knowledge.

4. Chapter four: The Research Process

4.1 Introduction

This chapter focuses on the methodology chosen for the study, beginning with a discussion on the underlying philosophical perspective, followed by the key elements of the research process, the design and methods used, describing my research journey as it unfolds.

I outline the rationale for `ethnography' the methodology chosen to explore the research questions, noting as Brewer (2000) suggests, that there may be a distinction to be made between ethnography as methodology and ethnography as method. The former refers to a philosophical imperative to `understand' how people experience their world and the latter refers to what ethnographers actually do, namely to observe and listen through participant observation. Even this distinction is complicated by variation within both methodology and method as a number of commentators have observed (e.g. Williams 1993 discussing feminist `ethnography'). Rock (2001:33) emphasises that within ethnography 'it is prudent to search for a problem that is an extension of the known, a logical next step from territory that is familiar'. The complexities of the methodology chosen are addressed in detail, reviewing my underlying philosophical approach to the research, and the position I take in respect of ethnography. I outline the key elements of the research process including sampling, methods of data collection, analysis and the interpretation of data, including both theoretical and practical aspects. This includes discussion of the research governance and ethics frameworks within which the study was undertaken and the process involved in negotiating access to the study sites.

To reiterate, the broad aim of this study is to explore the educational, organisational and contextual issues impacting on the utilisation of knowledge by general practice nurses

including the role of evidence based guidelines, and to further explore the way in which this knowledge is accessed and used in relation to the clinical and nursing management of patients. At a time when the recognition of the importance of both the understanding and application of knowledge management theory with regard to healthcare delivery and the everyday behaviour of healthcare professionals was coming to the fore, the study reported in this thesis will broaden understanding of how practice nurses acquire and use knowledge, adding to the growing body of knowledge on this topic. As identified in chapter two a large body of empirical research exists in relation to knowledge utilisation in nursing. Much of this work has used self reported methods and there continues to be a lack of clarity surrounding the wider contextual issues impacting on knowledge utilisation. Recognition of the multiple factors that influence evidence use has increasingly come to the fore with authors such as Crilly et al (2009) proposing that ethnography carried out at the meso level has the potential to offer far more insight into the influence of cultural issues. Traditional ethnographic studies involve long periods of immersion in the field which was not appropriate or feasible to do for a part time PhD-level study. An ethnographic approach to the study, however, was taken through the use of ethnographic methods-interviews, observations and documentary analysis which were particularly relevant to generate data that would enable me to investigate the impact on knowledge utilisation and mobilisation of macro led policy and meso level organisation and the links between this and patient care delivered at micro level.

4.2 Philosophical perspective

In order to determine a suitable research approach, an understanding of the underlying epistemology was necessary. Epistemology and methodology are closely related and a brief review of the key methodological approaches to research is discussed here to support the approach I take to this study. My rationale, as outlined above was to explore the world of practice nurses and attempt to discover how they seek, gain and apply knowledge, a world that to me was not too alien and strange, but would allow me to explore with what Rock

(2001) calls an intelligent and informed eye, whilst acknowledging the potential bias my prior experience could generate.

It is worth noting at this point, that authors such as Bryman (1999) refute that the link between epistemological position and method of data collection is as clear-cut as is sometimes suggested, and recommend that methods can be used in 'a variety of contexts and with an assortment of purposes in mind' (Bryman 1999, p.63). When selecting an appropriate method of data collection the investigator needs to consider not only the epistemological position, but also the technical viability of the method in relation to the problem being investigated (Bryman 1999). This argument was taken into consideration when considering both the methodological approach I would take to the study and the most appropriate methods I would use to collect the data. Streubert and Carpenter (1999) suggest that based on the philosophical position adopted, different interpretations of the research findings may occur. There are no right or wrong methods but dependent on the philosophical position adopted the study will be approached with different sets of goals and expectations. Taking all this into consideration impacted on my decision to study two general practices, as discussed in further detail later in this chapter. My fieldwork would embrace Fielding's (1993) viewpoint of not including too many people or too wide a field of activity, and attempting to keep the work 'data-rich'.

4.3 Positivism or naturalism?

Positivism is focused on the methods of scientific testing of theories and hypotheses, it stems from the seventeenth century and is an approach to science based on a belief in universal laws, objectivity and neutrality (Comte 1896). The underlying philosophy is a quest for objectivity and avoidance of bias through detachment between the researcher and those studied. Quantitative research has its roots in positivism, a built in assumption that an objective reality exists that can be measured or observed in some way. Auguste Comte (1896) the French philosopher philosophised that each branch of human knowledge passes

in succession through three different theoretical states: the theological or fictitious state (all phenomena produced by the immediate action of supernatural beings), the metaphysical or abstract state (a modification of the theoretical state, where abstract forces produce all phenomena), and finally the scientific or positive state. In the positive state the human mind moves on from the notion of obtaining absolute truth and instead endeavours to discover through reasoning and observation the actual laws of phenomena, their relations of succession and likeness, explanation of facts consisting of the connections established between single phenomena and some general known facts. Investigators develop their approach from a theoretical perspective, generally establishing a hypothesis and testing theory, seeking causal relationships and focusing on prediction and control.

This focus on natural science became a model for early social sciences such as psychology and later sociology, with Comte (1896) suggesting that early social sciences should adopt scientific research methods. In the mid 19th century, there was much argument regarding the scientific status of history and social sciences, quantification being seen as a key feature of natural science (Hammersley 1999). Quantitative methods, in the form of survey and experimental research became the dominant approach in sociology, psychology and some other fields (Hammersley 1999). Qualitative research, although not a new approach, re-gathered pace in the early 1960's, Bryman and Burgess (1999) underlining that a number of factors may have influenced this increase in popularity of qualitative methods including: some disillusionment with the ability of quantitative research to deliver an authoritative account of the social world; a growing awareness of alternative epistemological viewpoints about how social reality should be studied; the emergence of some strident critiques of the output of quantitative research; and the emergence of some key methodological texts, such as Glaser and Strauss's (1967) explication of grounded theory. Naturalists argue that the positivist's aspiration of discovering 'laws' of human behaviour is flawed, since human behaviour is constructed and reconstructed on the basis of people's interpretation of the situations they encounter (Hammersley and Atkinson 1995). Gabbay and le May's (2004,

2011) work on the use of mindlines emphasised that despite the work that has gone into developing an ideal model for the use of evidence, clinicians do not follow this approach. My study expands on this approach and explores the behaviour of practice nurses in relation to evidence use. Exploring the history and methodological arguments regarding positivist and naturalistic approaches helped focus my decision to approach the work from a naturalistic viewpoint, as opposed to the descriptive self report surveys with the overarching focus on investigating the barriers impacting on research utilisation in nursing, which had previously dominated empirical research on this topic. The use of a naturalistic approach to my study could potentially provide the groundwork for further experimental implementation studies through developing a wider picture of knowledge development and potential organisational, cultural and social influences on its' construction and utilisation.

The interpretivist view considers that understanding in the social sciences is quite different from explanation in the natural sciences and should have elements of reflexive reconstruction and interpretation of the acts of others. Qualitative research has its origins in the interpretivist model, in which knowledge is produced inductively (Freshwater and Bishop 2004). Bryman and Burgess (1999) suggest the following definition of qualitative research, whilst acknowledging that although this definition reflects a widespread view of the approach, it is not a view held by all writers on qualitative research:

> 'Qualitative research is a strategy of social research which deploys several methods (often in conjunction in specific studies) and displays a preference for: the interpretation of social phenomena from the point of view of the meanings employed by the people being studied; the deployment of natural rather than artificial settings for the collection of data and generating rather than testing theory'
>
> (Bryman and Burgess 1999, p. x)

Denzin and Lincoln (1998) note that qualitative research has a long and distinguished history in the human disciplines, initially in sociology and anthropology but later in other social science disciplines including education, social work and communications. It first became established through the work of the Chicago school of sociologists in the 1920's and 1930's, and the work of social anthropologists such as Malinowski and Mead during the same time

period. They further define qualitative research as a field of inquiry in its own right, cross cutting disciplines, fields and subject matter, multimethod in focus, but always involving an interpretive, naturalistic approach to its subject matter. Hammersley (1999) reasons that all research involves both deduction and induction in its broadest terms and it is over simplifying to suggest that all quantitative research is deductive and qualitative inductive. He suggests that what is true is that we can distinguish between primary exploratory studies, concerned with generating theoretical ideas and those concerning hypotheses, both types being clearly required depending on the nature of the inquiry. Freshwater and Bishop (2004) suggest that many qualitative researchers share a humanistic philosophy, but that their individual beliefs originate from their discipline and are reflected in the way they research. They continue to note that nursing and social sciences need to understand person centred issues such as personal perceptions, experience and individual knowledge in order to improve their effectiveness. The research questions in my study led me towards a qualitative research approach. Practice nurses are a rapidly expanding group of health professionals and despite the increasing influence of policy and standardisation on primary care and their individual practice, there have been relatively few empirical studies relating to evidence utilisation by practice nurses and the subsequent impact of this utilisation on care provision.

Although qualitative research can be difficult to define, Streubert and Carpenter (1999) maintain that a fundamental belief of qualitative researchers is the idea that multiple, rather than single, realities exist and create meanings for the individuals studied. Rather than search for one truth they state that qualitative researchers believe that:

> Individuals actively participate in social actions and through these interactions come to know and understand phenomena in different ways (p.16).

They note that to fully understand the context of what is to be researched; qualitative researchers need to conduct extensive interviews and observations, also searching documents and articles of importance; however the discovery of particular phenomena should lead to the choice of approach to answer the question, rather than the method

leading to the discovery. Streubert and Carpenter (1999) also emphasise that the key element of qualitative research is the attention to discovering the *emic view,* determining what the experience is really like for the individual, whilst respecting their perspective and space. Although my interview sample was relatively small (eleven nurses + two GPs), this was combined with two-three hour observations of all the nurses in clinical practice plus observation of associated practice meetings. These observational periods allowed me to explore the nurses' perspective at the end of each clinic, in addition to the data obtained at interview.

Interpretative or naturalistic research contends that in order to comprehend social reality, the researcher needs to understand social phenomena, i.e. discover the participants' perception and interpretation of reality and how these relate to their behaviour; as opposed to the positivist aspiration of discovering laws of human behaviour (Gerrish 2003). Gerrish argues that the view of multiple realities, or anti-realism is not the only view held in naturalism. The opposing view is that of realism, in that the world exists independently of our awareness or interest in it, the researcher is a potential source of bias and the task of the ethnographer is to enter with as few preconceived ideas as possible to avoid influencing the data collected and its interpretation. Hammersley (1999) moreover stresses the danger of over rapport, taking over false assumptions of the people we are studying and becoming unable to see the world other than the way in which it appears to them. Gerrish's (2003) summary of the different theoretical positions of realism and anti-realism in the field of naturalistic research proved useful in clarifying both my selection of methodology and underlying philosophical position. She underlines that realism is the philosophical position upon which naturalism's conception of objectivity is based, whereas anti-realism stands in sharp contrast, underpinning post-modern and post-structural perspectives of research. Maintaining a detached objectivity was important when undertaking both data collection and analysis, particularly when making observational field notes, to ensure that I recorded what happened

with notes to investigate further with the participants rather than add on my own values and judgement.

Realism is based on the assumption that direct and valid knowledge of reality is possible and is concerned with ascertaining a single truth. Whereas anti-realism believes there is no absolute truth, there are no truly objective observations and that the researcher's account is one version amongst many socially constructed realities, devised by individuals as they try to make sense of their experience (Guba and Lincoln 1994). Any attempt to gain insight into the inner life of another being is inevitably filtered through the researcher's language, gender, social class and ethnicity (Gerrish 2003). Gerrish reveals that to resolve the challenges of these two approaches she was influenced by Hammersley's (1992) argument for 'subtle realism', through recognising that knowledge is provisional, the objective is to search for knowledge of which you can be reasonably confident. The aim is to represent reality, rather than attempting to eliminate the effects of the researcher it is recognised that the researcher is a part of the social world they study and through reflection an attempt can be made to understand those effects and how they may impact on the research and this was the approach I felt was more appropriate to take. Gabbay and le May (2011) for example in their mindlines study note that the most reassuring aspect of their study was the practitioners' recognition of the elements they identified and described.

One of my concerns prior to beginning the research was that I might influence the behaviour observed, Gerrish's (2003) views helped reduce these apprehensions by viewing them in the context of the larger picture emerging from the research. As the research progressed this helped me with working through some of my unease in relation to how my presence sometimes impacted on the consultations observed, particularly in relation to the sources of knowledge that nurses referred to. By sometimes asking me directly what I would do, there was always the risk that I would inadvertently refer them to a source of evidence that they were previously unaware of, thus introducing bias into my observations. Indeed Geer (1999),

discussing the use of participant observation in her own fieldwork, warns herself, 'don't wise up your informant (p.36)', and notes that as a field worker you must become aware of the role you play in more detail to assess its effect. Janesick (1998) emphasises that qualitative research is ideologically driven, with no value-free or bias-free design. She continues to say that the key is to identify your biases, articulating the ideology or conceptual frame for the study. Through doing this you continually raise awareness of your own biases, identifying where the questions that guide the study are crafted. Using me as a source of knowledge could therefore be interpreted as evidence of utilisation of 'localised links-shortcuts to evidence' (Gabbay and LeMay 2004), rather than be seen as researcher bias. What became important was to determine where the nurses would have gained that information if I had not been present, rather than being overly concerned about what to answer.

Janesick (1998) considers qualitative research design to be an interpretative art form, such as dance, with the qualitative design of the study serving as:

> A foundation for the understanding of the participants' worlds and the meaning of shared experience between the researcher and participants in a given social context (p.37)

Janesick (1998) further emphasises the importance of qualitative research design beginning with a question, the researcher designing a study with real individuals in mind and living in the social setting of the research over a period of time, studying the social setting in order to understand the meaning of participants' lives in their own terms. The first phase of my data generation involved observation of the nurses during clinical practice, this enabled me to further develop the areas I wished to explore in the one to one interviews with the participants, for example their preferred sources of evidence, or why they took a particular course of action when this appeared to be contrary to the evidence. In conjunction with the observation I also reviewed documentary evidence relating to guidelines available to the participants in their everyday practice, to attempt to understand some of the leading influences on the decisions they took during the clinical encounter. This dual approach provided me with the opportunity to develop an understanding of the social and

organisational culture that inevitably guided and influenced their practice. Qualitative research tends to be evolutionary, rather than strictly defined, with the questions developing and becoming more specific as the research unfolds, with the researcher responding to what they hear and find in the setting (Holloway and Wheeler 2002). Silverman (2000) emphasises the importance of beginning to analyse data in the early stages of research to test out methods, findings and concepts, Hammersley and Atkinson (2007) argue that engaging in sustained data analysis alongside data collection is often difficult in practice. They recommend maintaining a level of reflexivity throughout data collection, even if it is not possible to carry out formal data analysis before fieldwork is complete. Undertaking this study whilst working in a full time demanding academic role meant undertaking formal data analysis alongside data generation was difficult. I instead reflected on the data collection process as it progressed, which I felt enabled me to review the appropriateness of the approach I took to gathering data and ensure that the information I was gathering was sufficient to allow me to, as Silverman suggests, 'generate interesting generalisations'.

4.4 Methodology-qualitative research and ethnography

The research questions posed in my study suggested a qualitative research approach, specifically ethnography, to be the most appropriate methodology. This allowed for in-depth exploration of both views on evidence, and the underlying themes and context within which those views are being shaped, as well as if, and how, evidence is utilised. Equally important, from the onset, was to identify the parameters of the approach I took to ethnography, as well as the ideas and theories underpinning it. Hammersley and Atkinson (1995:8) make the point that 'in order to understand people's behaviour, we must use an approach that gives us access to the meanings that guide that behaviour.' Before trials can be established to determine what type and format of evidence can assist practice nurses in delivering evidence based health care it is necessary to determine how they derive and use knowledge, thus adding to the theoretical knowledge base. Research involving human relationships and which attempts to capture participants' lives from their point of view is

complex. Added to this was the challenge of attempting to observe and understand the reasoning behind how the nurses conceptualised knowledge and how they interpreted and applied this within the everyday clinical encounter. The decisions they made would be subject to numerous influences and personal frameworks of beliefs and values, with the additional influence of the micro context of the decision (time, complexity, information available) (Thompson et al 2004). The extensive field notes I took during observational sessions guided my subsequent interview questions. Additionally I would ask the nurses immediately after the encounter if I needed further clarification around what influenced their decision.

Denzin and Lincoln (1998) suggest that qualitative researchers think historically, interactionally and structurally, self-consciously drawing on their own experiences as a resource in their enquiries. Furthermore they suggest that they seek “strategies of empirical inquiry that will allow them to make connections among lived experience, larger social and cultural structures” (p.x1). On reading this it struck me as being particularly pertinent to the research I wished to carry out. Coming to the research with a long history in practice nursing and being acutely aware of the historical and cultural changes, in both the NHS and specifically in general practice that have shaped the role, this statement appeared to clearly sum up my intentions with conducting this research. Baszanger and Dodier (2004) emphasise that a study becomes ethnographic when the fieldworker is careful to connect what they observe with the historical and cultural contingencies within which they developed.

Understanding the history and definitions of ethnography helped me in putting my study into context, particularly in regard to the time I was able to spend in the field. Bryman (2001) remarks that outlining the definitive history of ethnography is difficult, the emergence of modern ethnography tending to reflect two traditions; development of ethnography in social and cultural anthropology and as noted earlier, the role of early institutions such as the Chicago School in providing the foundations for a sociological ethnographic tradition. Indeed

Barbour (2008) states that ethnographic methods were a mainstay of the work of sociologists in the Chicago School, which has continued to prove influential to the present day, noting that although the challenges between carrying out observational fieldwork are somewhat different at home than in a previously unknown culture there are also some surprising similarities. Hammersley and Atkinson (1995) note that although the popularity of qualitative research has increased over the last few decades, to the point where in some areas it has become the dominant approach, this success has brought with it subsequent diversification and disagreement; with dissension about its proper nature and purposes and different theorists have attempted to formalise this diversity through identification of multiple paradigms. However in providing an explanation of ethnography, they interpret it liberally referring to it as:

> …participating, overtly or covertly in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions-in fact collecting whatever data are available to throw light on the issues that are the focus of the research (p.1)

Brewer (2000) defines ethnography as:

> The study of people in naturally occurring settings or 'fields' by means of methods which capture their social meanings and ordinary activities, involving the researcher participating directly in the setting, if not also the activities, in order to collect data in a systematic manner without meaning being imposed on them externally' (p.10)

Geertz (1973:5) describes the task of ethnography as providing 'thick description' through the active and protracted engagement of the researcher in the setting under study. Hughes (1992) suggests ethnography involves 'process, product and promise', viewing the task of providing an ethnographic account (the promise) as going beyond the 'etic' (outsider's) description of the object being investigated, to provision of an 'emic' frame of analysis, with both internal and subjective data supplementing the researcher's observations and measurements. Barbour (1998) advocates that the research may then serve the purpose of 'bearing witness'- experiencing the life of another and taking compassionate action. Small (1998), discussing the power of the narrative in research, suggests that part of the researcher's task is to document their contribution to bearing witness, using our reflexive gaze to extend beyond the research interaction and encompass the wider context in which

the encounter takes place. Hammersley (1999), discussing the contrasts between experiments and ethnographic research, emphasises that although a long held criticism of experiments is that findings are not generalisable to the 'real world' because people's behaviour is shaped by their awareness of the experimental situation, all research, even ethnographic research in 'natural' settings can be affected by reactivity. He further notes that all research is subject to potential error and although the ethnographer can attempt to minimise their effects on the situation studied, this cannot always be guaranteed and can result in significant effects despite the researcher's efforts. It was therefore important that I considered the potential of ecological invalidity (making the setting unrepresentative of those about which the researcher wishes to generalise), which Hammersley (1999) notes can also be influenced by the natural setting differing in important ways from other cases in the same category. Choosing to investigate more than one site appeared to be a sensible proposition to aim to reduce ecological invalidity, in addition to adopting a low profile to attempt to reduce reactivity.

Barbour (2008) suggests that the task for the ethnographer studying his/her own culture is that of rendering the familiar strange, questioning taken for granted assumptions and categories. She recommends that the approach can be used to understand the workings of an entire culture or to understand how specific tasks are routinely accomplished in a particular setting, which fitted with my intention to explore whether, and how evidence is utilised to influence decisions made within the clinical encounter. Discussion with my supervisor regarding my first set of field notes identified that they were quite clinical in context, reflecting the consultation rather than the observation experience. Moving to a more behaviourist style of field note encouraged me to stand back from the situation being observed and rather than see it from a clinical viewpoint, see it from afresh, observing the subtle nuances that all put together make up the consultation. Geer (1999) emphasises that reading what people say

> ….is not as compelling as experiencing it in the flesh, hearing the voices, seeing the gesture and expression (p.39)

Being inexperienced in fieldwork, this emphasised to me the importance of commenting on the experience I was observing, constantly asking myself what it was I was there to discover and what background information I needed to learn in order to put the data in context when it came to interpretation and analysis.

4.5 Sampling and negotiating access

The sample for this study was selected using a strategic or purposeful sampling strategy. The study sites selected were initially in different LHB areas, although due to subsequent NHS reorganisation these merged into one large health board during the course of the study, but covered different patient populations and varied in their individual approach to service delivery. As Denzin and Lincoln (1998) note the sampling choices made within and across cases directly determine the data that will be considered and used in analysis. Some of the issues impacting on sampling included restricted resources in relation to both time and travel. Although this perhaps may be seen as limiting, the area selected was a large geographical area with a considerably variable demography whilst the difference in the actual sites still allowed the possibility of comparison and distinction.

Denzin and Lincoln (1998) emphasise that the logic and power behind purposeful selection of informants is that the sample should be information rich, and with this aim I wanted to ensure that the participants selected would be able to share their experiences with me. Newell and Burnard (2006) stress that although the aim of qualitative research is not to generalise, as the nature of the sampling, data collection and analysis do not allow it, findings from qualitative samples may be illustrative of particular experiences and points of view. This can subsequently lead to very detailed and deep descriptions of personal accounts. Silverman (1993) refers to Harvey Sacks' criticism of making ethnographic generalisations, Sacks suggested that this can be resolved at the analysis stage by avoiding

abstractions and early generalisations and proceeding item by item. An illustrative example of a typical sample size in qualitative research is therefore impossible to give (Newell and Burnard 2006), however in reality all projects are bound by some constraints, and therefore my decisions on sampling were influenced by Silverman's (1993:3) comment-'to say a lot about a little', rather than 'a little about a lot'.

Streubert and Carpenter (1999) suggest that individuals who take part in qualitative research are active participants in the study, their active involvement in the inquiry helping the researcher to better understand their lives and social interactions. The 'who and what' to be sampled in qualitative studies include both cases and instances of phenomena as well as social processes (Denzin and Lincoln 1998). Denzin and Lincoln (1998) also point out that every instance of a case bears the stamp of the general phenomena to which it belongs, but in any given instance is particular and unique. They emphasise the importance of employing purposive, rather than random sampling methods to seek out groups and individuals where the process under study is most likely to occur. The aim of purposive sampling is for the researcher to set out a specific set of criteria for participants and recruit as many participants as are required who meet the criteria, it is often highly selective resulting in a unique group of individuals (Newell and Burnard 2006).

Denzin and Lincoln (1998) put forward that a good informant is one who has the knowledge and experience required, the ability to reflect and articulate, the time to be interviewed and who is willing to take part in the study. They advise using primary selection to sample informants meeting these criteria and secondary selection to select participants by other means. Secondary selection takes place if the researcher cannot recruit participants who meet the criteria and have to obtain participants by other means, such as advertising, which can be fraught with difficulties. My intention was to include a core sample of practice nurses, based at purposively selected general practices of different sizes with key informants used to aid selection. In reality the choice of participants to a large extent depended on the selection

of the practices. This caused some dilemma as there remained the distinct possibility of a difference between practices that agreed or declined to take part. All participants were, however, selected using primary selection.

Early on in the research I made a decision to select two practices, observing all the nurses within each practice, to ensure I could spend adequate time to attempt to fully comprehend the cultural and organisational issues impacting on the nurses' everyday judgement and evidence based decision-making. The culture of an organisation is dependent on a number of issues including: individuals, management, clients, policies, work of the organisation, past history and current trends. Practices were selected not only for their client group size but also for the types of area they covered, the intention being to include practices from areas of social deprivation, urban and rural areas. Although the practices would be subject to similar overarching political and health influences, such as the nGMS contract (Department of Health 2003), it was anticipated that local culture, history and clientele would also influence individual practice. Both the GP practices selected were approached, initially via a telephone conversation with the practice managers, to gain permission to undertake the study. Following initial agreement I visited the selected practices to explain the purpose of the study and to obtain permission from the practice management team to allow me full access on a day by day basis and to allow the participants time to be interviewed. Access to the organisations and participants was fully dependent on their co-operation and willingness to take part. I also offered to present the proposed research to the research participants to ensure that they were fully informed with regard to the purpose and structure of the study and had the opportunity to comment on any particular aspects, however not all participants were able to attend. Information sheets were provided for all participants prior to data collection (Appendix 3 a,b,c). Nurses working within the practices which had consented to take part were all asked for their individual consent prior to first observation (Appendix 4a), as was the chairperson for each meeting I attended (Appendix 4b), and assured that they were under no obligation to participate. Participants were advised that a fieldwork journal

would be kept to provide a running account of the research and assured regarding the maintenance of confidentiality.

The first practice, pseudonym Mountainside; coded in the data analysis as P1, is a large practice, which includes a main surgery, and two branch surgeries, B1 and B2. The town in which the main surgery is situated has a population of approximately 11, 500 and is situated in an ex-coal mining area, the practice also covers a number of outlying small towns and villages. The staff include: 7 GP partners and 7 salaried GPs, (14 GPs in total), 1 nurse manager, 1 nurse practitioner, 8 practice nurses (two of whom worked in the branch surgery B1 and one in branch surgery B2) as well as a practice and administrative manager and administrative/reception staff.

The second practice selected, pseudonym Riverside; coded in the data analysis as P2, is situated in the centre of a rural town, with a population of approximately 10,000. Although a relatively affluent area, the practice population of just fewer than 12,000 also includes isolated rural areas and areas of deprivation, as well as a significant elderly population with limited access to public transport. The staff include: 7 GP partners, 1 nurse practitioner, 1 locum nurse practitioner and 4 practice nurses as well as a practice and administrative manager and administrative /reception staff.

The selection of participants was intended to be large enough to allow for the elucidation of the nature and range of approaches to evidence utilisation and the issues associated with how practice nurses view evidence, whilst being small enough to ensure that the richness of the data obtained was not diluted. Seale (1999) suggests that by providing a detailed, rich description of the setting, readers should be provided with sufficient information to judge the applicability of the findings to other settings. The aim was to select people, situations and experiences that helped to explore the questions to be addressed exploring subjective patterns of personal, group and organisational experience and gauging the meaning of this

experience whilst taking account of situational context (Brett Davies 2007). It was originally anticipated that as the data collection process evolved it may prove necessary to undertake alternative lines of enquiry, for example talking with significant others such as GPs and/or practice staff. A purposive sample of eleven practice nurses from the selected general practices, who had previously been observed, were selected for interview, seven from the first practice- Mountainside and four from the second practice- Riverside. In Mountainside interviewing the practice nurse manager, in conjunction with observing practice and educational meetings provided me with the information I required. In Riverside, after interviewing the practice nurse participants, I felt I needed to also interview two of the GPs, one of whom was responsible for education, and the other who was responsible for guideline dissemination within the practice, to understand fully the organisation's culture and attitude to guidelines, knowledge dissemination and in-house educational influences.

Selecting all the nurses within Mountainside and the branch surgeries gave me an initial sample of nine registered nurses (Table 3). All participants were white British and had completed their registered nurse training between the late 1970's and mid 1980's. Four of the cohort were graduates (including the nurse manager and the nurse practitioner), two of these in non-nursing disciplines. In addition the nurse practitioner was undertaking an MSc Nurse Practitioner programme; at the time of the study she had completed the first two years and was moving on to the final dissertation year. The nurse manager was a non-medical prescriber and the nurse practitioner obtained her non-medical prescribing qualification between the time of observation and the time of interview.

Table 3: Mountainside participants

Participants in Practice 1	Observed	Interviewed
Nurse A -Amy	X	
Nurse B -Brenda	X	X
Nurse C -Cara	X	X
Nurse D -Dee	X	X
Nurse E -Elle	X	X
Nurse F -Fiona	X	X
Nurse G -Georgie	X	
Nurse I -Issy	X	X
Nurse J -Jackie	X	X

The sample in Riverside consisted of six registered nurses (Table 4). As in Mountainside, all the nurses were white British, two trained in the 1970's, three in the 1980's and one in the mid 1990's. Four of the cohort were graduates, all in nursing disciplines, including the nurse practitioner who had undertaken an MSc nurse practitioner programme. The nurse practitioner and locum nurse practitioner were non-medical prescribers. Unlike Mountainside, Riverside did not have a specific nurse manager. Two GPs were interviewed in addition to the nurse participants, Brendon who took responsibility for guideline dissemination within the practice and Robert who liaised with the nurses regarding in-house educational updates.

Table 4: Riverside participants

Participants in Practice 2	Observed	Interviewed
Nurse K -Karen	X	X
Nurse L -Laura	X	X
Nurse M -Mandy	X	X
Nurse N -Nicky	X	X
Nurse O -Olly	X	
Nurse P -Pip	X	
GP-Dr R -Robert		X
GP-Dr B- Brendon		X

4.6 Methods of data collection

Newell and Burnard (2006:57) recommend asking the following two questions when deciding on a data collection method:

1. What sort of data will help me to answer my research question or research aims?
2. What is the most appropriate method for collecting those data?

From the start of my data collection I was clear in my choice of methods and how these would be used to develop my findings. I used a range of ethnographic methods; observation, interviews and review of documentary evidence including written protocols and guidelines, to gather what Silverman (1993) calls an 'authentic' understanding of experience. Appleton (2009) suggests that qualitative methods are inductive, exploring people's subjective experiences and opinions to provide understanding and give meaning to social phenomena, building theory and insight from categories generated from their own data. My intention was to view things in context, combining insight with rigour to ensure my subsequent findings would be seen as original and valid. Denzin and Lincoln (1998) propose that the researcher has several options for collecting empirical material, from interviews to observation, to analysis of artefacts, documents and cultural records to using visual materials and personal experience. Barbour (2008) agrees and suggests that although the

classic anthropological tradition of ethnographic research favoured the use of observational fieldwork as a stand-alone method, it has been utilised alongside a wide range of other methods, such as interviews, textual analysis and transcripts of conversations.

Denzin and Lincoln (1998) maintain that qualitative research is mutimethod in focus, qualitative researchers deploying a whole range of interconnected methods to attempt to make sense of, or interpret, phenomena in terms of the meanings people bring to them. The constant aim should be to gain further understanding and a 'better fix' of the subject matter. The term 'methods' tends to be used when referring to data collection and analysis techniques to collect evidence about what exists, although the distinction is more blurred with qualitative research. Miles and Huberman (1984) advocate that qualitative researchers have a range of options in how far they use pre-defined methods and measures, what they term as 'prior instrumentation', but the structure of the research should be considered and 'no prior instrumentation' should not be regarded as a default option. Silverman (2000) stresses the importance of asking how far the methods considered will prove valid, noting that objective and reliable data methods are specific research techniques, not true or false, but to be useful need to fit with the theory and methodology used and the research topic selected.

4.6.1 Participant observation

Observation as a method is considered one of the mainstays of ethnography, offering the opportunity to view behaviour in a natural setting and uncover inconsistencies between what people say and what they actually do (Barbour 2008). I spent over 60 hours observing clinical practice and practice meetings. Periods of observation of two-three hour sessions focused on the clinical encounter and the information the practice nurses utilised within these, participants were generally observed twice depending on the length of the session and the number of patients seen within the session. Particular note was made in consideration of the evidence based information sources available to them, how accessible

they were and whether they referred to them, or whether the knowledge they used was based on alternate sources of information. The first phase of my fieldwork involved observing the practice nurses (including the practice nurse manager and nurse practitioner) selected for the study, in their normal clinical environment, undertaking a variety of duties including:

- Practice nurse clinics providing traditional general treatment room care (e.g. wound management, health promotion etc.)
- Nurse run clinics specialising in the management of long term conditions
- Nurse run clinics providing first contact care in the form of triage, advanced assessment, management of minor illnesses and injuries.

In Mountainside only the nurse practitioner undertook the latter role, whereas in Riverside three of the practice nurses ran minor illness clinics, as well as the nurse practitioner and the locum nurse practitioner. Practice meetings were observed in each selected practice, both team meetings and educational sessions, to determine what other sources of knowledge practice nurses used when making clinical decisions and to see what social, organisational and cultural issues impacted on translation of evidence into clinical practice. Notes of these meetings were charted in my fieldwork diary.

Observation is a method generally used to attempt to understand a particular organisation, or substantive problem. It is typically used where not enough prior information is known to identify relevant problems and hypotheses; instead these are discovered in the course of the research (Becker 1999). Whyte (2001:162) defines a participant observer as:

> A researcher who participates in social activities with the subjects of study over an extended period of time

Whyte further notes that whilst it is not feasible to establish a lower limit to this 'extended period of time', the investment of considerable time is necessary to break through the 'superficialities of conversations among strangers' (p.163). Bryman and Burgess (1999:xv11) expand further describing participant observation as:

> A research method in which a researcher immerses him- or herself in a social context with the aim of uncovering through an empathetic understanding the meaning systems of participants in that social context and hence to see the world from their point of view

They argue that participant observation is difficult to define as a research method, the term being subject to change over the years and also being ambiguous in its nature, emphasising that the participant observer is rarely 'just' an observer if this is defined by merely watching and listening, participant observers invariably interview people and examine key documents. This certainly helped to clarify that what I was doing was indeed a form of participant observation. I did not take part in delivering direct patient care, but in addition to observing I interviewed key informants and gathered information from the practices on the evidence sources available. Although I could not claim full immersion in the social world of practice nurses in a traditional ethnographic sense, Bryman (2001) states that true ethnography has to entail at least some participant observation. Unlike traditional ethnography where typically the researcher would spend long periods in the field using multiple data collection methods the approach I took was a focused ethnographic approach. Contemporary approaches to ethnography particularly in health care are often time constrained and aim to answer quite specific questions about a cultural group (Bernard 1994).

Bryman (2004) argues that participant observation is in fact another term for ethnography, rather than a separate data collection method. He notes that the two terms have historically been interchangeable, with ethnography being the preferred term since the 1970's. He moreover suggests that participant observation and interviewing are often cited as the main data collection methods in ethnographic research, but also argues that participant observers frequently conduct informal interviews in the course of their research, asking questions about what they have observed and recording this in their field notes. He suggests that ethnography is a research method in which the researcher is: immersed in a social setting for a period of time, listens to and engages in conversations, interviews informants, collects documents, develops an understanding of the culture of the group and people's behaviour within that culture and writes up a detailed account of the setting, the term ethnography thus

including participant observation and ultimately being a written product of ethnographic research. With this in mind, in order for my study to be deemed ethnographic it was important that I spent time in the field observing practice nurses undertaking their everyday activities, in order to determine how they utilised and integrated evidence into their practice, and to increase understanding of their behaviour. To gain an understanding of the cultural and organisational influences on knowledge transfer and utilisation, as part of my fieldwork I also observed both practice and educational meetings. This observational fieldwork subsequently informed the development of my interview guide (Appendix 5).

Bryman uses Gold's (1958) classification of participant observer roles to describe the roles that can be adopted by ethnographers. These include: *complete participant, participant-as-observer, observer-as-participant* and *complete observer.* This I found an interesting analogy, my role appeared to be somewhere between the *participant-as-observer* and the *observer-as-participant,* I felt that I was able to interact and participate in the working lives of the practice nurses, and my role was clearly overt, however I was keen not to become too involved with the nurse-patient interaction as this may have produced some bias into my research, for example in pointing them to appropriate sources of evidence. An example from my field notes illustrates how this sometimes caused conflict between my desire to observe normal practice and my instinct to provide information to a fellow nurse to support her in a difficult consultation:

> A patient presents with shingles over his eye, Jackie *(whose clinic I was observing)* asks me what I would recommend. *(Aware that at this stage she was running behind and appreciating the severity of the situation, and knowing the recommended treatment for the condition, this created a dilemma between my researcher role and my responsibility as a nurse.)* Do I advise, or wait and see what action she takes? Jackie refers to her Handbook of General Practice and rings the ophthalmology department for advice, relieving me of my predicament
>
> (Field notes, July 2008)

Bryman (2004) argues that the active/passive debate is quite common in ethnography, with the potential situation of unavoidable participation, or a compulsion to join in, a potential issue even in the observer-as-participant role. A further risk of the participant-as-observer

role is the potential of ‘going native’, immersing yourself so far into the world view of those that you are studying, along with the commitment to seeing the world through their eyes, that you can lose sight of your role as a researcher and find it difficult to develop a social scientific angle on the collection and analysis of data (Gold 1958). As noted earlier this became clear to me when reviewing my notes from my initial observations with my supervisor, who noted my tendency towards drawing on the clinical aspects of the encounter (an area I felt more comfortable with), rather than drawing out from the encounter the evidence I needed to support the information that I would introduce into my later discussion.

Gans (1968) also provides a classification of participant observer roles, but suggests that rather than adopt one role; in the course of ethnographic research different roles will be adopted at different times and for different purposes. These roles are: *total participant*- where the researcher is completely involved and resumes researcher status once the situation has unfolded; *researcher-participant*- where the ethnographer participates but continues to function fully as a researcher throughout the situation; and *total researcher*- observation without involvement e.g. attendance at a public meeting or watching from a distance. Gans’s (1968) classification thus reflects the reality and flexibility of ethnography, reducing the risks involved in adopting one single role and appreciating the implications that different situations have on field relationships. Although I rarely felt that I undertook the role of *total participant,* I certainly experienced both *researcher participant* and *total researcher* roles. Whilst observing the clinical situations I felt I functioned most of the time as a *researcher-participant,* generally being able to make notes on the scenarios as they unfolded, but feeling an involvement in the situation, as the nurses, and patients, would often draw me into the consultation. I was conscious that as a researcher my participation was not as a practising nurse, but more in the sense of interacting with participants throughout the fieldwork. At times it was more appropriate to simply observe and make notes at a later stage, the following field note illustrates one such occasion:

> A patient attended for a hypertension check, but during the consultation became quite upset, as she had recently undergone surgery for ca endometrium and had been told she was not a suitable candidate for chemotherapy. I felt quite obtrusive and it was certainly not an appropriate situation in which to make notes. Although she was aware of, and had not objected to, my presence during the consultation, the difficulties of observation became apparent, however to leave the room would have seemed even more inappropriate than staying
>
> (Field notes, June 2008)

During my observation of the practice meetings I generally took on a *total researcher role*, watching and taking notes, but not participating. Although when observing the educational meetings, although still in a researcher role I was able to ask questions and was encouraged to join in the discussions. Observational research generally produces an immense amount of 'rich' but varied data, leaving the researcher with the difficulty of how to both analyse it systematically and convince others of its validity (Becker 1999). Becker further emphasises the importance of analysing data sequentially and this is further discussed in the analysis section.

4.6.2 Fieldnotes

Field notes were kept throughout the study to provide detailed descriptions of the context in which the observations took place. Hammersley and Atkinson (1995) note that a carefully made fieldwork journal enables the researcher to retrace and explicate the development of the research design, including the emerging analytic themes and systematic collection of data. Field notes additionally provided me with a reflexive journal, allowing me to revisit not only incidents that I would then explore further in interview but incidents where I perhaps felt uncomfortable in the researcher capacity, allowing me to develop strategies to reinforce my objectivity. Personal observations and reflections were kept in a fieldwork diary concurrently with my observations of clinical practice, practice meetings and educational events allowing me to revisit my thoughts and feelings alongside my observation notes.

4.6.3 Overt v covert approaches to research

I attempted to make my research role explicit in all instances to both the participants and the patients whose consultations I observed, what Bryman (2004) describes as overt

ethnography. From the outset I was keen to answer any questions that people may have had about the study and made a point of meeting with as many people as possible prior to the observation to ensure they understood the purpose of the study. Whyte (2001) suggests that when studying a community, the researcher has no choice but to assume an overt role, a covert role only becoming possible when the researcher studies his own society, the main difference between the two he suggests, is that the overt participant observer should tell participants how confidential information will be handled.

The importance of this was emphasised to me in the first study site - Mountainside. I had supplied the nurse manager with a number of information sheets for the practice nurses who I would be observing, and I then obtained individual consent prior to each observation. When discussing the consent form with one of the nurses she remarked that she was not sure of the purpose of the study and had not seen the information sheet, and quite rightly was reluctant to sign the consent form without further discussion. This reinforced to me the importance of discussing the study and ensuring informed consent with each of the participants prior to beginning the observations. As Whyte (2001) notes, success in research that relies on interviewing or observation alone, or a combination of the two, relies on the building of a mutually supportive relationship, those under study should be considered as active collaborators, not passive informants. Relationship building is the key to success and developing your research techniques. Generally the overt nature of my role enabled me to immerse myself fully in the day-to-day life of the practice, and practitioners became used to my presence.

4.6.4 Interviews

Interviews were a key part of my data generation, interviews with the practice nurses provided opportunities to explore their attitude to evidence, the organisational approach to knowledge transfer and utilisation and its impact on practitioners' attitudes and practice. I wanted to be able to explore further some of the situations I had observed, elicit individual

viewpoints and determine how their own experiences had contributed to these viewpoints. Interviews with the practice nurses provided an opportunity to explore their roles and responsibilities in relation to knowledge access and use. I wanted to assess the perspectives, beliefs and values of the practice nurses towards types of evidence, including clinical guidelines and other sources of information that informed their practice. Individuals' educational preparation for the role was also discussed at the interview stage to help determine whether this had any impact on the type of information they used to support their clinical decision-making. Interviews with the practice nurses; the nurse manager in Mountainside; and the two GPs in Riverside; allowed exploration of the organisational influence on evidence, as well as the impact of cultural and policy influence. All interviews were audio-recorded.

Barbour (2008) reasons that interviews are often presented as the 'gold standard' of qualitative research, involving a rarefied in-depth exchange between researcher and researched. The interview is one of the most extensively used methods of data collection in the social sciences, the key difference between quantitative and qualitative interviews being the structure employed (Bryman and Burgess 1999). Bryman and Burgess (1999) emphasise that even in qualitative research there is no typical approach to interviewing, from totally unstructured with few prompts, to asking the same series of questions to each respondent, but allowing considerable latitude in how they answer, and in the sequence of the questions. Generally qualitative interviewing differs from quantitative research in: the approach (less structured); much greater interest in the interviewee's concerns than the researcher's; 'rambling' is often encouraged-providing insight into what the interviewee sees as relevant; interviewers can depart significantly from any schedule or guide being used; qualitative interviewing is more flexible; qualitative researchers seek rich, detailed answers; (Bryman 2004).

Spradley (2001) describes ethnographic interviews as a particular kind of 'speech event', social occasions identified primarily by the kind of talking taking place. Thus he suggests that the ethnographic interview can be considered as a series of friendly conversations, the researcher slowly introducing new elements to assist the informants to act as informants, building rapport throughout the interview. He defines three important elements to the ethnographic interview: its explicit purpose, ethnographic explanations and ethnographic questions. Considering these elements helped me in developing a focus for the interviews, 'explicit purpose' emphasises the importance of the ethnographer directing the interview, leading it towards discovering the cultural knowledge of the informant. 'Ethnographic explanations' reinforces the importance of explaining what the project is about and how you will be recording the information. Finally asking 'ethnographic questions', from descriptive questions, to structural questions to discover information about domains, to contrast questions, finding out what an informant actually means. Roper and Shapira (2000) note that in an ethnographic study both formal and informal interviews allow the investigator to discover the salience or meaning that observed behaviours have for group members. Interviewing style was considered before the fieldwork began, but also adapted as the work progressed, following initial analysis. In particular I reviewed my approach to ensure I was not asking leading questions, an easy mistake to make as a novice reviewer keen to elicit appropriate answers, and something my supervisor noted I had a tendency towards in my early interviews. An interview guide (Appendix 5) was used to ensure coverage of the topic, the aim of the interviews was to as Holstein and Gubrium (1999) suggest; 'incite respondents answers' and 'activate respondent's stock of knowledge' to deconstruct the how's and what's of the narrative drama.

4.6.5 Documentary acquisition and analysis

Local policy documents including computerised and hard copies of protocols and guidelines were accessed and provided data relating to both macro and meso levels of care. Hammersley and Atkinson (2007) note that in some settings it would be hard to conceive of

anything approaching an ethnographic account without reference to some documentary material. Indeed they state:

> The presence and significance of documentary products provide the ethnographer with a rich vein of analytic topics, as well as valuable sources of data and information. Such topics include: How are documents written? How are they read? Who writes them? Who reads them? For what purposes? On what occasions? With what outcomes?..... (p.132)

I was particularly interested in sources of evidence available to the nurses so accessing, observing and asking about the use of these was essential to my study, these are outlined and discussed in chapter six 'Sources and Types of Knowledge'.

4.7 Gaining ethical approval

Research Governance Frameworks for Health and Social Care (Department of Health, 2005; Wales Office of Research and Development for Health and Social Care, 2009) set out the broad principles of research governance, a key standard for all health care organisations, who are required to have systems in place to ensure the principles and requirements of the framework are consistently applied. The purpose of the framework is to promote improvements in research quality and, similarly to clinical governance arrangements, to bring general performance in research up to that of those at the leading edge. The framework clearly emphasises that the dignity, rights, safety and well being of participants must be the primary consideration in any research study. Obtaining ethical approval from the local NHS Research Ethics Committee (REC) as for all research involving patients, service users, carers, care professionals or other staff to safeguard their dignity, rights, safety and well being (Department of Health 2005), was an essential first step. In conjunction with this was consideration of not only the confidentiality and anonymity of the participants, but also any ethical dilemmas with which I would be faced, Bulmer (1999) emphasises the responsibility of researchers to the subjects of their research in the pursuit of objective truth and the search for knowledge.

Prior to beginning the study, and following on from the proposal being successfully reviewed by the University's School of Nursing and Midwifery Studies Research, Review and Ethics Screening Committee (Appendix 6), which scientifically reviews all projects undertaken by staff and students within the School and provides guidance relating to requirements for ethical scrutiny, an application was submitted to the local NHS REC (Wales Office of Research and Development for Health and Social Care, 2009) in the spring of 2008 for ethical approval. In addition research governance approval was sought from the appropriate LHBs in which the selected practices were located. Gaining ethical approval was relatively straightforward, following submission of a detailed application form and attendance at an ethics committee meeting to support my proposal and the approach I intended to take, permission was granted (Appendix 7), with no major or minor changes required to the initial proposal, apart from a request for the Cardiff University confirmation of sponsorship which was supplied (Appendix 8).

The LHB in which my first practice was located had no set structure in place at the time regarding research governance approval. A conversation with the medical director, followed by an e-mail with attachments outlining the proposal, consent forms, participant and patient information forms was suffice to have verbal permission granted. My initial plan had been to select two practices within the same LHB, in which case research governance approval would have been valid for both sites. Due to an unexpected delay, by the time I was ready to begin data collection in the second identified site in 2010, staffing problems within the practice resulted in them no longer being able to accommodate me. I then had to identify a different practice, Riverside, which was located in a different LHB area. Before beginning data collection in Riverside, NHS reorganisation took place, which resulted in a merger of Trusts and LHB's into one organisation. An enquiry to the newly merged organisation's Research and Development (R&D) committee resulted in having to submit for further R&D approval before commencing data gathering in the second site. This involved preparation of a further detailed application, which was then presented to the organisation's Research

Scrutiny Committee and a further Research Risk Review Committee. Attendance at the Research Scrutiny Committee enabled me to defend my research and the approach taken and resolve any pertinent issues with the panel. Apart from a few minor amendments and requests for information relating to who would fund the practice nurses' time for the interviews the process was again relatively straightforward and permission was granted (Appendix 9) which allowed me to proceed as planned to the second site.

4.7.1 Ethical issues

One key issue that caused me concern was whether there was any benefit to the participants of taking part, or indeed whether my research was likely to cause distress. The potential benefits of the research were broad in nature, including opportunities to influence future policies and guidelines development, and future nurse education, but individual benefit was more difficult to quantify. Goode (1999), albeit in a discussion on the ethical implications of covert research, makes the point that in any form of social research, risk can get mixed up with offence. He suggests that all portrayers of social life inevitably find 'the practice of their craft' results in offence to the subjects, complete honesty often resulting in someone getting hurt through dislike of the portrait that is drawn of them and that 'there is no way within the boundaries of legitimate social research to produce results that all or even most subjects will be happy with (p.23)' Although this view did little to alleviate my concerns, it did go so some way to reassure me of the importance of accurate reporting to legitimise my findings.

Another concern that required addressing was the possibility that in the course of the research I may observe incidents of clinical practice that cause concern. As a registered practitioner I emphasised in my proposal my obligation to the NMC code (2008) and that if unsafe practice occurred I would either discuss it with the participant after the consultation or intervene if it was felt necessary. This however rearticulated my earlier concern that if an incident took place there was the potential of bringing harm to the participant if I needed to

divulge poor practice. Ultimately, however both my personal and professional responsibility dictated that patient care would have to take priority and I was open about this approach with all participants. A patient information sheet was given to each patient prior to the consultations I observed and advised that I would leave the room at anytime prior or during the consultation if requested and this would not affect their care (Appendix 10).

4.8 Data analysis and synthesis/Interpretation of findings

Patton (2002) stated:

> Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance, yes. But no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer, known only when—and if—arrived at (p. 432).

Hammerley and Atkinson (2007) agree, noting that there is no formula or recipe for the analysis of ethnographic data and (more dauntingly for me as a novice researcher) no procedures that will guarantee success. They emphasise that in order to produce an ethnographic study rich in data and concepts, management and manipulation of the data is not enough, data they reiterate are materials to think with. Furthermore ethnographers are faced with a potential tension between an ethnographic concern with thick description and grounded theorising strategies-standard steps to make sense of data. This can leave ethnographers with a trade off, having to make judgements about how much analysis can be done alongside the main data collection in light of the aims of the research and the nature of the context in which data are collected (Hammersley and Atkinson 2007). Data analysis I found to be a daunting task and something that would take considerable time to immerse myself in to identify interesting patterns and relations. Hammersley and Atkinson (2007) additionally emphasise the importance of not forming prejudgements or forcing interpretation of data into the mould, but instead to use existing ideas and literature as resources, whilst exercising analytic nerve, tolerating uncertainty and ambiguity and resisting the temptation to rush to conclusions. My initial attempt at presenting my data drew comments from my supervisors that the themes I presented were too literature led, making exactly the same

mistakes Hammersley and Atkinson (2007) suggested avoiding. This necessitated revisiting the data and the categories and themes that had emerged, to ensure that the data I had generated was truly represented. Below I describe the course of action I undertook, this process however was underpinned by considerable reading and re-reading of the data, accompanied by considerable thought around emerging patterns, expectations based on previous knowledge and wider reading and identification of inconsistencies and contradictions. My theoretical framework, knowledge about primary care and the wider literature including, but not limited, to that presented in chapters one and two, informed but did not lead my approach to data analysis and interpretation.

Data obtained from audio taped interviews were transcribed in full. I then proofread each individual transcript. The qualitative data analysis software programme Atlas.ti™ was used as an aid to contain, manage and navigate through the dataset. This programme provides interactive and automatic coding of both text and audio materials. Pseudonyms were given to all individuals and place names were changed prior to entry of the documents into the system. All transcripts were entered into a single 'hermeneutic unit' in version 6.0.15 of Atlas.ti ™. Individual interviews and written up and word processed observations were assigned the status of 'primary document' within Atlas.ti ™, with the total dataset consisting of 37 primary documents: 13 interviews and 24 observations. The majority of policy documents accessed, such as practice protocols were in paper form or unavailable to download so could not be entered into Atlas.ti ™, extensive notes were taken in relation to these. Atlas.ti ™ was a useful tool to assist with sorting and organising the dataset but as Thorne (2000) notes, a computer programme is not a substitute to the intellectual and conceptualising processes required to transform data into meaningful findings. Data were subject to interpretive analysis and themed to produce conclusions about practice nurses' access to, and use of knowledge and the organisational and cultural influences they were subject to. An initial coding frame (Appendix 11) was developed and discrete data extracts, referred to in Atlas.ti ™ as 'quotations', from an interview, observation or fieldnote were

allocated one or more appropriate codes. This enabled easy location of the data extracts. Quotations were coded with contextual information derived from: the study's theoretical framework (for example, diffusion) areas of substantive analytical interest (for example, organisational support, guideline use), research process issues (for example, identifying participants and practices) and my specific research objectives (for example, sources of knowledge). An Atlas.ti ™ screenshot (Figure 2) illustrates this process:

A modified 'constant comparative method' (Glaser and Strauss 1967) was employed with examination and sorting of the coded data to detect and interpret thematic categories, noting similarities and differences between data categorised in the same way. Coded data was thus developed into analytic categories, the process of analysis allowing both capture of the relevant aspects of the data and assignment of particular items of the data into appropriate categories and sub categories (Hammersley and Atkinson 1995). This involved searching across and within each primary document for relationships between coding categories. Phenomena hidden in the data was thus uncovered allowing for systematic and detailed analysis of key and emergent themes. Data were revisited based on emergent themes and additional selective codes applied. Chapter five presents data separately for each study site, beginning with an overview of the practices and practice areas with the intention of illuminating the impact of individual organisational structure and culture. Subsequent data chapters take a more integrated cross cutting thematic approach which reflects both theoretical and substantial areas of importance.

4.9 Conclusion

This chapter began with outlining the underlying philosophical perspective I took to the research, including a debate about qualitative methodology and a defence of the ethnographic approach I decided upon. Throughout the chapter I have discussed my

Figure 2: Atlas Ti™ Screen shot

Utilisation of evidence based clinical guidelines - ATLAS.ti

File Edit Documents Quotations Codes Memos Networks Views Tools Extras A-Docs Windows Help

P-Docs | P30: Nurse L Riverside interview.rt | Quotes | 1:1 Well currently I am working w | Codes | {1-0} | Memos | ME - 29/07/10 {1-Me} - Super

012

013 L How would I use them? Well we have some practice protocols and guidelines, we have the NICE guidelines, easy accessible on the computer, we have , I might look up GP Notebook or WEB Mentor and see what they say. Web Mentor is quite good, because apart from giving the patient the leaflet it also gives the medical rundown as well, also quite good for using if you want to do some investigations and to see which are appropriate investigations, there might be something which you might not have thought of at the time. So I would access them most often on line.

014

015 J OK It was probably Web mentor I probably noticed most people using quite a lot.

016

017 L Yes we do,

018

019 J That seems to be a very popular one.

020

021 L Yes we use that one, we use HOWIS, I don't know whether this is relevant to what you want. For travel information, we always use HOWIS website, it looks fantastic, we used to travel and pay for it but HOWIS TRAVAX is very good so we use that one a lot. GP Notebook we use quite a lot, WIKIPEDIA sometimes, and Anatomy as well is quite a good one especially for the minor illness because in our education the Anatomy wasn't as wide as we need probably so we use and sometimes I use GOOGLE when I need to find out where the bones or the nerves are so GOOGLE and usually into WIKIPEDIA from there.

022

023 J So do you use much during the patient consultation or would you sometimes access something after the consultation or at the end of the surgery.

024 L Yes a bit of both actually, I do often access while the patient is here, sometimes to show them what I am trying to explain to them helps, I often give them patient information leaflets, we use those a lot, I use them an awful lot, so in that case I have always got Web Mentor open on the computer and can easily get information from them, sometimes dietary advice, they want to know what food contains, high potassium or something then I would look that up and print that off for them so I would often use that. The other one I have been using recently that I have just seen on the computer here is Q-RISK

025

026 J Q-RISK - is that .....

027

028 L Yes Q-RISK is supposed to be taking over from the Framingham Scale. It's the CVD risk calculator. That's a very good one to get up and actually show the patient. They can access that themselves as well. That's another good one.

029

030 J It's interesting quite a few people I have interviewed have mentioned the point of using it to back up what you have said to the patient to actually have that evidence there. In a visual way.

031

032 L Yes I think that's quite good, yes it helps them to understand, doesn't it and also to take home with them that they can digest when they get home, or whatever they do with it but you do sort of feel that you have given them a bit more evidence related information.

033

034 J So do you generally find that what you need is quite accessible and readable.

035

036 L Yes I think it is, it is so much better over the last few years, isn't it with internet access and easy access on the computer, um the other references often contraception wise, I have used Guilleband which is very good, also be it with medication BNF is on the computer on EMIS but there is nothing like the good old BNF. There is the green book which we use which is either there or on line.

037

038 J Yes for vaccination.

039

040 L yes vaccination. Travel vaccination.

041

042 L We also have another diary down the other end, a purple book, which I have a lot of phone numbers in, people I can phone, the immunisation co-ordinator, the TB nurse

GUIDELINES-referral to use~
Patient specific information~
GUIDELINES-referral to use~
Alternative information source~
Internet~
Patient specific information~
Risk calculation tools
Supporting patient advice with evidence
GUIDELINES-referral to use~
Alternative information source~

P30: Nurse L Riverside interview.rtf -> C:\Users\Home\Documents\Judith's stuff\PhD\PhD\Data\Atlas Ti Interviews\Nurse L Riverside interview.rtf | Size: 100 % | ANSI | CP: 0

EN 11:13 27/11/2013

reasons for both the methodological approach and methods I used to undertake the study presented in this thesis. I introduced the study sites and the participants, justifying my reasoning for site selection and providing a brief overview of the participants. I then focused on the data collection methods used, emphasising the importance of using both observation and interviews, alongside documentary analysis. I then proceeded to describe the ethical processes undertaken, outlining the steps taken to protect the participants.

Finally I debated the difficulties associated with data interpretation and analysis and how I decided to approach this daunting task. The following chapters in this thesis build on this and previous chapters presenting the themes developed from the data generation and discussing and interpreting these in the light of the overarching macro influence of policy presented in chapter one, the scoping review of the literature in chapter two and the conceptual framework developed in chapter three. Chapter five begins the process presenting themes and categories related to the organisational and cultural influence on knowledge utilisation in the two study sites-Mountainside and Riverside.

5. Chapter five: Mountainside and Riverside-organisational influence

5.1 Introduction

In chapter three I introduced the two study sites-Mountainside and Riverside and provided an overview of the practices and the study participants. This first analysis chapter explores organisational dissemination and diffusion of information within the two sites, setting the scene for the subsequent analysis chapters where I investigate and examine in detail the numerous sources of knowledge on which the practice nurses drew and then finally explore how this is implemented at micro level within the individual clinical encounter. Understanding how individuals share information and experience, learn from each other, and develop personally and professionally has been a key focus of the knowledge management movement (Lave and Wenger 1996) and therefore an essential area to examine

> It is as unthinkable to study diffusion without some knowledge of the social structures in which potential adopters are located as it is to study blood circulation without knowledge of the veins and arteries
>
> (Katz 1962, p.63)

Drawing on both observational and local population data I begin with a descriptive introduction to the practices and practice areas to illustrate the types of service supplied and the composition of the teams. Following this I use observational and interview data to examine the meso level organisational structures in place, considering organisational and cultural influence on knowledge disseminated to, and amongst, the practice nurses. 'Meso' refers to the middle range organisational level connections between 'micro' (where individual care is provided) and 'macro' (wider structural context including national level policy), and is therefore used here with regard to more than one level, although the main focus of the analysis is at the practice level. Within this chapter I explore knowledge dissemination in general practice, patterns of behaviour and relationships and examine how knowledge is disseminated between professionals within the context of an organisation subject to

significant macro policy influences, including a strong focus on standardisation linked to the financial targets contained within the QOF (Department of Health 2003). Taken into account is that diffusion, and flow, of knowledge can be endless, complex and in all directions (Warnick 2006).

Organisational structure, culture and the networks that promote knowledge dissemination and diffusion are closely related, structure determines how knowledge is formally disseminated and involves some central and management control, whilst culture includes patterns of behaviour and relationships with supportive cultures encouraging innovation and contribution of ideas through open communication. Johnson (2008) advocates that although communities and organisations can both be considered as meso level social formations, communities are based on subjective emotional bonds and feelings of belonging, whereas formal organisational structures are designed to co-ordinate people's activities to achieve various collective or overlapping goals. However he also acknowledges that the process of bringing people together in an organisational context may lead to socio-emotional ties and feelings of solidarity. Additionally the adoption of innovations by individuals is subject to the influence of the structure and quality of social networks (Greenhalgh et al 2004). Different groups have different types of social networks and Greenhalgh et al (2004) argue that horizontal networks, which tend to be used by doctors, are considered to be more effective in spreading peer influence, whereas vertical networks, which tend to be used by nurses, are more effective for cascading codified information and passing on authoritative decisions. Katz (1962) advocates that social structures can be seen as networks of interpersonal communication, the two inevitably coinciding, and that although individual networks are formed, in order for communication to be effective a more formal structure is also necessary.

This chapter is underpinned by a number of theoretical frameworks that consider the impact of organisation and culture on adoption and adaptation of knowledge into practice; these were used to provide focus for the analysis. These were reviewed in detail in chapter three,

where the overall theoretical perspective guiding this work was presented, and are briefly revisited here. Included was the notion of Etienne Wenger and colleagues (Wenger et al 2002) that 'human knowing is fundamentally a social act' and that communities of practice (CoP's) are the ideal social structure for 'stewarding knowledge'. Wenger suggests that information stored in explicit ways is only a small part of knowing, which involves primarily active participation in social communities. Gabbay and le May's (2011) mindlines study detailed their observation of the growth of CoP's in primary care to meet specific practice needs and I consider whether this bears resonance when considering the work of practice nurses.

Similarly to Wenger's views on knowledge sharing, Everett Rogers' (2003) fifty years of research on analysing diffusion of innovations advocates that diffusion is essentially a social process. Information exchange about a new idea occurs through a convergence process involving interpersonal networks. Subjectively perceived information about a new idea is communicated from person to person with the meaning of the innovation gradually worked out through a process of social construction (Rogers 2003). Gabbay and le May (2011) suggest that the spread of new ideas in health services is anything but linear, but instead resembles a spiral of knowledge that is processed and combined with other sources through social interaction with colleagues before being absorbed and internalised as a change, a process that becomes evident in the final data chapter. Mittman et al (1992) has also suggested that in relation to clinical guideline implementation, social influence theory indicates that although the dissemination of information may create awareness and predisposition to change, it is factors such as custom and habit, assumptions and beliefs of peers, prevailing practices and social norms which define and shape the interpretation of information obtained through educational means. Key to all this is that implementation of evidence is a complex process with no clear answers, but here I shed light on some of the factors influencing how knowledge is mobilised within the primary care environment, with specific focus on the experience of the practice nurses.

5.2 An overview of primary care

The two practices used for data generation, Mountainside and Riverside, as noted in the previous chapter, were selected for a variety of reasons, including the influence of local culture, history and practice clientele on the work of practice nurses. Coupled with these natural differences are the differences that arise from the individual nature of U.K. general practice structure and organisation. As Van Maannen (1988) emphasises ethnographies are portraits of the intricate ways individuals and groups understand, accommodate and resist a presumably shared order. General practices, like any other NHS organisations share a number of similarities and are subject to similar influences, but in addition to these homogenous macro level influences each practice has its own heterogeneous meso level of organisation and management, in addition to meso level local influences. The history and culture of general practice based primary health care in the NHS is one in which GPs have been in the main, members of owner-occupier independent partnerships, with variable levels of collaboration with other professions such as community nurses, midwives and others (Elwyn and Hocking 2000). Practice nursing is unique in that within the NHS they are the only nurses to be employed by doctors, with the majority employed on a part time basis.

At the time I began fieldwork Mountainside and Riverside provided services under contract to two different LHB's (subsequent NHS reorganisation in Wales, as outlined earlier, has resulted in the practices now being in one Health Board, albeit with different locality offices influencing service delivery). Mountainside and Riverside, both independent owner occupied practices, took different approaches to their management of, and relationship with, the nursing teams which influenced knowledge flows. Data generation involved time spent observing meetings to develop further understanding of the organisational culture within the practices, in addition to observations of clinical practice and interviews with key practitioners. This data is considered within the context of the changes generated by the wider macro influences that all UK general practices are subject to, including QOF, (as discussed in

chapter one) and those driven by NHS reorganisation in Wales during the time the study took place (Welsh Assembly Government 2009a).

5.3 Mountainside - an introduction

5.3.1 Practice population

Mountainside practice was located within the centre of a large town located in the heart of an area of economic deprivation within Wales. The impact of the area's industrial past had resulted in a high proportion of the population reporting ill health. In the 2009/2010 Welsh Health Survey (Welsh Government 2011) data based on local authority boundaries indicated that over 50% of residents reported that they were currently being treated for any illness, with 30% of the population reporting that they had a limiting long term illness, and over 25% of the population reporting poor or fair health, a percentage significantly higher than the average for Wales. This had a subsequent impact on the services provided within the practice. The emphasis in Mountainside was on chronic disease/long term condition management and the majority of the nurses' clinical time was spent monitoring and reviewing patients with chronic disease within regular nurse led clinics. Much of the nursing work in Mountainside was therefore allied to meeting the requirements of QOF indicators.

5.3.2 Team composition

Seven GP partners were responsible for the overall management of the practice; in addition the practice employed seven salaried GPs. The eight practice nurses (six in the main surgery, two in branch surgery B1 and one in branch surgery B2), one nurse practitioner and the nurse manager were all employed by the partnership. All members of the nursing team were employed part time. Unlike other NHS services, staff working for GP practices are generally directly employed by the GP partnership, this excludes attached staff, such as community nurses and health visitors, who are employed by the Health Board. Although there are some exceptions with increasing examples of practices, particularly in England, run by group arrangements, Mountainside was managed by the traditional approach of a GP

partnership that employed the administrative staff, nursing staff and salaried GPs. A practice manager dealt with the overall practice administration and took responsibility for the administrative team.

The role of the nurse manager, Issy, in Mountainside was mainly non clinical, a relatively unusual position in practice nursing. This role in Mountainside was historical, it was instigated initially in the mid 1990's when the practice was a fundholding practice, at which time the practice had taken part in a specific project where they employed a nursing manager to oversee both the practice and community nursing teams who shared roles and team duties. Although the nurse manager no longer took responsibility for the community nursing team, the central management tenet of the role remained. Issy took overall responsibility for the practice nurse team, which included resourcing the main and the two branch clinics, line managing the practice nurses and HCA's, undertaking the nurses' appraisals, reviewing their personal and professional development plans and assisting them in identifying their educational needs. Once educational needs were identified, funding and release to attend educational programmes then had to be agreed by the GP partnership, with the GPs maintaining a strong influence over the practice nurses' continuing education. In addition to management responsibilities Issy was also the key person responsible for distribution and diffusion of clinical information, this included updating and revising the practice protocols and disseminating information regarding changes to guidelines, QOF indicators and national prescribing alerts, as well as monitoring and ensuring the nursing team met the required QOF targets. The nurse practitioner was directly responsible to the partnership and was not considered part of the core nursing team.

5.3.3 Organisation of service provision in Mountainside

Provision of practice nursing services within the main surgery in Mountainside took part in a separate suite of rooms. This was part of the main practice building but incorporated its' own consultation rooms, clinical treatment rooms, a central clinical area where all the paper

protocols and guidance was located, the nurse manager's office and a separate nursing reception and patient waiting area. This area was my base for the fieldwork and provided me with the opportunity for wider observation of everyday activity. The nurse practitioner had a separate consulting room located in a different part of the building next to the GP consulting rooms. Minor illnesses and same day emergencies were booked onto the nurse practitioner's list, the role of the nurse practitioner being to assess, diagnose and treat patients, and where necessary prescribe and/or refer. Health care assistants ran daily phlebotomy clinics and additionally saw patients for other procedures including urinalysis and ECG's.

A number of nurse led clinics were held within the practice on a daily basis, all of these were pre booked appointments, and these included chronic disease management (CDM) clinics for patients with diabetes, hypertension, asthma, chronic obstructive pulmonary disease (COPD) and CHD. The QOF indicators require the practice to invite patients with specific chronic diseases for an annual review of their condition, further details of which are discussed in the next chapter. Twenty minute appointments were allocated for chronic disease reviews. In addition to CDM clinics general treatment room appointments were available every day in the clinical rooms. Ten minute appointments were offered for work seen by the nurses as more routine, for example: wound care, ear syringing, blood pressure reviews, contraception checks, routine and travel immunisations and health promotion advice. Treatment room appointments tended to be run by the newer, less experienced practice nurses who then moved on to run the CDM clinics once they had completed the appropriate training. Different practice nurses took responsibility for different conditions, i.e. respiratory conditions, diabetes and cardiovascular disease. Reviewing patients in the CDM clinics took up a significant proportion of the qualified nurses' workload. The nurses running the clinics took sole responsibility for the management of the patients attending the clinics, including medication changes. The nurses running the CDM clinics in Mountainside were not independent prescribers, they liaised with prescribers (either the nurse manager or the GPs),

to alter medication as per the online practice template (designed to meet the needs of QOF), to provide a one stop complete package of care, albeit through involvement of a further professional. This involved a brief discussion with the nurse manager or on call GP who would authorise and sign the prescription. Meeting QOF targets related to chronic disease, although an overall practice responsibility and essential for practice finances, was delegated to the nurses.

Mountainside also had two branch surgeries which had slightly different layouts. The one branch surgery consisted of a joint waiting and reception area, one nurses' treatment/consultation room and one GP consultation room. One nurse was permanently based at this branch surgery and was subsequently more isolated than the nurses in the main surgery; she was considered the lead nurse within the branch for QOF and was also designated the deputy nurse manager. Two nurses were based at the other larger branch surgery organised in a similar way, but with more consulting rooms. This larger branch surgery was run as a separate entity from the main practice; although it was run by the same GP partnership and the nurse manager maintained responsibility for the nursing team.

5.4 Organisational Dissemination in Mountainside

5.4.1 Overview

There were a number of ways in which information was disseminated to the practice nurses within Mountainside. A mix of didactic information was fed vertically from management level relating to policy and clinical practice changes via the nurse manager, alongside formal and informal distribution of updated evidence based clinical information considered relevant for sharing. Regular in house meetings were held which included:

- A weekly meeting with a managerial focus, these often included clinical issues as a pertinent part of the discussion.
- An annual meeting in relation to QOF guidance when evidence based indicators were reviewed at macro level which were simultaneously updated on the IT system.

- Ad hoc meetings with a specific focus on education with invited local experts.
- Monthly educational meetings led by individual GPs.

Regular meetings were also arranged with the nurse manager and the nurse QOF leads at the branch surgeries whenever changes related to QOF occurred. In addition to the meeting structure, GP leads had also recently been appointed as clinical leads for specific chronic disease areas, although a formal system of dissemination through these leads had not been established at the time of data collection. There was also an expectation that nurses would adhere to their professional responsibility with regard to updating their knowledge.

5.4.2 Dissemination through formal meetings

The weekly Friday lunchtime meeting included the GP partners, the practice manager, a senior member of the administrative staff, the nurse practitioner and the practice nurse manager. This was a general meeting where all kinds of issues were discussed. There was no formal written agenda, and all present were given the opportunity to contribute to the discussion and raise relevant issues, these mainly arose from everyday clinical practice. The following extract from my field notes outlines a typical Friday lunchtime meeting:

Present: GPs, nurse manager, nurse practitioner and administration manager

> Fri 27/06/08
>
> 12.30
> Nursing issues discussed-B12 protocol written by nurse manager.
> Issue re lipid profiles discussed, regional hospital require fasting bloods for ratios and it was requested that the nurse manager disseminate this advice to the practice nurses and HCA's.
> New GP clinical leads recently appointed to assist with .
> Referral for exercise scheme-practice had agreed that they would charge for completing suitability form.
> Discussion regarding treatment advised by consultant for patient with Huntingdon's .
> Discussion re unlicensed drug use.
> Guidelines for procedure re patients whose INR>8 discussed, practice protocol needs confirming-should GP visit if haematology can't get hold of patient?

This proved to be a useful meeting to be a 'fly on the wall' as discussions covered a wide range of topics and led to lively debate, with particular discussion about the boundaries between the care provided by primary and secondary care and how issues could be resolved. All the GP partners were present, problems such as those illustrated above were

identified and solutions discussed by all, within the context of the different experiences of those present, similar to Gabbay and le May's (2011) description of coffee room conversations. However unlike the GPs, who were all present and able to contribute to the discussion, the practice nurses were represented only by Issy. Issy, however, emphasised that she would use this opportunity to both share information with the GPs and disseminate information from the meeting to the nursing team:

> We have our meeting every Friday, doctors meeting which I go into as well, and if there's anything major then I'll let them *(the GPs)* know, but as most of the management, the day to day management of chronic disease, is done by the nursing staff it's more important really to disseminate **down** (my emphasis) to the nurses.
>
> For asthma they mainly see the doctors for acute exacerbation, so may see the nurse as well, we're doing a bit of an audit on that at the moment. For anything really different we flag it up but they'll (*the GPs)* also have their own CPD (continuing professional development) to follow, they get the guidelines so they have their responsibility as well, and eh if there's anything major we'll take it to the meeting.
> (Interview Practice Nurse, Mountainside, 1:043-044)

The meeting ran with a certain degree of informality, the level of this informality became evident to me when an agenda item relating to a confidential staff issue came up and Issy had to remind the group that the discussion was probably not appropriate to discuss in my presence. However the overall purpose of the meeting contradicted this informal approach, as a number of issues were raised that would require formal dissemination and subsequent implementation. This included sharing of knowledge related to clinical issues, for example the development of the B12 protocol as noted above.

Although both Issy as nurse manager and the nurse practitioner Jackie were present at these meetings and clear contributors to the discussion, the nurses as a team missed out on this whole team discussion on everyday clinical issues that would subsequently impact on practice. They instead received information from the meeting in a vertical fashion from Issy who fed back issues pertinent to the nursing team. This type of dissemination served a quite different purpose, passing on decisions as opposed to the informal approach to decision-making observed at the meeting, and emphasised the issue that the GP partners were employers and business partners with the ultimate responsibility for practice decisions. An

example of this was a discussion regarding providing appropriate samples for lipid profiles. The GPs discussed at the meeting their individual viewpoints and knowledge of the correct process, compared this with what the hospital was currently requesting and devised a solution that the nurse manager then fed back to the nursing team for implementation. For the nurses the information was fed back as a didactic source. Issy did ensure, however, that issues from the nursing team were also taken to the meeting for discussion.

Multidisciplinary QOF meetings, led by the GP responsible for QOF implementation, gave some of the nurses more opportunity to engage. QOF meetings were attended by the nurse leads and appropriate administration leads from the main practice and branch surgeries. These were held either at the request of the nurses or instigated by the GP as changes occurred to the QOF indicators. The focus of the meeting was to meet the requirements of policy; a macro led influence, but unlike the Friday meetings they provided an opportunity for wider discussion and for the nurses to embed change. Not all the nurses however were present, so vertical dissemination from the QOF nursing leads was still necessary for diffusion to the wider nursing team. The meeting was attended by the GP who took responsibility for QOF and revision of the templates, the three nurse leads for QOF from the main practice and the two branch surgeries, and a member of the administrative team. On previous request from the nurses, areas such as inhaler technique for asthma and the Royal College of Physicians ‘3 questions’ (Royal College of Physicians 1999), which establishes an outcome measure based on three simple questions that can be applied to all asthma patients regardless of severity, had been included within the asthma template to guide practice. Following feedback from the nursing staff they were now requesting that the British Thoracic Society (BTS) stepwise approach should be included within the template (included in the BTS (2009) guidelines, but not in QOF). Rather than practice being limited by QOF requirements, the templates, which had been initially designed to meet QOF criteria, were used to incorporate evidence from other sources. As I noted during observation of the QOF meeting outlined above:

> Although the computer templates are designed to meet the requirements of QOF, other evidence based information (*BTS guidelines*) is often included, depending on the nursing team discussion and requirements. It was useful to see that the computer templates weren't strictly linked to just the requirements of QOF and that the nursing team were able to discuss and request other evidence based information (*RCP asthma questions*) that informed both their practice and impacted on patient care to be included within the templates.
>
> (Observation of QOF meeting-Mountainside 38:013-027)

5.4.3 Dissemination through educational meetings

Education as a source of knowledge is addressed in further detail in chapter six. Knowledge, however, was shared in a number of ways within the practice, one of these being in house education; additionally meso level influences at health board level had led to the instigation of local educational initiatives. This sub theme considers the attitudes to this type of knowledge sharing to determine its impact amongst the practice nurses in the context of knowledge utilisation and illustrates the prominent cultural approach of GP led educational updates.

The LHB covering Mountainside ran four clinical forums a year which consisted of updates for all clinical and non-clinical staff on a variety of topics, some related to practice administration and some more clinically focused topics based on identified local need. Depending on the topic, different sessions would be held for GPs, practice nurses and administrative staff. The forums ran over half a day and practices were supported to close on these half days to encourage all staff to attend. The practice nurses also attended evening meetings in their own time, which were usually organised by pharmaceutical representatives. Fiona discussed how she kept her knowledge updated through the external educational meetings:

> Yeah and the thing is you sort of go to these sort of evening meetings to keep up to date with asthma and COPD or hypertension and updates as well which we sort of go to often as well really. Nurse D just went to a COPD one. So you keep up to date with that really. And sometimes its things you sort of know, but other times its good because you sort of learn things as well which even though you have been doing for a while, so you keep up to date like that.
>
> (Interview Practice Nurse, Mountainside, 5:143-145)

In house nurse educational meetings were held once a month led by one of the GPs; topics for discussion were either suggested by the nurses or were based on current topical issues. Additionally in house ad hoc nurse educational meetings were organised, these were sometimes sponsored by pharmaceutical representatives, although a tightening up on rules relating to how pharmaceutical companies liaise with practices had resulted in a reduction of these types of meetings. The nurses noted the value of in house educational meetings as a source of information. Fiona, a practice nurse in Mountainside discussed during interview how the practice encouraged this type of educational networking and how this impacted on her own knowledge:

> Fiona: We have meetings quite regularly and Issy *(the nurse manager*) is pretty good as well, sometimes she gets the doctors to have a chat about different ideas. Like CKD (Chronic Kidney Disease) is Dr D, she also gives us a talk because of the guidelines on CKD. Dr P is supposed to give us a talk on lipids, because he runs the lipid Clinic in the District General Hospital. I think we are doing more results perhaps with the full blood count, which we didn't before, because of CKD and one of the Dr's is giving a talk on that which is in the pipeline.
>
> Dr E did give us one on the combined pill and all sorts of contraception back a few months when he was here, and sometimes if something comes when we are having a meeting, because we have (*pharmaceutical company*) reps come in now and again, and at one time we would have quite a lot of reps coming in and it got a bit too much.
>
> We had a little talk about cervarix (cervical cancer immunisation) and the new injection; we had that recently, so that we can keep up to date with different things without realising really. Issy might have something to talk about and might without thinking mention something that's come up and we all talk about that. I suppose we do. It's not every week we have a meeting, but we follow on sometimes from perhaps when a rep comes and have a little chat about things, like Issy's just done hand washing now, infection control and all that we just had an update on that.
>
> (Interview Practice Nurse, Mountainside, 5:113-116)

Fiona's comments pointed to the importance of sharing knowledge within the practice and having the time and space to discuss key issues. Cara and Fiona acknowledged the positive support regarding education that the nurses received generally from the practice:

> Cara: Oh yes, this practice is really, when I speak to girls who work in other places, I think, blimey how lucky we are that our GPs are quite forward thinking and they are quite young in their attitudes to all things, and they teach as well, it's a teaching practice, and that's quite lucky for us.
>
> (Interview Practice Nurse, Mountainside, 2:095-096)

> Fiona: Yeah its very good I think it's a forward thinking practice and really good and for courses and that, they are always pro for that.

(Interview Practice Nurse, Mountainside, 5:119-120)

Brenda, however, commented again that the lack of structure surrounding these in house educational meetings could result in missing out on this type of networking:

> JC: You have your educational meetings, so if something brand new came out that would that come immediately to your attention?
>
> Brenda: I don't think so no, I don't know, if it's the day off is when it comes in and I miss it, you turn up at certain lunch time meetings and you learn a bit of stuff which is quite good, but there is often talk that we are going to organise some regular meetings and sessions and stuff but they haven't actually come to fruition yet. There's not enough time really.
>
> (Interview Practice Nurse, Mountainside, 1:093-094)

As a fairly large nursing team many of the nurses had developed specialist knowledge in certain long term conditions, for example diabetes. Cara felt that this made it easier to develop and share specialist knowledge within a work environment where time is limited:

> I would think it is very difficult for a two nurse practice that must be really difficult as well. Its time, its having enough time to do things, and your patients, I mean Issy was saying this morning the amount of diabetic patients at the moment, there are nearly a thousand people. I mean nine hundred plus. It's a lot of people to get sorted.
>
> (Interview Practice Nurse, Mountainside, 2:123-124)

Cara's point was to emphasise the ability to specialise and therefore share knowledge in a large nursing team, something that she felt would be difficult to do in a smaller team. The amount of patients seen with a specific condition such as diabetes had resulted in individual nurses taking on more specialist rather than generalist roles and honing and sharing knowledge accordingly.

A recent new system of appointing GPs as specialist clinical leads, in part influenced by the wider macro led influence of meeting QOF requirements was intended to contribute to this sharing of specialist knowledge, albeit with the GPs taking the lead. Issy the nurse manager noted the appointment of the leads had been considered an important organisational issue:

> Issy: It is has been difficult to get clinical leads in the various areas, I think because they (*the GPs*) thought it was going to increase their workloads, but what I think nurses, although we work very independently in this practice, you still have to have that one key person I think that's responsible for that particular area, if you have got general issues, which would be guidelines, so we actually did get our clinical leads appointed at our last QOF meeting.

(Interview Nurse Manager, Mountainside, 6:052-053)

At the time of data collection this still appeared to be bedding in, with some nurses mentioning how they found it helpful and others unaware who the leads were for each clinical speciality. The GPs appeared to have a strong influence with regards to providing in house education and the nurses were receptive of this approach. Historically nurses have long moved away from being educated by doctors, but within general practice where the nurses were moving towards taking on a more medically orientated workload, the GPs continued to be an important source of knowledge. The culture of the practice was supportive of in house education and the nurses had access to a range of educational networks where knowledge could be shared and updated.

5.4.4 Informal approaches and attitudes towards dissemination

Issy as nurse manager took overall hierarchical responsibility on behalf of the organisation for disseminating information that she felt the nursing team should be aware of. This inevitably led to a certain amount of gate keeping with some filtering taking place prior to dissemination, due to the sheer volume of information received. The question of what information is shared, and how decisions are made about information sharing, is an important one. Issy explained:

> JC: As nurse manager how would you spread that information? How do you access guidelines, know when they're coming out and what you're going to do with those within your team?
>
> Issy: Some of the team would look for things themselves, some of them are a bit more au fait with using the internet and looking for things as they go along. Me, I always get the information sent, I'm logged in, no what's the word, I have subscriptions I suppose (*laughs*), trying to think of the right word, for a number of websites where I get information sent from; the MRHA (Medicines and Healthcare Products Regulatory Agency) and the NPC. The NPC is probably the key one and NICE as well, so anything new coming out, we tend to get e-mails sent through to the surgery which go to the doctors and me, generally anyway, if anything new is coming out. When they come out I look at them and see what changes there are to see if they actually affect our practice, it doesn't necessarily affect the way you're practising, and then update any protocols we've got and let the girls know re the update
>
> (Interview Nurse Manager, Mountainside, 6:017)

In addition to the information sourced by Issy, Jackie the nurse practitioner was the diabetes nurse lead and would forward relevant information relating to diabetes to Issy for

dissemination to the nurses. Issy therefore acted as the conduit through which information was passed on to the nurses.

> JC : So you mentioned you take the lead for diabetes, how would you communicate that to the other practice nurses who also do diabetes clinic, what would be your normal way to communicate the consensus guidelines?
>
> Jackie: We do meet regularly, so I have discussed it with those and I have given Issy a copy as well, and then she will cascade that information down to her nurses as their manager. I am constantly discussing new things with her because it is important for them. They are going to get patients who have seen me and they are going to be there for that, so they need to know, they need to keep updated really as well
>
> (Interview, Nurse Practitioner, Mountainside, 7:064-067)

Dissemination was not a preset procedure and was subject to some variability, not least because of the part time nature of the nursing team aforementioned, and the spread of staff across the three practices (main and two branch surgeries), but also in relation to when information was received. I discussed this further with Issy how this dissemination process took place in practical terms:

> JC: How often would you meet as a team to discuss any changes?
>
> Issy: Variable, depends a lot on staffing we've had a lot of long term sick which makes it more difficult. From the guidelines point of view we often it's probably more likely to be a company meeting, we've got, not really a rep (*pharmaceutical representative*), (whisper-they are reps), but they're education side and they arrange meetings for us for updates. We've got one coming up COPD and asthma which we're going along to because they're outside the practice time. It's difficult to fit in the working day actually because we just don't have the time to put meetings aside so it'll vary. I'll e-mail people if it's anything vital.
>
> (Interview Nurse Manager, Mountainside, 6:019-021)

Issy further emphasised that in house dissemination did not negate the nurses' professional responsibility to provide evidence based care (NMC 2008) and there was also an expectation that they would update their knowledge on a regular basis through accessing the latest evidence based guidelines, although she would co-ordinate the process:

> Or if it's really major I'll update the protocols and then it's their (*the nurses*) responsibility to look at it actually to be honest. Like the new asthma guidelines now I've actually given to the key people responsible for respiratory for them to read and run them off. It's I think that's probably safest to actually co-ordinate so know they've actually had the information
>
> (Interview Nurse Manager, Mountainside, 6:022-023)

The nurses expressed different views about the effectiveness of organisational dissemination. Dee, an experienced practice nurse, felt that:

> As a team we tend to meet a lot and discuss what's hot and what's not.
>
> (Interview Practice Nurse, Mountainside, 3:015)

and

> Yes, we have fairly regular meetings and if there is anything, the nurse manager, her main role is non-clinical, so she does tend to come around us all individually if we haven't got a meeting set up, and cascade information.
>
> (Interview Practice Nurse, Mountainside, 3:051-052)

Jackie agreed and felt that the practice had a supportive culture with regards to information dissemination:

> JC: There are quite a lot of professionals. Would you say the practice is quite supportive and aware of guidelines, so for example if a NICE guideline came out would you be made aware of that?
>
> Jackie: I have been using the diabetes (*guideline*), I have been presented with two copies of the all Wales consensus guidelines which has a copy of algorithms in there to follow which is very good. But yes I would say they are very supportive and pretty much on the ball.
>
> (Interview, Nurse Practitioner, Mountainside, 7:056-059)

Some of the nurses however felt they could miss out unless they specifically sought out information, exacerbated by the issue that the practice nurses were employed part time. Brenda who worked 24 hours a week and was relatively new to practice nursing, having been in post for one year, noted when we were discussing information dissemination:

> I can see there are a few bits missing and I know if I go and seek out the information I'll always get it back, I am part-time I only work three days a week, and I often come in find myself wondering what is going on and that is what I miss out on sometimes. I think that cascading could be improved in some respect, but I'm never quite sure how that can be done I mean I think they try their best but there are lots of part-time staff here.
>
> (Interview Practice Nurse, Mountainside, 1:089-090)

However Brenda also acknowledged that her overall knowledge had grown simply from being immersed in the culture of general practice with knowledge related to the social context of how the practice operated an important factor:

> Brenda: I mean my knowledge is better now, over the last couple of years (*since working in the practice*) I have picked up loads of stuff I wasn't aware, or that I didn't know or had to learn and now there's lots to know. It just depends on what I want really, the patient stuff is quite easy, it's just a background thing really.

(Interview Practice Nurse, Mountainside- 1:043)

Elle, an experienced practice nurse working alone in the branch surgery tended to be more isolated from the rest of the team resulting in that she sometimes felt 'out of the loop'. She would attend the main surgery for educational and QOF meetings but had less day to day contact with the nursing team.

> Elle: I think basically we are left to our own devices to find out, I don't think we get anything from up the top, unless there's a change, then Issy will ring me, but usually we're left on our own to find out and update as we go along
>
> (Interview Practice Nurse, Mountainside, 4:076-077)

Despite this feeling of being 'left on her own' Elle acknowledged that as the QOF lead for the branch surgery she felt well informed.

> Yes basically because I'm the QOF lead anyway, so I usually go to all the meetings, so I do know what's going on with those
>
> (Interview Practice Nurse, Mountainside, 4:092-093)

Whereas Elle felt she was adequately informed re QOF, she related this to her belonging to the sub group that had developed and evolved in relation to the QOF indicators, which gave her the opportunity to discuss and refine her own knowledge through horizontal networking. For everyday practice she missed the day to day banter that took place in Mountainside and therefore was isolated to a certain extent from the informal community where the nurses shared their everyday concerns. As Brenda noted, although she would appreciate a more formal strategy for dissemination, coffee times could be a useful source of knowledge sharing:

> JC: Would you say that as whole the practice are supportive in increasing your awareness of guidelines, if something new came out say related to asthma or COPD would that be brought to your attention? Would you discuss it as a team?
>
> Brenda: Um I suppose I should say yes, what I thinks lacking is we could have more regular meetings between us but I think coffee times sometimes are often a time we get together to discuss things like that, I personally think it could be more formal.
>
> (Interview Practice Nurse, Mountainside, 1:083-086)

The organisational approach to information dissemination in Mountainside was a vertical hierarchical process which had been delegated by the GP partnership to Issy, the nurse manager. Some of this dissemination was a formal process, with Issy taking overall

responsibility for updating the practice protocols which were readily available to all the nursing team (discussed in further detail as a source of knowledge in chapter six). Issy additionally ensured that the nurses responsible for specific chronic disease clinics received up dated information. This was supplemented by informal dissemination, integral to this was a degree of gatekeeping due to the sheer amount of information flowing in to the practice with Issy required to make the decisions about what information was essential and how this dissemination should take place. The impact of QOF had however resulted in a formal structured process with regular updates of evidence based indicators for specific conditions integrated into practice templates and subsequently influencing care delivery. Inherent in this process was that the nurses' had their own professional responsibility to keep updated and the nurses generally emphasised that they would take steps to do this

5.5 Riverside-an introduction

5.5.1 Practice population

Riverside practice was also set in the centre of a town but the health demographics of their practice population were very different to that of Mountainside. Neither the town nor the surrounding areas fell in the most 10% deprived areas in Wales with the majority of areas falling in the less deprived half of Wales. Unemployment was lower than the average for Wales and 2010 statistics based on local authority boundaries indicated that 26% of residents reported having a long term illness, with 17% reporting fair or poor health, these percentages were lower than those for Wales as a whole (National Assembly for Wales 2010).

5.5.2 Team composition

The practice had seven GP partners, no salaried GPs were employed, although the practice employed locum GPs when required. The nurse practitioner and four practice nurses were all employed by the partnership; an additional locum nurse practitioner was contracted for one day a week. One of the practice nurses was retired but had returned to work for one day

a week. All the nursing team, as in Mountainside, were employed part time by the GP partnership. The nurse practitioner was the senior nurse within the practice and liaised with the partnership and the practice manager re nursing management issues. Unlike the nurse manager in Mountainside her main role was clinical not managerial, with tasks such as protocol development and updating of protocols and procedures divided between the nursing team.

5.5.3 Organisation of service provision in Riverside

The practice nurses in Riverside had a dedicated treatment room with two treatment rooms and rooms for the HCA's. There was one reception area and waiting area for all services within the practice. The nurse practitioner had her own consulting room, and additional treatment and consulting rooms scattered throughout the building were used by the nurses for CDM clinics and minor illness clinics. Three of the practice nurses, in addition to the full time and locum nurse practitioners, ran minor illness clinics; all had undertaken a specific minor illness diploma to prepare them for this role. These minor illness clinics provided extra appointments for patients attending with undifferentiated conditions, quite different from Mountainside where the key emphasis of the nursing workload was on CDM. Similar to Mountainside, however, nurse led CDM clinics were held for hypertension, respiratory conditions and diabetes with one nurse specialising in diabetes, one in hypertension and two in respiratory. Fifteen minute slots were allocated for minor illness and CDM annual reviews with ten minutes for treatment room appointments. Hypertension reviews were often slotted into 'minor illness' slots because of the difficulty in allocating enough slots for these reviews (1000+ each year). All appointments could be pre booked but the nature of the minor illness appointments meant they were often booked on the day into the pre allocated slots. The nurses mentioned that there were now plenty of slots available for minor illness appointments but this had resulted in there not being enough appointments for treatment room activities, new tasks had been delegated to the nursing team without considering the

impact on the traditional nursing activities. This sometimes caused some conflict, as noted during a discussion with Laura in Riverside, whilst observing her clinic:

> Discussed how there are now plenty of slots for minor illness/same day appointments but limited slots for treatment room activities. Laura noted that GPs keen to delegate duties but forget about the traditional nursing duties.
>
> (Observation, Practice Nurse, Riverside-22:028-029)

As in Mountainside the HCA's ran daily phlebotomy clinics and additionally saw patients for other procedures including urinalysis, ECG's and blood pressure monitoring. The CDM and minor illness clinics were all nurse led. Only the nurse practitioners were non medical prescribers. For the CDM clinics nurses would alter prescriptions according to practice protocols, they would either liaise with a GP for signing during the clinic, or it would be signed at the end of surgery for the patient to return and collect from the in house pharmacy. For minor illness where a prescription proved necessary they would liaise with the GP on call for that day.

5.6 Organisational Dissemination in Riverside

5.6.1 Overview

Similar to Mountainside, Riverside held a number of meetings which included various members of the primary care team. Riverside's meetings, however, had a more distinct managerial or educational focus. These included:

Monthly nurse/GP meetings with a managerial/educational focus.

Weekly nurse/HCA meetings with a managerial/organisational focus.

A weekly meeting held on a Monday with the GP partners, practice manager, senior member of administration staff and the nurse practitioner with a managerial/organisational focus.

Fortnightly nurse educational meetings related to minor illness, these were led by a GP with the nurses selecting the topics they wished to discuss.

Dissemination of information from the practice meetings was through Karen, the nurse practitioner and lead nurse, who would take relevant information to the weekly nurse meetings. In Riverside two of the GPs were responsible for dissemination relating to key clinical issues; Brendon for dissemination of NICE guidelines and Robert for issues related to prescribing, a different process from Mountainside as they took responsibility for dissemination to all clinical staff. Both GPs, like the nurse manager in Mountainside, screened information to determine relevance before dissemination, taking on the role of a knowledge gatekeeper. Unlike Mountainside the practice did not have pharmaceutical representative sponsored educational meetings. Due to the more managerial focus of the other meetings and the fact that during data collection most of the discussion was related to annual pay increases I only observed the educational meeting. New knowledge flowed into the practice from a variety of sources, from educational meetings, individuals attending educational programmes or updates and advice from external bodies such as new guidelines.

5.6.2 Dissemination through educational meetings

Similar to Mountainside, the LHB in which Riverside was located ran 6-8 weekly 'platform' meetings, again covering clinical and non-clinical topics, the clinical topics identified through the GP annual appraisal scheme. In addition to these forums and 'platform' meetings which encouraged 'knowledge sharing' the LHB's influenced practices with regard to evidence utilisation in the form of financial rewards through the LES agreements related to QOF indicators.

With regard to in house education, outside speakers were invited on an occasional basis to the monthly nurse/GP meetings:

> Laura: so we do try and get probably every two or three months at least an outside speaker, or one of the GPs. At our last meeting at the end of last month, Dr G talked us through the guidelines of chest pain.
>
> JC: Oh, right, that's very good.

> Laura: Yes that was very good, I have all that in my tray, updated, they gave us all a copy of that.
>
> Laura added that anyone who was available would attend:
>
> Laura: Yes whoever, the doctors are very good in including the nurses with outside speakers.
>
> (Interview Practice Nurse, Riverside- 30: 102-110)

In addition to these more ad hoc updates, within the practice fortnightly GP led educational meetings provided the opportunity to discuss specific local issues and had been requested by one of the practice nurses, Laura, during a previous appraisal. The focus of these updates was related to conditions seen in the minor illness clinic. Although the nurses running these clinics had all undertaken a specific minor illness diploma, the nature and range of work seen was very different than the CDM clinics, which inevitably led to the nurses identifying a wider range of areas of uncertainty.

I observed a session during which the nurse practitioner and nurses dealing with minor illness had identified dermatology as being a particular area where they struggled with diagnosis and subsequent treatment. Robert, the GP responsible for education led the session, which took the form of a slide show presentation. Three of the practice nurses; Laura, Mandy and Pip who all ran minor illness clinics attended. Robert presented each slide as a case study, asking the nurses what questions they would ask the patient and what they would do in each scenario. The following is an extract from my field notes:

> Excellent teaching style, discussed with nurses when to be concerned in relation to malignant/non-malignant skin conditions. Referral guidelines were discussed, Robert asked lots of questions related to the slides and then asked for the nurses' diagnosis. Risk factors relating to each case were discussed, presentation started with moles, then moved on to rashes, again starting with pictures and moving on to diagnosis, had clearly prepared for session. At the end of the session the nurse were asked to identify the next topic, they noted that they would like more on skin conditions, and also headaches, in light of a recent clinical incident.
>
> (Observation educational meeting Riverside)

The importance of this type of interaction was emphasised by Karen, the nurse practitioner, who had organised regular individual educational updates with the GPs to discuss areas of uncertainty:

> Karen: Yes every fortnight I have half an hour with one of the doctors and what we do, we look at areas that perhaps I feel that I don't have as much knowledge on as I would like, usually it's me that has to choose a subject and then what we do is find evidence on that subject that is relevant, print a copy off for each of us and then we get together the following meeting we go through it all.
>
> So one of the things, that very recently, I felt I didn't know enough about was coeliac so I went away and looked at all the information, then what we did was an audit of all the patients in the practice with coeliac and then we invited everybody in and looked at all their bloods and whether they were going for their DEXA scans and whether they were taking the vitamin D tablets and all this type of thing and then we sort of called the patients in and gave them a bit of advice, referred people to dieticians and so on. I think that was very good because it was not only supportive and I was learning but the practice was gaining from it. We have done that several times, with different subjects, so yes they are very supportive.
>
> JC: So almost do an audit and combine that with the Journal Club approach to make sure that all the patients were getting the right treatment?
>
> Karen: and what we do then is we then present it to the next meeting, we have done that on quite a few topics.
>
> (Interview, Nurse Practitioner, Riverside, 45, 043-044)

A number of features were evident that Wenger (2006) argues are the features that define a community of practice: a shared area of interest, learning together and development of a shared repertoire of resources, which could be shared with the other nurses. However in this situation although shared resources were developed, the learning needs were identified not by a group, but by an individual. Similar to Mountainside learning needs were identified by the nurses with the GPs acting as an educational resource. This was sometimes on an ad hoc basis to meet specific educational needs rather than a regular arrangement, as Nicky a practice nurse who did not yet run minor illness clinics, but participated in CDM and treatment room clinics, identified when we were discussing a resource pack she had put together in relation to contraception:

> One of the GPs gave me a teaching session back about twelve, more than twelve months ago, I said I was interested in family planning and she gave me a talk, I think, I think, it wasn't part of my appraisal, it may have been part of my appraisal and she spent some time, her interest was in family planning and she gave me the depo-provera ones here as well, which I circulated.

(Interview, Practice Nurse, Riverside, 47, 079-080)

An additional source of in house education observed in Riverside was learning from clinical incidents, or adverse events (Department of Health 2000b), which was seen in the practices as an important learning tool, and served to emphasise the extended responsibility taken on by practice nurses in general. Significant event analysis was an infrequently performed learning activity in general practice until financially rewarded by QOF, but is now increasingly seen as a valuable educational tool (Cox and Holden 2007). It is defined as occurring when:

> ... individual cases in which there has been a significant occurrence (not necessarily involving an undesirable outcome for the patient), are analysed in a systematic and detailed way to ascertain what can be learnt about the overall quality of care and to indicate changes that might lead to future improvements

(Cox and Holden 2007:732)

Laura, Riverside, discussing a teaching scenario arising from a recent case.

> Laura: We had a case this week of subarachnoid haemorrhage and I had a chat with the doctor about that yesterday and he has printed us off quite a lot of information and we are, because of that incident, that patient having a sub arachnoid haemorrhage, going to have a teaching session on it. The three of us who saw her before she died are going to put together a teaching session on it. So we will feed that back and use it as a learning tool, for ourselves and the surgery.
>
> JC: So that is one of the minor illness clinics that she came in to?
>
> Laura: No, what happened, she did come to the Minor Illness Clinic and I actually got the doctor in to see her, and she came in about three weeks later and saw the nurse practitioner and then it was probably about six weeks later she had a fatal sub arachnoid haemorrhage, so we needed to look into if we had done anything or if we had not done anything that we should have done, really to have prevented that, I don't think there is but we I think we need to know, to learn from it.

(Interview Practice Nurse, Riverside- 30: 46-50)

Brendon's comments summarised the importance of using a variety of sources of knowledge to advance practice:

> Brushing up on clinical knowledge generally is important, learning about new things, learning about critical incidents, mistakes, errors, always got those to talk about so we try to do that a bit. Learning isn't just about guidelines, trying to improve our practice or our understanding reading and taking more guidelines is important, but to know about the guideline you have to know about the disease in the first place, so there is that going on quietly all the time as well and I hope we are not too bad in this practice.

(Interview, GP, Riverside-48:087-088)

Although this example was the only one discussed during the data collection period, it was clearly an important form of knowledge sharing not to be discounted and emphasised the importance of how clinical practice involves a combination of non propositional and propositional knowledge, both subsequently impacting on the clinicians' mindlines. As Brendon noted, knowledge about managing a condition and how to access a guideline is relatively meaningless without the underlying knowledge of the disease process. Gabbay and le May (2011) note that students from all healthcare disciplines acquire along the way not just facts from basic sciences but a wide range of intellectual and practical skills, including analytical and problem solving skills and pattern recognition. Discussing the role of storytelling in practice Gabbay and le May (2011) suggest that critical event meetings are a formal way of sharing stories; they label these as 'anecdotes with a purpose' (Gabbay and le May 2011, p.125), the exchange that they promote supplementing and enhancing individual mindlines. Learning from clinical incidents is about drawing on a range of skills, reviewing the cases that possibly deviate from the norm, determining as a community whether anything could have been done differently and honing and sharing practical knowledge. One of the key differences noted between Mountainside and Riverside was the type of roles the nurses undertook. The nurse practitioner and minor illness roles involved the nurses taking on work involving significant clinical judgement and decision-making, whereas the CDM role is far more influenced by standardisation through QOF and less uncertainty about the care provided. The uncertainty of the diagnostic role led to far more informal identification of new knowledge and the culture of the practice had adapted and evolved to accommodate the role the nurses now took.

5.6.3 Informal approaches and attitudes to dissemination

Unlike Mountainside where dissemination arising from NICE guidelines was the responsibility of the nurse manager, in Riverside one of the GPs, Brendon took responsibility for dissemination to both the GPs and the nursing team. He discussed how NICE guidelines flow into the practice and are then circulated:

> One of my responsibilities is to disseminate NICE guidance as it arises, so this morning, I have had this the update for primary care, you can see there, addressed to me, it does go to other members of staff so all the doctors get copies electronically as I do, or on paper, and then what I tend to do is have a look at whether they are relevant to us and then circulate them if they are, and then what we do, which is encouraged actually by the health board, as part as our prescribing centre scheme is to discuss them at meetings if they are relevant. The health board encourage us to discuss them, which I think is good
>
> (Interview, GP, Riverside, 48:7-8)

Brendon noted that NICE information was specifically targeted at general practice, with monthly updates identifying relevant areas, an improvement from when NICE guidelines first came out and primary care received all the guidelines, many of which were not relevant to primary care practice. He further discussed the importance of screening this information prior to dissemination to avoid information overload:

> JC: So how do you make your decisions on dissemination?
>
> Brendon: Well it depends on what it's relating to. For example chronic heart failure, that would be very relevant for the General Practice and Practitioners it might be relevant and would be relevant to some of the Clinical Nurse Specialists in the Community, they are very likely to get it, but I might include one or two of the Community Nurses I know who are interested in Chronic Disease Management (*names one*), not specifically Practice Nurses but we work together.
>
> (Interview GP, Riverside, 48:13-16)

This resulted in two levels of knowledge screening, firstly identifying what was useful and relevant for the practice, and then deciding who needs to know. Dissemination and sharing of information in Riverside, as in Mountainside took place in a number of ways, formally and informally, and with some, albeit necessary, form of gate keeping reducing information overload. The nurses as a whole were positive about the dissemination process, particularly in relation to the positive relationship they had with the GPs in relation to identifying educational needs and support. Laura, a Riverside practice nurse, had mentioned to me that the GPs were particularly good at bringing things to their attention if there had been a change in practice, the practice culture encouraged informal sharing of information:

> Laura: …a couple of the younger doctors especially, are very good on that. They follow the BMJ (British Medical Journal) or whatever and occasionally put articles in our tray, for nurses who might be interested in this, shall we discuss it? I think we're fairly well up to date on it. The practice, we get Practice Nurse magazines and we get Practice Nurse and Practice Nursing. So the surgery buys that in and we have that.

> So we have updated copies on that. And the Health Care Assistants have the Health Care Assistant Magazine which we get as well.
>
> (Interview, Practice Nurse, Riverside- 30:114-115)

Laura emphasised that this informal way of knowledge sharing would lead on to further discussion which could then result in a change to practice. She gave the example of a recent change they had instigated relating to conjunctivitis treatment, noting that this had arisen from an article in the BMJ that one of the doctors had shown them. This had led to discussion and subsequent change in the way patient presenting with conjunctivitis were treated. I mentioned this to Robert, who in addition to his education role was also the appointed prescribing lead within the practice:

> Robert: It's not the most organised way, it's a fairly ad hoc thing, that if something comes to our attention, like with prescribing, it would just be a case of go and speak to them informally and say this is the current advice and we should be prescribing more proton pump inhibitors for example, in people with gastric problems but it is not a formal thing.
>
> JC: Would you say that tends to be informal between yourselves as GPs as well? If someone goes to an update and something has changed would that be something you would discuss as a team
>
> Robert: Yes, I do, I am the prescribing lead for the practice so if something comes up about prescribing I'll disseminate it either via e-mail, task or at one of the meetings where all the prescribers are present
>
> (Interview GP Riverside, 43:48-54)

Mandy, however felt that this informal approach to dissemination could cause delays in making changes to practice:

> JC: What sort of things do you feel would perhaps be brought to your attention straight away, for example, when the new asthma guidelines come out, would that something you would discuss as a practice, and how would you incorporate that.
>
> Mandy: (Pause) -No, no one of the difficulties I have had since coming here is that, there are linked doctors for this, this or this and but everybody tries to have a finger in the pie and I think that trying to get seven partners to make a decision sometimes is extremely difficult because they all have a different train of thought, they have all got a different idea of funding and all this type of thing and um I think that has an influence and um you know that means you are not always quickest to jump on the band wagon sometimes, which is not always a bad thing, you know, as with various diabetic medicines over the years, they have not always proved to be the panacea that they were believed to be but by the same token you don't know unless you try.
>
> (Interview, Practice Nurse, Riverside-46:077-080)

Karen provided a prime example of how the nurses could take part in disseminating good practice when discussing recent changes made to the protocol relating to B12 injections where it was noted that some patients had differing needs. In this extract Karen is discussing how and why they changed the protocol, based on both the guidelines within the BNF and practical experience:

> When you look it up in the BNF it is quite clear that really people should only be having their injections every twelve weeks. But then I think what we found, looking at the BNF in more detail, was more interesting was how we start people off on B12, and we were really looking at whether people do need to have a fixed moving date or if they can go straight onto three monthly injections.
>
> So when I looked at the B12 with a doctor, we sort of came up with a practice protocol, and we also did a presentation to the whole practice, the nurses, about it which was very good, and you know really people should only need to have the injection every twelve weeks but there are some people who feel that they need to have the injection sooner, because some people do feel more tired, pins and needles of their hand and their feet and they actually feel that they need it sooner.
>
> So those patients rather than us saying right have it sooner, we sort of say to the patient if you feel like that way next time, when you are due to have your B12 at twelve weeks have your blood test done beforehand and we will look at what your B12 level is actually and then we can go from there and if it has dropped for whatever reason maybe they would benefit from having it sort of sooner, so really I suppose looking at things from a logical approach really.
>
> (Interview, Nurse Practitioner, Riverside- 45:063-064)

Karen felt that disseminated information was received in a positive manner, which facilitated change in practice where deemed necessary:

> JC: So as a senior nurse within the practice, how easy do you think it is to change practice if you feel you came up, for example, you mentioned the changes to B12, if you come across something, do you feel relatively confident in that you would be able to address it?
>
> Karen: Yes I think so, I mean as I said I think everyone is very receptive to change here as long as you are presenting it because its evidence, and I think that there are a lot of things in the practice that we have done, for example the B12, doing a presentation, changing practice. For instance diabetic patients with the bloods we were taking, evidence suggested that they were having more problems, you know the link between diabetes and thyroid disease and people on metformin with a B12 deficiency so we altered what bloods we have done, so I think everybody is keen to follow evidence if we can.
>
> (Interview, Nurse Practitioner, Riverside, 45:087-088)

The dissemination process appeared to work effectively and included sharing patient feedback as well as evidence, albeit in an informal fashion. Overall the organisational culture

in Riverside encouraged sharing of information, the cultural approach was more closely aligned to CoPs (Wenger et al 2002) with a bottom up approach and evidence of collective learning identified by the practice nurses, as opposed to Mountainside where dissemination took a more top down approach, although both practices were seen as supportive of knowledge sharing.

5.7 Conclusion

In chapter one I discussed the macro level policy influences that have affected all primary care practices within the UK, narrowing in on changes to NHS Wales that have led to restructuring of not only the way health care in Wales is governed and funded, but to an increasing focus on the type and quality of service provided by primary care. Awareness of these changes was important to provide a picture of the distinctive place primary care occupies in the NHS, the financially target driven current climate in which it exists, and the unique employer employee relationship where practice nurses work not only as colleagues but as employees of GP partnerships. The standardised approach to knowledge utilisation and its subsequent impact on nursing roles can be seen throughout the data chapters and exerts a strong cultural influence impacting on all primary care provision, but particularly the work undertaken by practice nurses.

In both Mountainside and Riverside delivery of care was taking place within a climate of change. Notwithstanding the well established evidence based practice movement, practice nurses roles were continuing to evolve and change with the nurses taking increasing responsibility not only for meeting the QOF targets for a range of chronic disease management that result in financial rewards for the practice, but also for providing first contact care. This was particularly evident in Riverside, but had also begun to take place in Mountainside with the appointment of a nurse practitioner. In addition to nationally set QOF targets, practices were signed up to Local Enhanced Service Requirements that resulted in clinical care being increasingly more focused on nationally set targets than on individual

patient need, providing the practice with financial rewards for meeting these targets. In addition to their own individual preparation for their role and tacit and experiential knowledge the practice nurses had access to a variety of knowledge sources ranging from locally arranged educational forums; pharmaceutical company led educational meetings, in house education, clinical guidelines and frameworks. As Rogers (2003) notes, internal strong networks, although useful in spreading information, are seen as a poor way of gaining new information; information needs to flow into the network from outside to allow new information to filter in to the community. Day to day changes to practice took place based on a constantly changing and evolving evidence base. Organisational structural arrangements for sharing and disseminating this knowledge varied between each practice, on the whole the practice nurses were positive regarding the support they received, although the part time nature of the role meant some nurses felt they missed out, this was particularly evident amongst less experienced nurses who would have preferred a more structured approach to internal information dissemination. The part time nature of practice nurse employment created its own difficulties in developing effective dissemination systems that met the needs of all.

Organisational culture towards knowledge utilisation in both practices was supportive, with opportunities for the nurses to build on their existing knowledge and develop their individual and collective knowledge through discussion, sharing and experience. Some opportunities for team discussion were evident in each practice, but unlike the GPs this did not apply to the whole nursing team, with only the senior nurses included in weekly practice meetings. The nurses were more likely to receive information through a vertical approach in a more didactic fashion, with decisions around clinical processes formalised by the GPs. Mountainside employed a nurse manager who took responsibility for both identifying the educational needs of the nursing team and for external and internal flows of knowledge into the team. Riverside, although employing a senior practice nurse had a more individualised approach and had identified their own knowledge needs and fed that back through their

appraisal system which resulted in a positive change. External flow of knowledge in the form of NICE guidelines in Riverside was fed back into the team through one of the GPs. Gabbay and le May (2011) suggested that communities of practice are essential for the development of clinicians' knowledge as it is through this medium that new information is processed, its value assessed and then either incorporated into the clinicians' mindline or discarded. They purport that the GPs in their study sites used horizontal networking to develop their mindlines, using both trusted practice colleagues and local experts to refine that knowledge. This type of horizontal networking was less evident amongst the practice nurses in Mountainside and Riverside with a significant amount of information disseminated through vertical channels. However internal and external educational networking, combined with the nurses' own professional responsibility provided opportunities for the seeking out of new knowledge and discussion with practice colleagues and elements of learning through social participation. The GPs were seen as an important educational resource, and this may reflect the type of work practice nurses have inherited. Wenger (1999) states that social participation is the primary focus of the CoP theory, which he uses as a point of entry into a broader conceptual framework, of which it is a constitutive element, the key components of the social theory of learning including: community; practice; identity and meaning. The practice nurses certainly continued to expand their knowledge through social learning and active participation within their community, discussing, reflecting and acting on their learning needs to make a difference to the care they provided.

In chapter six I investigate further the sources of knowledge on which the practice nurses drew, prior to subsequent implementation within the context of the clinical encounter. The relative influence of these sources are considered in the light of the channels of diffusion and dissemination already discussed, but also in relation to the influence of more embryonic sources of knowledge such as education, investigating how knowledge is transformed, adapted and fused into a mix of research and practice based knowledge. Global knowledge

arising from standardisation such as QOF and evidence based guidelines is considered with regard to both how it is used and its' perceived usefulness in practice.

6. Chapter six: Sources and types of knowledge

6.1 Introduction

An important aspect of enquiry in this thesis is to examine the sources and types of knowledge that general practice nurses draw upon when making decisions within the clinical encounter, in addition to considering how these are diffused and disseminated into and within the workplace. The influence of macro level organisational factors on practice level knowledge was first introduced in chapter one, the continuing focus on standardisation is a thread that runs throughout this thesis. In chapter five I investigated organisational structure and culture in regard to knowledge transfer and dissemination at the meso level of both practices; Mountainside and Riverside and concluded that although the practices were supportive, effective dissemination could be interrupted by the part time nature of the nurses' roles. Additionally dissemination took place through horizontal, rather than vertical processes, which although more effective for cascading codified information, limits the opportunity for construction and reframing of meaning (Greenhalgh et al 2004).

In this chapter I outline the nature of what the nurses consider as 'evidence' and investigate the impact of different sources of knowledge, to further determine whether the clinical mindlines theory put forward by Gabbay and le May (2004, 2011) holds true for practice nurses and if so, to tease out the implications of this for producers of 'evidence'. Gabbay and le May (2011) suggest that practitioners' mindlines develop through a number of phases: laying the foundations, cultivating contextual adroitness, co-constructing collective mindlines and co-constructing clinical reality, however as has been seen the networks of diffusion to which practice nurses are subject to are different to that of GPs, as is their educational preparation and professional status, so I investigate whether these same phases are relevant to development of practice nurses' knowledge. Rycroft-Malone et al (2004) describe

knowledge as being generated from four types of evidence base available for use in clinical practice: research; clinical experience; patients, clients and their carers; local context and environment. I argue that the development of the practice nurse role has been particularly influenced by reconfiguration in healthcare, which combined with the impact standardisation has had on evidence delivered within the context of primary care impacts on how their knowledge is generated and utilised.

Health services in the UK are currently driven by government initiatives to standardise care approaches, within primary care this is particularly evident in the form of the QOF Deaprtment of Health 2003). QOF criteria, developed to link pay to quality of care and increase regulation of care provision to people with long term conditions, were informed by the evidence based practice movement. This has now become part of the NHS modernisation agenda with the development of initiatives such as National Service Frameworks, NICE guidelines and a proliferation of protocol based approaches to health care (Rycroft-Malone et al 2008). As Berg stated back in 1997 the creation of guidelines is 'big business'. My interest lay in the influence of evidence based guidelines and similar codified sources of information, but I also sought to discover what other knowledge sources contributed to nurses' practice; for example knowledge derived from colleagues and patients, knowledge derived from educational preparation and skills based training including clinical examination skills, and the tacit and experiential knowledge that nurses develop as they learn their craft. My aim was to ascertain and make sense of the knowledge influences that define practice. Eraut (1985) argued that the literature on knowledge creation and development contains an implicit message that professionals are assumed to suffer from knowledge deficiency, either because they ignore research findings or their work does not fit governmental expectations. Furthermore he suggests that new knowledge is often created by professionals in practice and that knowledge use and knowledge creation cannot be easily separated, interpretative use of an idea in a new context being in itself a minor act of knowledge creation. Rycroft-Malone et al (2004) agree and propose that a dynamic

relationship exists between propositional or codified; and non-propositional or personal knowledge. Studies conducted amongst nurses in secondary care suggest that clinical knowledge is derived from experience, anecdotal accounts, case histories and expert opinion, although these are considered low in the hierarchy of evidence and influenced by individualised experiences (Youngblut and Brooten 2001). This investigation considers whether this hold true for primary care, where nurses' roles, although often more autonomous and solitary in nature, are also subject to a strong influence from another profession, their GP employers.

In this chapter I identify and examine the sources of knowledge used by the practice nurses, summarising the types and content of evidence based guidelines, protocols and templates available to guide practice, and investigate their views on what they feel helps or hinders their everyday practice, including any anxieties or concerns they express. As in the previous chapter a number of theoretical elements (as detailed in chapter three) were used to focus the data analysis. Michael Eraut's (Eraut 1985, 2000, 2011), (Eraut and Hirsch 2007) substantial body of work on how professionals learn is considered in relation to how the nurses develop and grow their propositional and non propositional knowledge. Gabbay and le May's (2004, 2011) study on clinical mindlines provided a strong theoretical strand to underpin understanding of how the nurses grew and expanded their internal network of knowledge. Knowledge management theories were also taken into consideration, including Nonaka and Takeuchi's (1995) SECI model of knowledge creation and Szulanski's (1996) work on knowledge stickiness which consider how knowledge is created, transferred and mobilised in the workplace. Both Rycroft-Malone et al's (2007) and Timmermans and Berg (2003) empirical work assisted in understanding the increasing focus on standardisation within primary care, as this work bore relevance to knowledge utilisation in the healthcare environment.

6.2 Sources of knowledge

In order to find out about the multiple sources of knowledge on which the practice nurses drew and determine their perceived importance within the context of both Mountainside and Riverside, I spent time observing the practice nurses and nurse practitioners carrying out their everyday duties, taking note of both the sources of codified knowledge they drew upon (e.g. templates, protocols, guidelines) and the occasions when there were no obvious sources, but the knowledge drawn upon appeared tacit or experiential. I then interviewed the nurses asking them what types of information helped (or hindered) their practice, who else they might ask in situations of uncertainty, and how they utilised their own clinical judgement, tacit and experiential knowledge to make clinical decisions. Data were also generated from reviewing the range of protocols and guidelines available to the nurses in the practice environments and discussing with the practice nurses in interview the impact of their educational preparation for their roles. A table is provided in Appendix 12 which illustrates a number of sources, in addition to tacit and experiential knowledge, all of which were noted during observation or mentioned in interview, and are discussed within the emerging themes.

Eraut's (2000) theoretical definitions of the types of professional knowledge and the modes and context of its use assisted in developing concrete and analytic categories to organise the data. Taking into consideration Eraut's definitions, my initial research questions and the picture emerging from the data I categorised the main types of knowledge, both those observed and referred to, into three main themes: individual knowledge, practice knowledge and global knowledge. Using a constant comparative approach to data interpretation further sub categories emerged relating to the source of this knowledge, to which data was then assigned.

6.3 Individual knowledge

The practice nurses in both sites developed and expanded their knowledge from both formal and informal sources, this knowledge not remaining static, but continually growing and changing. The experiences to which they were exposed as they gained this knowledge and the way in which they became prepared to deliver the practice nurse role included acquisition of non propositional as well as propositional knowledge, which appeared to be influenced both by the organisational context they operated in, and the context of the varying clinical encounters to which they were continually exposed.

Karen, nurse practitioner at Riverside summarised the numerous factors that have influenced the way she works:

> JC: OK so obviously having spent time with you, you are clearly very confident with your approach. You see a number of complex cases and you are very well established in your nurse practitioner role, what would you say about the educational preparation you have received in order to do that, do you feel that's really changed you practice, altered your practice?
>
> Karen: Yes I think like most practice nurses it is a combination of things, it is a combination of actually working the number of hours that you work and seeing a variety of patients you see. Then you know you are looking at structured education in the case of having done the various different diplomas, which make a big difference, and then really like minor illness and nurse practitioner you are then working in conjunction with another clinician and like in my case with a nurse practitioner each year with a different clinician and a different doctor for minor illness. You are not just sitting in with one doctor, you are sitting in with several and then you are getting educational sessions presented by people who are experts in their own field, which I suppose is a very good thing, and then when it goes to looking at things like prescribing, again you are trying to follow guidelines but definitely you build on your knowledge, I think that is mainly what I would say. Like the incidents that you said this morning about a child with eczema or impetigo, how you deal with them the first time you see them and if you saw a patient exactly again, I would actually treat them differently so you actually learn, so you are constantly evolving your practice really.
>
> (Interview Nurse Practitioner, Riverside, 45:075-080)

Propositional knowledge in the form of structured education clearly played a part, but Karen's point that next time she may treat the same scenario differently indicates the way that information or evidence from other outside sources is seen as only part of the process. As Nicky, a practice nurse in Riverside noted, knowledge in practice is not static, but a

constantly expanding field, subject to change when new resources are uncovered, although developing awareness of relevant codified sources can take time:

> I would say it (*referring to her knowledge*) was built up by looking at guidelines, from my colleagues, from reading articles, in journals, past experience, that's where I would say my knowledge came from. I am always keen to expand my knowledge and like I said, for example I have gone and sought advice from someone else. I will often go and check in my own time against any guidelines that have come out or any sites that I know are highly recommended. I sometimes wish, the doctor was showing me the other day a website from Australia or New Zealand that has skin conditions in it and you can look up things and say this is such and such, and I feel that I wish I had known that website, so it's almost like you have to know, be in the know, some of them aren't very well known about.
>
> (Interview, Practice Nurse, Riverside- 47:151)

Certainly at times it was difficult to differentiate whether the nurses were drawing on non-propositional or propositional knowledge, or a combination. In both practices the nurses were clearly knowledgeable in relation to their day to day practice, but unpacking the original source of that knowledge was quite challenging.

How the nurses perceived knowledge and related it to evidence based practice was a key question, determining whether they searched and evaluated evidence as the EBM paradigm advocated, or whether they relied on their tacit and experiential knowledge (and if so from where was this initially derived), or turned to the sources most easily available to them (Timmermans and Berg 2003). When observing the nurses during a variety of clinical encounters it became evident that time, complexity and individual patient need all played a part and these elements are further explored within chapter seven. Here I focus on the sources contributing to the practice nurses' individual knowledge.

6.3.1 Propositional knowledge (Education)

All the practice nurses, apart from one who trained in mid 1990, undertook their initial nurse training in the 1970's and 1980's. Post registration training varied, with 4 graduates in each practice, 2 of these in non-nursing disciplines. Gabbay and le May (2011) when developing their theory on the early influences on the development of clinical mindlines drew on the experience of medical students and newly qualified doctors, and explored how foundations

are laid from an early stage of training. Although their study was not limited to medical professionals, and indeed they make the point that overall their findings are not confined to the group or profession used to illustrate their findings, educational preparation for nurses is significantly different from medical training, in regard to both the length of training and content of initial pre registration and ongoing post registration education. GPs undergo a structured three year post qualification programme to prepare them for general practice, including enhancing their conceptual thinking and problem solving skills in combination with practising evidence based medicine. Practice nurses, in contrast, can enter primary care straight from secondary care roles with no further mandatory education, although options are available to undertake programmes leading to a specialist practice nurse qualification, as well as a range of diploma and degree modules relevant to the practice nurse role.

I explored the impact of nurse education with regard to the practice nurses use of, and attitude towards, information and how this information becomes ingrained into knowledge. Nurse education has changed over the period of the last few decades from being a hospital based 'apprentice' style training to firstly a University based diploma, and more recently to a graduate, programme. All the participants in both sites had experienced the traditional 'apprentice' style training supplemented by a considerable amount of post registration education. Their initial nurse training, although including a theoretical underpinning relating to the basics of anatomy and physiology with a focus on treatment of disease, had a stronger focus on the practical elements of care, with little or no emphasis on diagnosis, a relatively new role for nurses. The nurses who were graduates had all attained their degrees post initial registration, apart from one who had attained her degree in a non nursing discipline prior to initial nurse training.

Similar to Eraut's (2011) observations with newly qualified nurses, learning culture was determined at practice level and there was a strong interest in gaining higher qualifications which were deemed as essential to guide practice. Organisational support, as discussed in

chapter five, was supportive of this education, however included an element of governance, with the GPs providing in-house education and giving permission as employers for the practice nurses to attend formal educational programmes. There is a long history of this emphasis on formalised certification for 'extended roles' perpetuated by the nursing regulatory body in the 1990's, the United Kingdom Central Council (Walby and Greenwell 1994), to which the nurses in both Mountainside and Riverside had been exposed. The practice nurses in both sites had undergone a significant amount of post registration training to prepare them for the roles they undertook; to a certain extent it was an obligatory part of the role to have undergone further education. Issy, nurse manager in Mountainside noted that:

> So they've (*the practice*) always made sure, in fact all our nurses are trained up to diploma level in the chronic disease that they actually work in, so they've got that basic background.
>
> (Interview, Nurse Manager, Mountainside, 6:052)

Later in the interview Issy re-emphasised the importance of this continuing education and how the nurses' role in practice was dictated in part by not only their experience but the further education undertaken:

> Yes, yes, we've got very different levels, no that's not true we've got one or two that are not perhaps as experienced as others who haven't done so much education but the idea is to bring everyone up to the same standard, so when nurses start working with us they don't tend to do that much in the chronic disease management clinics, then they do their diplomas, then they build up and build up until they've got all three or whatever it is depending on how many they want to do.
>
> Actually you usually find that if they (*the practice nurses*) want to do diabetes they don't want to do respiratory (laughs) which is fine because if you've got your resources. I think once they've done you really do have to think to be doing some sort of educational programme on a regular basis for your own benefit to stimulate you if you like, not to just come in do your job and go home again, but to actually think this is what I should be doing so making sure everyone has a rolling programme of education is very important
>
> (Interview, Nurse Manager, Mountainside, 6:080-081)

The same applied to Riverside where the nurses had undergone a significant amount of post registration education to prepare them for their current roles. All the nurses who ran the minor illness clinic for example, had completed a minor illness diploma. Nurses who had

recently undergone further post registration education indicated how guidelines were reinforced by the educators, this reinforcement subsequently impacting on their clinical practice. The following extracts illustrate how ongoing education had an impact on the nurses' information seeking behaviour. Brenda who was undertaking an asthma diploma discussing the impact of recent education on her current practice in relation to information sources:

> Brenda: At the moment because I am so new at the asthma thing (*referring to involvement in the asthma clinic*) I tend to refer to the guidelines because I am used to them and I can flick through quite quickly now. Before they were a complete mystery, and they looked quite frightening but now they are quite simple really.
>
> JC: Yes if as you say it's a bit easier now to use, is that since you've been on the course or is it just because you have got more used to them?
>
> Brenda: I think it is a bit of both really I think because the course refers to them so much, you have to keep looking at them all the time and because I have to do some assignments as well you become obsessed by quoting BTS *(referring to British Thoracic Society guidelines*) and everything else.
>
> (Interview Practice Nurse, Mountainside, 1:027-032)

At the time of data collection Dee was undertaking a degree in specialist community nursing in a local University which included a 50:50 theory/practice element. We discussed what educational preparation she had received in accessing and implementing evidence and whether this had made any difference to her practice:

> Dee: Yeah, I'm like I tend to you know look on the computer, and will access information through the internet. I subscribe to Primary Care magazines and have regular e-mails from eCAB (*The National Prescribing Centre's Current Awareness Bulletin*) and so I tend to look for information and access it.
>
> JC: So would you say you are probably more aware of things like that since you have been on the programme you are on at the moment, does it increase your awareness of what's out there?
>
> Dee: Definitely. I mean I access BMJ sites and things like that before, I don't tend to go too much for books as they tend to go out of date. I do tend to use the internet a lot looking for articles and things.
>
> JC: Ok, so do you feel you have had adequate preparation in accessing useful evidence and is there a difference now from perhaps when you started the program you are on at the moment.
>
> Dee: Yes
>
> (Interview Practice Nurse, Mountainside, 3:103-111)

Nicky, in Riverside had completed the same community degree some years earlier. Although she had less experience as a practice nurse she noted that the educational preparation she had received for the role had increased her awareness of the range and purpose of resources available:

> Nicky: I think it's made me more aware of the sort of guidelines that are out there, when I worked in hospital I didn't see NICE as being particularly (*useful*), all I knew about NICE is that they banned drugs that's all they did, I didn't realise that they produced such extensive guidelines and actually that is probably the best part of NICE rather than what they get put in the media for is the guidelines. Another website I do occasionally look at is the British Heart Foundation, things like hypertension guidelines, so yes they made me more aware of the guidelines, um a bit more aware of the purpose of research as well, possibly, but certainly more aware of guidelines.
>
> JC: And do you feel that you have received adequate preparation to be able to access and use evidence.
>
> Nicky: Yes, I think so I am quite happy to get on the internet and look for evidence and decide for myself whether it's come from a very valid source or whether it's just…. (laughter)
>
> (Interview Practice Nurse, Riverside, 47:127-132)

Laura, a very experienced practice nurse from Riverside agreed:

> Well I have to admit that the courses that I have done, really help you do that *(access evidence*), they show you what's out there and there is so much to be accessed, obviously you had to do, not a dissertation, but a piece of work, a lot of it is on researched recent evidence, so you get used to finding that out, you do go back to the same websites, I guess they are easy to find, you get to know, but it's the courses you that you do that enlighten you on that, I think……
>
> (Interview Practice Nurse, Riverside, 30:142-143)

This positive influence towards education increasing awareness of a range of information sources appeared to be irrespective of the level of the educational programme.

> JC: I know you were a graduate before and obviously you are now completing your Masters, what type of educational preparation would you say helped you in accessing and using evidence….?
>
> Jackie: Really from diploma level upwards I would say, I think obviously we do more and more of now in the last couple of years yes from when I did my diabetes diploma years and years ago.
>
> (Interview, Nurse Practitioner, Mountainside, 7:096-099)

Issy in Mountainside noted that previous educational experience had an impact on both attitude and propensity to information seeking. As a graduate prior to becoming a nurse she felt that this had had an ongoing effect on the way she worked.

> JC: Ok. Thinking of yourself and your own practice, what kind of educational preparation would you say you've undertaken in the past that assists you in accessing and using evidence, because you mentioned about searching skills on the internet, how do you feel about that?
>
> Issy: Yes I'm a bit different from other nurses- I went to university straight from school and then did my nursing so I was used to working, we didn't quite have the internet then, computers then filled an entire room, but never mind so I was used to looking for that *(information*) and I've always done and I think now with the way that nurse training has changed, I think you'll probably find that most nurses are more au fait with actually looking for evidence online and doing searches. Some of our nurses are better than others because they've done recent courses, and of course if you've been on any kind of course recently then it informs you how to look for research and how to evaluate it which is the other key issue is whether it's worth looking at……..
>
> (Interview Nurse Manager, Mountainside, 6:064-067)

Karen emphasised that the changes in nurse education had a significant impact on practice with regards to information seeking, that hadn't been the case when undertaking initial nurse training:

> I think so because with nurses when you undertake such a nursing education nowadays a lot of it is research based, so I must admit before I did any of my nursing diplomas I hadn't really perhaps tackled research or evidence based medicine, just because it wasn't in line with my nurse training, it wasn't really a big part of it, it was part but now it is obviously much more important. So each course I did you would be looking at evidence and case studies and reflecting on evidence and I think that was really apparent within the prescribing course, as well as the nurse practitioner course and so I think education does encourage you to use evidence, and when you go to a lot of these platform study days now it is not just somebody who is knowledgeable in the field that does the presentation usually it is somebody who is an expert in that field and they again are basing it on evidence - COPD pathways, and looking at all the different standards and drawing it together, so I think it does encourage you to use evidence.
>
> (Interview, Nurse Practitioner, Riverside, 45:083-084)

Timmermans and Berg (2003) argue that increased reliance on guidelines and research based evidence has led to a new form of uncertainty to be managed in addition to the clinical uncertainties of diagnosis and treatment, 'research-based uncertainty', which they define as the actual practice of searching for and evaluating studies to apply to practice, something which was rarely seen in the observation of clinical practice. Greenhalgh (2010) argues, however, that the underpinning argument for evidence based practice is the fundamental concept of coping with change, not limiting your practice to knowledge gained in the past, but identifying and meeting your learning needs and applying that knowledge appropriately

and consistently in new clinical settings. The continuing education the nurses undertook certainly appeared to impact on their attitude, not only to information seeking but on determining its relevance to practice.

Gabbay and le May (2011) propose that one of the reasons clinicians find it hard to explain the rationale behind their decisions is because they are deeply embedded in patterns of thinking laid down during their training, formal knowledge inextricably melded with a wide range of experiential and tacit knowledge and behavioural norms. Mindlines do not remain static and continue to develop throughout practitioners' careers, with three particular stages being important: developing from novice to expert, handling new information that changes practice and how to keep up to date or seek guidance (Gabbay and le May 2011). One of the benefits of ongoing education was in increasing the nurses' skills in relation to accessing research information, increasing their awareness of authoritative sources. Elle, in Mountainside noted how ongoing education impacted on the way she practised, impacting on her knowledge development:

> JC: You've mentioned a couple of courses that you've been on, such as diabetes, respiratory, would you say that's increased your awareness in that area of what's about
>
> Elle: Yes, definitely
>
> JC Does that make you more liable to think, because you've done extra education in that area, does that make you more aware of checking for changes?
>
> Elle: Yes definitely, I think especially being an older nurse, and there's a different way of learning now, definitely I think it makes you look at things differently, it does make you think
>
> (Interview Practice Nurse, Mountainside, 4:122-129)

Brenda added that ongoing education provided her with a different outlook:

> It gives you a different perspective really, if I had just been a clinical nurse and hadn't done any more education I perhaps wouldn't have looked at it *(practice*) in a way that I do now. For me I think it is important to have sort of a level of education, qualifications in certain things, I feel better when I know I that I have a qualification in something that helps me. I can say I have done this, like the diploma in asthma with me now I feel better thinking I have done this now and I know I have some background to it rather than just leaving it for getting information on a daily basis.
>
> (Interview Practice Nurse, Mountainside, 1:133-134)

Although it was difficult to ascertain the knowledge that had been laid down from the nurses' original nurse training, it was clear that ongoing education played a part in their attitude towards seeking and accessing information, although little mention was made of evaluating primary sources, which was the initial focus of EBM, alongside EBID (discussed in chapter one). This approach towards evidence has seen a shift towards an emphasis on guidelines and embedding of evidence into organisational structures alongside appreciation that searching, evaluating and synthesising evidence in everyday clinical practice is impractical. The work the practice nurses undertook in both the chronic disease and the minor illness clinics required supplementing their initial education with a considerable amount of post registration education; this not only provided preparation for the role but increased their ability to search for appropriate information. Empirical work undertaken in both the community and secondary care environment by Thompson et al (2004) on the role research knowledge played in nurses' decision-making showed that when nurses accessed research information this was outside the immediate decision-making environment, often in the context of continuing professional development and formal education or training. However the practice nurses clearly demonstrated enthusiasm and awareness of appropriate evidence based sources. Whether or not this enthusiasm towards information seeking was translated into the clinical encounter was a question still to be answered. I also needed to be aware that the nurses' response to my questions may have been swayed by their knowledge that I was an educator with known enthusiasm for EBP. Having explored the propositional influence on the practice nurses' knowledge I focus on the development and influence of non-propositional knowledge.

6.3.2 Non-Propositional knowledge (Tacit/Experiential)

Non-propositional knowledge forms part of the tacit knowledge of professionals, the professional craft knowledge brought to the encounter in addition to the personal knowledge linked to life and cognitive experiences brought by individuals that enable them to think and perform (Rycroft-Malone et al 2004). This personal knowledge is embedded in individual

experience, involving intangible factors such as personal belief, perspective and the value system; it is hard to articulate and is often overlooked as a critical component of collective human behaviour (Nonacha and Takeuchi 1995).

The nurses in both sites identified a range of sources of information that they utilised to support their practice, but didn't necessarily utilise them during the observed consultations, relying instead on their experiential knowledge and a form of pattern recognition (*seen it before*) and embedded thought processes developed from their exposure to practice. Laura and Brenda both acknowledged how experiential knowledge is integrated into their practice:

> Laura: Yes I think it is, its experience, you've seen it before and you know what works, whether that's actually more than following the guidelines, I think on the whole it is, yes
>
> (Interview Practice Nurse, Riverside- 30:182)

> Brenda: A lot of it came from, literally from experience, the fact that you know when it comes to things like wound management initially what would you do here, and you tend to find out what the most basic uses are
>
> (Interview Practice Nurse, Mountainside- 1:153)

Elle in contrast felt that relying on experiential knowledge could limit practice:

> Let me think, wounds (education) is something actually probably a lot of us could benefit from, especially myself from going on, I tend to use the general sort of inadine, jelonet, whatever, that we've always used, there's lots of things out there that perhaps I don't know about because we don't come into contact with. I think practice nurses stick with what they know.
>
> (Interview Practice Nurse, Mountainside- 4:121-122)

The following observation outlines the number of influences that play a part in the management of an everyday clinical encounter:

> 27 year old female-'think I've got a water infection'.
>
> History taken, urinalysis +ve nitrites.
>
> Mandy-'No obvious sign (despite +ve nitrites which are a clear indicator of a lower UTI?), but will give you antibiotics that you've had before, only 3 day course, won't hurt'. Reviewed previous antibiotic R/x to make choice rather than refer to evidence. Mentioned to patient evidence for cranberry juice, advice appears to be based on personal viewpoint rather than evidence. Patient UK leaflet given, downloaded from Web Mentor search website.
>
> (Observation Practice Nurse, Riverside- 24:31-33, my emphasis)

As I noted in my field notes at the time-'Interesting decision-making process-this worked before so will try it again'. Mandy considered clinical history and used clinical examination skills (propositional knowledge) prior to making a diagnosis, but then discounted the evidence and reverted to a previous incident (non-propositional experiential knowledge) to use as her knowledge source when deciding on the treatment. The antibiotic choice selected was indeed the one recommended by guidelines (Clinical Knowledge Summaries 2009) but from observing the scenario it was difficult to determine Mandy's knowledge source. Did she know the evidence from previous experience of a common clinical scenario, and apply it accordingly? Rather than an example of a mindline, grown from experience, updated from a wide range of formal and informal sources and modified when applied to an individual patient within the consultation through discussion and negotiation (Gabbay and le May 2011), she simply made her decision using the nearest available source of information, the patient's notes. In this particular incident this did not appear to account for the other important contextual influences on the consultation, the patient's expectation, and the influence of accepted 'myths' of practice, in this case the use of cranberry juice as a 'cure'.

Sometimes however consultations, although perhaps appearing to be based on tacit/ experiential knowledge, were in fact simply a case of putting into action processes learnt from the guidelines, as Nicky illuminates:

> Nicky: yes and after a while you begin to know what is, I mean most of the time now for the pill checks I don't actually get out the guidelines right, there is the odd occasion I do, I know that somebody I think is a BMI between 30 and 35 I think that is a WHO2 (*World Health Organisation)* maybe a WHO3, but at least I am getting, I'm using them in a sense that I can just think it out of my brain.
>
> (Interview, Practice Nurse, Riverside -47:083-084)

Nicky who wasn't yet involved in running the minor illness clinic, a role that involved diagnostic as well as assessment skills noted how the skills required for the minor illness role involved a degree of tacit and experiential knowledge, and despite her confidence in carrying out her existing role found the prospect of this to be quite daunting:

> Nicky: I would like to do minor illness in the future but one thing that frightens me about it is that you have to have some, it's not just using the guidelines, I suppose it's more a gap in the guidelines to what you see in front of you, and you don't know what you are going to see in front of you.
> JC: No, it's more individual
> Nicky: You have to have more of your own knowledge don't you, and common sense (laughs).
>
> (Interview Practice Nurse, Riverside, 47:159-163)

Nicky's comments highlighted how changing roles in practice require changes in thinking, particularly diagnostic roles which are roles nurses have not been traditionally prepared for. If Nicky were to later expand her role to minor illness she would be able to access a minor illness diploma, as had the other nurses within the practice, but her concerns were not about adapting this propositional knowledge to practice, but about growing the experiential and tacit knowledge that underlies the development of diagnostic skills, a necessary process to be able to deal with the elements of uncertainty that are aligned to this new role. This would be quite different to the mindlines utilised by Gabbay and le May's (2011) GPs whose diagnostic mindline was imprinted during initial preparation for the role.

Karen, an experienced nurse practitioner in Riverside exhibited awareness of all the factors necessary to reach a satisfactory decision without necessarily drawing on evidence which can be time consuming and impractical during a time limited consultation. Although to an inexperienced observer the fluid approach to the consultation may appear to be based on experiential knowledge alone, Karen was working from an expanded knowledge base resulting from a combination of propositional and non propositional knowledge sources. Indeed the *internalization (explicit to tacit)* of the SECI process could be observed (Nonaka and Takeuchi 1995) in the following extract from one of Karen's surgeries, where an evidence based step by step approach to eczema care (CKS 2008) was discussed with the patient without obvious referral to the evidence base at any stage of the consultation:

> 15 year old male with flexural eczema. Karen noted she had seen him with his foster parents one week before and discussed use of emollients. Foster father stated that treatment 'not working'. Karen asked whether they were using the fingertip method (*the recommended method for steroid cream application*). Asked what he was using in the bath/shower, examined skin patches and noted that there were no signs of

> infection. She suggested the 'step by step approach' (*using stronger steroid cream if previous potency ineffective*) advised that 'safe to use stronger steroid for short period' and to use the 'fingertip approach'. Review appointment made for 2 weeks due to stronger steroid cream prescription.
>
> (Observation, Nurse Practitioner, Riverside-21-32)

Gabbay and le May (2011:60) suggest that the apparently instantaneous decisions typically seen in general practice when dealing with routine cases are a result of complex equally instantaneous patterns of thinking that take account 'of the complex and competing goals, demands and local circumstances and systems-the mindlines'. These may involve some degree of pattern recognition or use of heuristics or 'rules of thumb' but are in fact a much more complex process taking into account not only clinical need but a whole range of other considerations, psychosocial, managerial, professional and ethical. Propositional knowledge alone cannot prepare practitioners for all the contextual influences that impact on the consultation, including individual patient need, as Karen noted:

> …..I think that's the key, the individual patient is really important, cause it just isn't about what we think what is best for the patient, it's also to discuss it with the patient so that they have actually got the option and they decide what is best for them.
>
> (Interview, Nurse Practitioner, Riverside-45:027)

Despite the increasing influence of standardisation of care within primary care, particularly that from the QOF (Department of Health 2003) in relation to CDM, the practice nurses demonstrated clear disease specific knowledge, particularly those who had developed skills in specialist areas. That knowledge originated from previous education, as well as experience. Cara, who has worked as a practice nurse for 18 years and specialises in diabetes care:

> JC: so thinking about medication changes, so say you had somebody in with diabetes and their HbA1C (glycated haemoglobin-a measure of glycaemic control) was raised and you wanted to go on to the next stage, how would you access that information.
>
> Cara: I would know it.
>
> JC: You just know it?
>
> Cara: I know it because I've been taught it and we discuss it and we know that there is certain medication we can't give and we have to look at results off the eGFR (estimated glomerular function) chart, Metformin and Kidney function and all things like that, which is relatively new in the past 3 years, just all things have changed.

(Interview Practice Nurse, Mountainside- 2:057-063)

Cara's point emphasised the changing nature of the care that she provided and how this had been influenced by education, but also that her individual knowledge was not static. Although she did not specifically associate this change with standardisation and EBP, the change she referred to regarding the way patients with diabetes and chronic kidney disease are cared for, was instigated through change to standardised national guidance subsequently implemented in the QOF which was discussed at practice level through the QOF meetings and disseminated to all practitioners involved in diabetes care. Although it is impossible to say whether her practice would have changed without the influence of standardisation imposed by QOF it is likely that the instigation of this change would have been a slower process.

6.3.3 Individual knowledge - discussion

The practice nurses developed knowledge for their roles though both formal education and more informal experiential work based learning, this appeared to be influenced by both the evidence base (although this was not always verbalised) and individual encounters. As their roles grew and changed they had to adapt in order to deal with the growing complexity of the work they had inherited, a role which their initial educational preparation had not prepared them for, although they were given access to relevant post registration education which clearly had an influence. Gabbay and le May (2011) provide a useful summary of the arguments that have emerged regarding the best way to educate professionals, noting that:

> There is a big difference between on the one hand the technical-rational, theoretical 'codified' knowledge that is explicit, written, taught and examined and on the other hand the craft or 'artistry' of the practical, often tacit knowledge that is implicit, absorbed, learnt and practised (p.61)

The influence of non-propositional knowledge on practitioner experience is not a new concept. Luker and Kenrick's (1992) exploratory study revealed that the largest source of influence on community nurses' clinical decisions was practice-based knowledge and knowledge gained through experience, although they note that it is hard to distinguish between research based knowledge and practice based knowledge. Rycroft-Malone et al

(2004) agrees that although practical know how is an important source of knowledge in making up the evidence base of practice it is often not tidy or clear cut. Gabbay and le May (2011) argue that 'information' only becomes knowledge when combined collectively or individually with a variety of other sources such as the practitioners' skills, 'intuition', ideas, judgements and interpretations then contextualised as part of a wider social process. However as Eraut (1985) noted, if the knowledge creation capacities of individuals and professional communities are to be enhanced, support structures need to be focused towards the enhancement and support of sharing and development of practical learning.

Knowledge is not static, non-propositional knowledge can be transformed into propositional knowledge when subjected to the SECI (Socialization, Externalization, Combination and Internalization) knowledge spiral (Nonaka and Takeuchi 1995) and vice versa, this was an important point to note. Gabbay and le May's (2011:204) work suggests that applying knowledge to clinical practice is a complex process, with what they term as 'knowledge-in practice-in-context' intimately linked to organisational structure and function not just individual knowledge, the immediate setting or context structuring the way in which people solve problems. The next two themes in this chapter explore how the practice nurses' knowledge was influenced by what I have termed practice and global knowledge, although the distinguishing lines between the two are often blurred.

6.4 Practice knowledge

Dissemination of practice knowledge within the organisational and cultural contexts of each practice was examined and discussed in chapter five. Here I focus on two particular aspects of practice knowledge which act as everyday knowledge sources-knowledge from colleagues and knowledge from locally developed or adapted in house protocols.

6.4.1 Knowledge from colleagues

Eraut (2008) suggests that the people with which one interacts are one of the most important features of any workplace or community context. Despite much of this knowledge being tacit, he proposes that this knowledge provides the basis of unhesitating daily interactions with others. Without exception, all participants in both Mountainside and Riverside commented that they would seek information and advice from colleagues, these included practice nurse colleagues, district nurses, GPs and specialist nurses, in addition to discussion of clinical issues at 'arranged' events, such as in-house educational meetings led by local consultants, educational events organised by pharmaceutical reps and practice nurse forums. As seen in chapter five the organisational and cultural approaches to dissemination were focused around knowledge sharing and this had been developed further by the nurses themselves through identification of specific educational needs required to carry out their enhanced roles (for example Laura's identification within her appraisal).

Generally interaction with colleagues was something that occurred outside of the consultation, but on occasions they provided instant advice and support. An example of this occurred when observing Nicky's practice nurse general clinic:

> 87 year old lady, fell into lavender bush whilst walking dog, extensive lacerations to right arm, taking steroids, so paper thin skin. Quite bad injury, Nicky not sure what to do, so asked GP to come in and review as felt too extensive for her to deal with. GP suggested referral to A&E but patient reluctant 'won't do anything that you can't do in the surgery'. Nicky also called nurse Karen in for her opinion, both felt A&E best option, GP (who knew patient well) felt that she wouldn't go. Suggested a plan of care (asked me if I thought that was ok)-'usually leave wound dressings to nurses'. Karen took over rest of Nicky's clinic. I assisted Nicky with the dressing (true participant observation!) Nicky keen to involve me in the choice of dressing.
>
> (Observation, Practice nurse, Riverside- 17-18)

On this occasion Nicky felt that the case in front of her was beyond her expertise and opted for a colleague's opinion. Although integral to this process was not only access to knowledge but Nicky's adherence to her professional responsibility, the NMC (2008) code clearly outlining the requirement to consult and take advice from colleagues where appropriate, and refer to another practitioner, when in the best interests of your patient/client. This type of

scenario additionally provided further evidence of the impact of another type of knowledge on the consultation outcome, the practitioner's knowledge of the patient's preference and her family situation, this intimate knowledge being unique to a primary (as opposed to secondary care) situation. As noted in other scenarios this has a direct impact and is discussed further in chapter seven.

Where a colleague was deemed to be an expert in the field, by virtue of their roles and experience, asking them appeared to be the preferred and 'easier' option, particularly amongst those with less practice nurse experience. Brenda, a relatively new practice nurse, discussing sources of information that she would draw upon:

> Generally asking the other girls that work here, because they are a good source of information, they have been here a lot longer than me so they are well aware of things that I am unsure about, the way the practice runs in some respect, so they know who to go to. The boss *(referring to Issy-the nurse manager*) here is very good. Very knowledgeable, a good teacher, when you ask her anything, it is not just a simple answer, you will get a bit of background and it makes it more understandable, but the other girls too, I tend to find that certain people here have certain specialities even though we are all well grounded, there are ones I would go to for specifically for information on asthma and diabetes, also we have a diabetes practice nurse now who is very good as well, and very good as a resource.
>
> (Interview, Practice Nurse, Mountainside- 1:055-056)

Brenda's remarks illuminated more than one issue. Being a newer member to the practice she was still finding her feet in terms of what she needed to know to be an effective and autonomous practitioner within primary care. As Gabbay and le May (2011) point out, to operate effectively involves the accumulation of a bank of 'soft' knowledge, in addition to clinical knowledge around the culture and context of the practice. As Brenda noted, her needs were not restricted to clinical knowledge but also about 'knowing who to go to', the ideal resource was therefore colleagues who were not only better acquainted with the situation but could additionally answer clinical queries. Colleagues could provide her with information that she could not find within the guidelines, and despite having now done the asthma diploma colleagues were still considered a useful source:

> So it got to the point when I heard it *(asthma)* mentioned and it wasn't something I wasn't really sure of I would go off and ask one of the girls 'what do I do now'? I still

> ask people because it is a little bit quicker and it is not what the paper *(referring to the BTS guidelines for asthma)* is telling me I want more patient orientated information as opposed to drug information.
>
> (Interview Practice Nurse, Mountainside, 1:027-032)

The second issue appeared to be almost an assumption that knowledge from these 'specialist' sources, which is readily translated and easily applicable to practice, was also reliable, and eliminated the need for further confirmation on a course of action. This point was further brought home during a clinic observation. I noted that an elderly patient with type 2 diabetes had been advised to routinely monitor his blood sugars four times daily. When questioning the nurse about her rationale for recommending this blood glucose-monitoring regime, as the readings were not used within the consultation to provide feedback, contradicting guidelines which recommend self monitoring only as an integral part of self management education (National Collaborating Centre for Chronic Conditions 2008), she noted:

> 'That's what the DSN (diabetes specialist nurse) used to do when working in my previous area, seems reasonable, is that ok?'
>
> (Observation, Practice Nurse, Riverside- 24:37)

The source had been established as reliable and 'in the know' (Gabbay and le May 2011) and therefore no further questioning was required to establish the relationship between the advice and the research evidence. Although other nursing colleagues were the most frequently consulted a range of other human sources were referred to, Cara:

> I *even* use our GPs they are really good. So I say what do you think about this? There is always somebody……
>
> (Interview, Practice Nurse, Mountainside- 2:039, my emphasis)

Cara, clarified this further, when discussing what she would do if she had a particular problem, confirming as Rogers (2003) notes that 'uncertainty motivates individuals to seek information, as it is an uncomfortable state':

> I think, completely honestly, I would only use somebody if I didn't know what on earth was going on, then I would use their experience.
>
> (Interview, Practice Nurse, Mountainside- 2:091)

The use of GPs as a quick and easy resource during a consultation, in both practices appeared to be based on availability and convenience, rather than for particular specialist knowledge, despite the recent appointment of GP clinical leads in Mountainside, as noted in the previous chapter:

> Fiona: yeah I would use the GPs as well
>
> JC: do you tend to go to the ones who are the specialists; because I know you mentioned last time that some of the GPs have taken on certain areas?
>
> Fiona: they have, now we do but they are not always here because there are other branches, as well some are half day perhaps, and I usually look to see who is sort of free some sort of have six (patients) waiting and some haven't got so many and there's always your favourites you go to.
>
> (Interview, Practice Nurse, Mountainside- 5:103-108)

Laura in Riverside:

> The doctors on a whole, depending on how busy, what we do is call on the duty doctor rather than any doctor, we try to call on the duty doctor if we need help and they are always very helpful
>
> (Interview, Practice Nurse, Riverside- 30:86-87)

Others kept books or discussed useful sources that could be called upon when required, these tended to be a mix of both information sources and sources that could be accessed for general procedural advice, or for more straightforward issues such as immunisation status, indicating that a preference for people as a source of knowledge is not just about convenience. Laura:

> We also have another diary down the other end, a purple book, which I have a lot of phone numbers in, people I can phone, the immunisation co-ordinator, the TB nurse specialist, the cervical screening people or the mammogram people, so I have a lot of phone numbers in there and I often give patients a phone number, obviously not a professional one, but one that they can phone, sometimes whether if it's about when their next mammogram is or if they want a mammogram and they have not been called for it. So I have that reference book as well, we use that quite a lot.
>
> (Interview, Practice Nurse, Riverside- 30:42)

Jackie:

> Yeah quite often I have to ring the DVT (deep vein thrombosis) clinic, or the Ophthalmology clinic for advice and the same with midwives as well, we get a lot of ladies in with pregnancy and infections and you know I will use my BNF for safe prescribing but sometimes there might be something that they know is better to use. So I do use the midwives quite a lot and CPN's *(referring to Community Mental Health Nurses)* I use quite a lot, I go to the nursing homes of course, and quite often I will ask

> for CPN intervention and the same with physiotherapy, the same with occupational therapy there is quite a lot
>
> (Interview, Nurse Practitioner, Mountainside- 7:054)

> Elderly gentleman presented with shingles over eye, classic presentation. Jackie asked what I'd recommend! Referred to Oxford handbook of General Practice *(paper version 2005)* then prescribed acyclovir QDS and contacted opthalmology for further advice. Clinic recommended x5 Acyclovir daily. A specialist nurse appointment was arranged for 4pm that day. Jackie noted how she would refer to specialist nurses or clinics when patients presented with a specific problem, rather than refer on to the GP.
>
> (Observation, Nurse Practitioner, Mountainside- 44: 23)

Discussions with specialist nurses took place at a number of points, prior, during and post consultation, with joint patient care plans developed, as noted in my field notes during observation of Karen's clinic:

> Female with type 2 diabetes, worsening control, had been prescribed Exenatide, some initial improvement then deteriorated; hospital clinic had suggested now needs insulin. Karen starting insulin today, discussed potential of weight gain. Had previously discussed case with the senior Diabetes Specialist Nurse (DSN) who had suggested a plan of care, Karen discussed how and where to inject, potential side effects, hypos, used supportive literature, comprehensive explanation given. Options given for starting on insulin based on patient's requirements and advised that telephone support would be given. A demonstration pen was given and a written plan of care.
>
> (Observation, Nurse Practitioner, Riverside- 21:47-49)

Karen noted that a joint plan of care had been devised for this patient, prior to the consultation, between Karen, the consultant diabetologist and the DSN thus utilising a variety of knowledge sources and adapting to the individual patient, a process encouraged by the NHS to facilitate shared care.

These interactions, with both colleagues within the practice and other local experts, both formally and informally, were valuable sources of information. Gabbay and le May (2011) describe this process as "knowledge in practice", using others as well as their own tacit and explicit knowledge, omitting any explicit checks on the quality of the evidence base. Thompson et al (2004) similarly observed in their empirical study on primary care nurses' decision-making that colleagues were viewed as useful and accessible information sources, answering questions posed, seen as authoritative and negating the need for critically appraising the information. Although my findings mirrored this to some extent, the use of

colleagues appeared to encompass a few additional issues. Convenience and time certainly formed a part of this, but asking colleagues also incorporated something that guidelines alone cannot provide, advice on how to apply evidence in a given context, this was particularly applicable when the nurses were faced with uncertain situations. In addition to individual interactions, group meetings provided opportunities for discussion, interaction and learning and the opinion of colleagues both within and outside the practice environment was considered a respected source.

6.4.2 In house protocols

Both Mountainside and Riverside had a wide range of in house protocols to guide procedures. Protocols can be seen as strategies for carrying out procedures or activities, providing a structured framework to maintain standards and prevent duplication amongst team members and can be used as part of the audit cycle to evaluate patient care. They are detailed plans for particular conditions or procedures, and often reflect local need. They are designed to specifically influence meso level practice as opposed to evidence based guidelines, which are derived from a wider macro level research agenda, although in many areas the two coincide, and indeed much of the literature referring to the technical aspects of EBM and EBN uses the terms interchangeably. Mandy for example noted that for evidence based information she would access guidelines directly, rather than a protocol, she emphasised that the protocols were more useful for practical local knowledge:

> JC: I notice you have a number of practice protocols and a number of online practice protocols which I understand are updated on an annual basis, do you use those particularly?
>
> Mandy: Hmmm, yes and no and part of that is about time. You know generally speaking I come in and I am fully booked, generally speaking, also they are about things that have already got guidelines to them, you know NICE guidelines so all they are specifically talking about maybe are the local influences, who to contact, where to go and you pick up those things as you go along anyway. Things like depo-provera, diabetes, asthma, there are specific guidelines anyway that we should be following, so I have updated a couple of those recently, so I know that they should be following those.
>
> (Interview, Practice Nurse, Riverside- 46:091-092)

Cara noted that in addition to their use as a guide, the protocols provided a useful method of new information entering practice:

> Yes, Issy usually reviews them *(protocols*) but then we have girls come in from the hospital if there is something new and we will all have a session and they will tell us to update it, I mean they might come in from Urology and update us on things.
>
> (Interview, Practice Nurse, Mountainside-2:111-112)

The protocols in both Mountainside and Riverside were not aimed solely at nurses, but furthermore provided guidance for HCA's , who increasingly have taken on the more 'routine' roles previously undertaken by qualified nurses, such as venepuncture and blood pressure monitoring. In Riverside the protocols were classed as clinical (not specifically nursing) protocols and encompassed procedures for GPs in addition to nurses and HCA's. Thus widening, rather than limiting access to clinical domains, by providing a 'how to do it' guide. Nicky had been involved in writing one for HCA's:

> I have just written one on spirometry, which I was going to deliver. It's not evidence based as such, I have to admit, it is basically for health care assistants to use a spirometer.
>
> (Interview Practice Nurse, Riverside- 47:107-108)

Mandy suggested that although some provided specific local information, on the whole practice protocols were perhaps superfluous and repeated information that could be found in the guidelines:

> Why have protocols in practice specifically and then have guidelines, and you know then you have something from a different organisation, and I feel that's fair enough if they've all got something different to say, but very often they haven't, it's just cutting down a rainforest for goodness sake and you know at the end of the day there is only so much reading we can all do.
>
> (Interview Practice Nurse, Riverside- 46:143-144)

Mountainside had a range of written protocols, kept on a bookshelf in the main nursing treatment room suite area. These included protocols related to chronic disease management, based on the latest evidence based guidelines for each condition, and procedurally derived protocols, covering things like management of equipment, dealing with laboratory tests, administration of medicines including vaccines and other injectables and contraception guidelines. Some protocols came from national agencies, such as the

Resuscitation/Anaphylaxis guidelines published by the Resuscitation Council UK (macro level), whilst others were produced by the Local Health Board (meso level). Issy, the nurse manager took overall responsibility for writing and/or updating protocols (micro level), however where a NICE guideline was available relating to a specific condition, this was used as the protocol. As Issy comments:

> You can adopt, with the practice protocols you can rewrite them and we've got some of them which have got obviously delegated duties, for instance vaccines and we have people signed up, things for every day. For again diabetes, hypertension and all the rest we tend to use just what the published guidelines are, you don't need to adapt it to your own practice, you should all be working to the same…. (*JC- they very much guide your practice?)* and I make sure they're up to date, the asthma ones have just gone in, the COPD ones there, so you know it's up to the individuals then to make sure they can refer, they've got them there to refer to.
>
> (Interview Practice Nurse, Mountainside- 6:060-061

Riverside had a more extensive range; these were all on the practice computer system, as opposed to paper guidelines. Although some protocols related to specific conditions and procedures such as ear syringing or taking of samples, others related to more generic issues, for example, child protection, mental capacity consent, cervical screening policy. Rather than being the responsibility of one nurse, individual nurses took responsibility for updating specific guidelines, with other more generic policies uploaded to the system by the practice manager when relevant updates were published. Updating of protocols, another form of knowledge dissemination, unlike Mountainside was an individual responsibility with different nurse taking ownership of different protocols according to expertise:

> Laura: Yes they are very easily accessible and we update those annually. The clinical ones, we are each in charge of different protocols so we each update them. It's finding time to do it, I think the last time we did on one of the LHB afternoons which we just spent time updating our own protocols, we each have our own area to update.
>
> (Interview, Practice Nurse, Riverside- 30:126-127)

Despite the wide range of clinical protocols they were seen as guides for the nurses, Brendon, a Riverside GP, noted that although the practice may become involved in the fine-tuning they were generally left to the nurses:

> They tend to draw up protocols themselves to be honest and I think that's good, I think the best person to draw up protocols generally speaking are the people who are going to use them. Imposing protocols on people isn't particularly helpful. Our nurse

> meetings are one of the places that we talk about protocols and we will have influence on that, definitely, we are at the end of the day employers and we are clinically responsible for what happens and there is quite a lot of fine tuning in the things we do to try to improve proficiency, evidence based practice, cost efficiency, time efficiency, and hymn sheet stuff really so that's Friday once a month nurse meetings, I very often get involved in that but the nurses will often write up patient group directives and those sort of guidelines, ear de-waxing, B12 that sort of thing.
>
> (Interview, GP, Riverside- 48:43-45)

Brendon's viewpoint corresponds with Rycroft-Malone et al's (2007) finding, that a common perception among doctors and nurses is that protocol based care is a nursing and midwifery initiative. This can perhaps be partly attributed to the earlier discussion in chapter one (Traynor 2009), with the medical profession having a less favourable attitude towards protocols and technical guides.

Where the nurses noted the protocols were useful was as an easily accessible information source, when they either needed a quick answer or guide. The nurses varied in both their opinions of protocols and their use. Karen noted that she generally didn't use them, mainly because they were already ingrained in her knowledge base, but emphasised their value in non-routine and unfamiliar situations, and also for new staff:

> No, practice protocols, I probably don't look at them very often because most of them I have written, so they are ones that I know about. I suppose the ones that I have written are really more about the nursing procedures, you know for what would you do if someone came in for family planning advice and then B12 injections, but a lot of them are very practical, and then there are other ones though that are better like Child Protection, for things that perhaps I wouldn't know an awful lot of detail about and I would have to go and look up, and it is a bit like the guidelines - National Guidelines, you have just got to update them regularly, so it is something we have to look at doing every year so I think that they are more helpful for new staff starting rather than perhaps for people who have been here for a while.
>
> (Interview, Nurse Practitioner, Riverside- 45:051-052)

Nicky, practice nurse in Riverside, agreed, noting that she 'Very rarely, very, very, very, rarely, I'd say' used them to guide her practice, preferring to use guidelines or the inbuilt computer information system-Web Mentor.

In both practices protocols appeared to be considered as an essential symbolic part of practice in terms of their existence and the work involved in annually updating them, with

Issy the nurse manager taking overall responsibility for this task in Mountainside and different nurses taking responsibility for individual guidelines in Riverside. Their actual use however appeared to vary and again raised the question of whether their existence merely provided the nurses with the formality of in house guidance for undertaking extended roles which to an extent had now become outdated, partly due to standardisation from QOF? Indeed they were now used by the nurses themselves to set out routines for HCA's or to provide instructions for less experienced nurses on more nursing focused tasks that were not covered by QOF, such as ear syringing. How much they played a part in the realities of delivering everyday clinical care is explored in chapter seven.

6.5 Global knowledge

6.5.1 Quality and Outcomes Framework and in house computer templates

The in house computer templates were designed to meet the needs of the annually updated QOF, this led to a more standardised or routine care approach, with uncertainty being less of an issue. As discussed in chapter one Timmermans and Berg (2003) suggest that although professionals largely determine the content of their work, and professional organisations do not reward or penalise the use or non-use of guidelines, outsiders can try to enforce the prescriptive nature of guidelines and erode the leeway granted to professionals to apply them to their own situation through tying financial incentives to guideline following behaviour, which has been implemented in the UK through QOF. As Berg, although writing in the context of the USA correctly argued in 1997:

> It is naive to assume that a more widespread use of protocols will not lead to an increasing bureaucratisation and regulation of health care practices. (p.1086)

The impact of QOF has increasingly routinised and regulated primary care practice, particularly in the area of chronic disease management, moving the process away from one of complex decision-making to an area where decisions are made through the use of decision aides. Greenhalgh (2008) advocates that the purpose of routines is two-fold: cognitive (knowledge of what to do) and governance (control), routines reducing both

uncertainty and the complexity of individual decisions. The QOF has impacted on both the way patient care is structured and more significantly for this thesis on practice nurses' roles in terms of care delivery. The QOF is a voluntary, target based, incentivised payment system aimed at improving the care provided to patients with chronic disease through a standardised approach to care, and ensuring that data related to the patient's condition is collected and acted upon on a regular basis. Roland (2004) suggested that it created the foundation for radical change within general practice creating new ways of working and realignment of roles.

Both Mountainside and Riverside typified general practice's approach to QOF in that information related to episodes of patient care that relates to a range of chronic conditions including asthma, diabetes, CHD and hypertension is verified through generation of reports, collected through the use of computerised templates during patient consultations. The templates therefore acted as a source of information, as well as a tool of data collection, highlighting the areas the nurses need to cover during the consultations and the targets (such as blood pressure) to aim for. QOF indicators were developed to reflect 'best practice' according to the available clinical evidence base for the chronic conditions included (Lester and Hobbs 2007). All information on the template has to be answered ensuring nothing is missed. In both Mountainside and Riverside GPs were responsible for altering and updating the computerised templates that led the reviews for patients with chronic conditions. They are discussed here with regard to their role as a source of standardised knowledge; the organisational impact of this type of policy led focus of knowledge implementation having been previously discussed.

Issy noted the problems associated with the tick box approach to care that QOF promotes particularly for patients with chronic conditions, providing a 'one stop shop' for knowledge but limiting further thinking:

JC: Ok and certainly from the observation point of view, what I've noticed is that since you have the IT systems in place it's very easy to follow the protocols (*referring to the computer templates*) and you have the evidence there, so the nurses don't seem to often have to go and access evidence anywhere else because it's all there and updated for them?

Issy: Yes because our screens that we use have got it all on, generally speaking, and it is a click button thing in all fairness, you don't really have to, sounds an odd thing to say, but you haven't got time to do that much thinking around each patient. And the doctors use it as well, they've got their little things they use as well, their screens, so for our QOF screens for each condition that we do we've got all those things on what patients should be asked, that we should be doing for them and at the end we can see where they fit in, what problems they've got, that kind of thing, so anything that changes we'll add in. We might be adding in, looking at the COPD one to add in the respiratory questions, we've got them (*referring to the MRCGP asthma questions*) on the asthma (*template*)

(Interview, Nurse Manager, Mountainside-6:098-101)

Brendon, the GP in Riverside responsible for guideline dissemination expands on how the use of templates can limit rather than improve patient care, through those using them simply answering the questions provided, but not exploring further the issues arising from the consultation and the answers to the questions:

Brendon: Yes well that's the tick box I talked about earlier, but unfortunately there is information we ought to collect and a lot of that information is important really, but important not to get bogged down just by pulling up boxes, unfortunately it has become necessary to an extent. I encourage people not to spend too much time doing it though, you do tend to flag a lot of consultations that end up with just boxes filled and there are lots of examples of that, I don't know if I dare show you one. Perhaps this is not a good example, *(showing me)* -a patient with diabetes, who, if you read down here you can see that this has taken the format of a template. The nurse has gone through this with the patient, that's a question, that's a mood question to see if she's depressed or lost interest in things, but this is all template, that is all template, three lines out of twenty five, thirty lines which are free text, the rest is just tick box, you look at that and you think well not very interesting is it really.
JC: No, it doesn't tell you anything about the patient.

Brendon: No, very little, where as this, three lines,

JC: Yes, about his leg ulcer

Brendon: This is very to the point, good concise information there and arguably not enough information, we never write enough information, we are easily criticised for not writing adequate notes, but the simple reality is the more adequate notes become the less useful they become. It's one of the great ironies of information. So, yes…

(Interview GP, Riverside- 48:049-056)

The argument about templates distracting from good clinical care through decreasing nurse opportunities to utilise their traditional skills and values is supported by McGregor et al (2008) in their study on the impact of the contract on practice nurses' roles. Despite these criticisms Dee felt that the use of the templates as an additional source of knowledge had not changed practice, but indeed provided confirmation that what they were already doing prior to QOF was evidence based:

> Dee: I think it was fairly well established, I was saying to Issy earlier about it, you know different speakers come in and they say 'Oh QOF' you know, you are all doing more work now because of QOF, and I disagree as far as being a practice nurse because I think our clinics are a quite high standard anyway and we haven't really amended our clinics because of QOF anyway, you know, because we have all gone on diploma courses and updated ourselves and you know kept abreast of any changes and we regularly go to like Practice Nurse Forums and things like that so we do tend to keep up to date anyway and you know any changes we do try to implement if it has a big impact on patients.
>
> JC : Yes so for you, you don't think it's the impact of QOF, its more something that you were doing as a practice anyway?
> Dee: Yes I don't see that you know that we have done anything significantly in that, its' been 5 years since QOF. You know I don't think our templates have altered at all as far as our diabetic clinic is concerned.
>
> (Interview Practice Nurse, Mountainside- 3:119-124)

Dee's view reflects Campbell et al's (2007) quantitative analysis which found improvements in practice performance prior to the new contract in terms of the evidence based management of patients with CHD, asthma and type 2 diabetes, although for asthma and diabetes improvement accelerated after the introduction of the contract. It is worth noting at this point that the information required to meet the targets for QOF varies depending on the condition/disease category. Each condition has a number of indicators, with targets that have to be met in order to achieve points and subsequent payment for the practice. Diabetes has one of the highest numbers of indicators, following cardiovascular disease, with asthma closely following, which may to some extent explain the impact of QOF on improvement in these specific areas.

Standardisation of care through using the templates also provided standardisation with regard to record keeping and ensuring everyone was following the same procedure, therefore ensuring consistency of advice to patients, Elle:

> JC: I know for chronic disease you tend to use the templates on the computer as well, do you find those useful to guide your practice?
>
> Elle: Yes because you don't forget things. Things you tend to forget like the Volumatic and things, you put inhaler technique good. I had an issue like this with a patient recently, I put-(*in the notes*) inhaler technique good. We had a rep, a COPD nurse, came for the COPD and she put on inhaler technique poor, and I thought where had I gone wrong? He (the patient) told me he used a Volumatic and showed me (his inhaler technique) with a Volumatic, but when he saw her (the COPD nurse) he used an ordinary inhaler, he wasn't taking it properly, so basically she sort of discussed that as well. I said I can't understand how, and what I wasn't doing was writing on the computer 'used with Volumatic' which I do now
>
> (Interview, Practice Nurse, Mountainside-4:086-089)

As noted in the previous chapter, discussion on QOF indicators did however lead to further debate as to what should be included in the practice templates, what helped and what didn't. The QOF meeting at Mountainside resulted in a lively discussion regarding non-QOF information that the team felt should be included in the templates, demonstrating how the templates were used as a practical knowledge source. The benefits of inclusion of other areas in the QOF, not just those linked to CDM, such as learning disability, was noted as having been beneficial in identifying patients who previously had no support.

The nurses in Mountainside and Riverside clearly felt that the care they provided was not solely target or incentive driven and that they took individual patient needs and differences into account; this was illustrated by Cara:

> I think it all depends, it's all very personal it depends on the person you are seeing, They *(guidelines)* are great so that you know you have a guideline so you know what you are working to, and I think that is really great for me. I like that idea that this is what we are aiming for, but people, like you say, are so different, we can't classify every person in these little boxes even though we try and do that, and I think yes you have an evidence base so that you can say to people, look this is what the evidence shows and we will try do that, but it is not always going to work, but I think that everybody needs that.
>
> (Interview, Practice Nurse Mountainside 2:011-012)

Standardisation in the form of QOF has had a particular impact on practice nurse roles, indeed it has led to an extension of their established role in chronic disease management and has 'freed' up the GPs to deal with more complex issues. However the result of this has been a consistently increased focus on practice nurses providing an approach to care strongly influenced by standardisation with less opportunity to draw on the mindlines used by Gabbay and le May's (2011) GPs. These clinical encounters however are not always as straight forward as standardised templates would imply and determining how the nurses used these to guide their practice was important to investigate. Targets were taken into account and the financial implications of the GMS contract could not be ignored but as will be seen in chapter seven the nurses would adapt and apply the evidence to practice in the context of individual patient need.

6.5.2 Evidence based guidelines/ reference guides-paper and online

Finally I turn to the use of evidence based guidelines which despite being a particular interest within this investigation were a relatively little used commodity in an obvious way, outweighed by individual knowledge and the influence of local dissemination and global standardisation. Best practice, or evidence based guidelines are considered to be a central component of the evidence based practice movement, recognising the realities of service delivery and the acknowledged difficulties for practitioners to directly access evidence in the light of clinical decision-making (Satherley et al 2007). Dopson et al (2002) make the point that evidence has to be conceived of as malleable and eclectic, with priority changing according to alterations in both health policy and patient demand. To assist practitioners a number of online resources, including decision aides, are available which provide access to evaluated high-quality information, some of which have been designed specifically for primary care and the majority being centrally resourced by the NHS. Accessing these sites can reduce searching time and also ensure that the information found is both of high quality and has been subjected to regular updating in light of new evidence. The National Institute for Health and Clinical Excellence additionally produce paper copies of the guidelines which

are sent to practices. NICE are now responsible for developing QOF standards, so now have a greater influence on general practices through standardisation. Awareness and use of guidelines amongst nurses has been subject to considerable variance.

A number of the web sites provide downloadable and easy to follow flow charts, which were on display in the treatment/consultation rooms of both practices. These were considered useful:

> Dee: Yes I mean plus we've got the charts in the protocols that we have, plus the flowcharts are easily accessible. We have got some laminated charts, I think it tends to be the newer ones that we have got up, and you know like the CKD flow charts which people are not so familiar with....
>
> (Interview, Practice Nurse, Mountainside- 3:019)

Timmermans and Berg (2003) suggested, in their study on paediatric residents that residents fell into two orientations towards evidence, librarian residents who considered EBM as consulting any published resources, including 'cheat books', textbooks, guidelines and review articles, and researcher residents who actively evaluated and interpreted literature before using it in practice and who questioned the value of guidelines and protocols if they had not been scientifically evaluated. The practice nurses appeared to fit into the category of librarian residents, although the guidelines they referred to were all scientifically evaluated. Part of the reason for this may relate to interprofessional differences in attitude to guidelines and the evidence that nurses at ground level have a notion of professionalism based on the following of technical skills (Traynor 2011) and were therefore more prone to follow guidelines. Since the Timmermans and Berg (2003) study was published, far more scientifically evaluated resources have become widely available in the form of guidelines and systematic reviews, to some extent negating the need for practitioners to evaluate and interpret a broad range of literature to determine the best evidence on a particular condition or treatment. These do not remove the need for considering the applicability of available evidence to individual patients. Issy the nurse manager in Mountainside noted how the

guidelines did not always help in practical situations and that instead of practice catching up with evidence, this can work the other way round:

> Because-take the new asthma ones *(British Thoracic Society guidelines*) now; because I'm doing a tutorial on that this afternoon, and I was looking at, with the doctors actually, not the nursing staff (laugh), and it's what we actually do in clinical practice, but the previous guidance is probably not what we did in clinical practice, which is quite interesting because you're looking at patients in a different way. You're not looking at so much of the objective measurements, which were very important, but it's looking at high probabilities, medium probabilities and low probabilities of asthma and you're looking at your history taking which is what we've said for a long time with respiratory, COPD as well. You've got to look at the clinical things and make a decision and now they're saying treat high probability regardless of the objective measurements, which is quite interesting.
>
> (Interview, Nurse manager Mountainside 6:026-027)

Database searching for guidelines or research literature tended to be something done outside the clinical area. The process of EBID, searching individual databases and evaluating information, was never witnessed either during, or after observing clinical practice. Brenda, Dee and Fiona, practice nurses from Mountainside did however mention that they would access databases such as Pubmed or CINAHL at home or at college if they needed to find more information about something. Jackie, nurse practitioner from Mountainside, noted that she found the Cochrane database particularly useful for accessing systematic reviews and recent trials. Robert, (Riverside GP), was the only one to mention that he had recently performed a database search to find information following a patient consultation.

NICE and the BNF were the most frequently quoted sources, although it is debateable whether the BNF, although a valuable source of drug information, can be classified as an evidence based guideline. A brief summary of some of the types of evidence based guidelines freely available online where they were mentioned by the practitioners is provided here to provide an overview of the types of information available and the user friendly format in which they are supplied, prior to discussion on the nurses' awareness of these sources and their attitudes towards them.

6.5.2.1 Clinical Knowledge Summaries

NHS Clinical Knowledge Summaries (NHS Evidence 2011) was provided to the NHS by the Sowerby Centre for Health Informatics at Newcastle Ltd as PRODIGY Knowledge from 1998 to 2006, and as Clinical Knowledge Summaries (CKS), commissioned by NICE, from 2006 to March 2011. It is available as online guidance, which provides advice on a range of clinical topics and is presented in an easy to use format outlining: title, date it was last updated, background information, management issues, supporting evidence, scenarios relating to suspected diagnosis, new diagnosis (confirmed), routine review and poor control or exacerbation. Quick and detailed answers to common questions that arise in consultations, relating to conditions seen regularly in primary care are provided. Knowledge is provided in relation to:

- Over 320 clinical topics on conditions, symptoms, and disease prevention managed in primary and first contact care.
- Advice on treatment options, diagnosis, and referral for almost 1,000 clinical situations (scenarios).
- Detailed and practical 'know how' to put the recommendations into practice safely.

(PRODIGY 2011 http://prodigy.clarity.co.uk/home)

In addition, CKS supplies a comprehensive range of well-written patient leaflets, covering a wide range of conditions that can be downloaded and given directly to the patient, as well as a Knowledge Plus section providing interesting knowledge and facts from credible, reliable sources. Although CKS has been in existence for some time not all the nurses were aware of its existence and apart from Olly in Riverside did not appear to access it.

Gabbay and le May (2011) observed similar behaviour with GPs and concluded that the guidelines were ‘just not much help’. Where a condition was straightforward the guideline was superfluous, and if a case was complicated the guideline didn’t help. For a nurse fairly new to practice and carrying out an unfamiliar procedure the guideline would have been particularly helpful, yet for a standard nursing procedure nether the guideline or surgery protocol were accessed. Olly, a locum nurse practitioner in Riverside, however, was particularly enthusiastic about CKS as a knowledge source, noting that in his other ‘out of

hours' role it was considered an invaluable resource to guide practice, indicating an organisational influence on guideline preference. For the nurses who were often taking on a new role (as in the diagnostic role in the minor illness clinic) CKS would have provided a valuable easy to use source of information. An example of CKS guidance is given in Appendix 13 relating to assessment of a person with an insect bite.

6.5.2.2 National Institute of Clinical Excellence, National Collaborating Centre for Chronic Conditions and Scottish Intercollegiate Guidelines Network

A number of UK organisations provide evidence based guidelines on a range of clinical conditions including the SIGN, the NCC-CC, NHS Evidence and NICE. Many sites provide links which are divided into condition specific health problems, then further broken down into categories such as: diagnosis, causes and risk factors, prevention, disease management to ensure easy access. NICE guidelines were generally considered to be accessible and easy to follow, particularly the flow charts. Karen noted that they were user friendly and readily available:

> JC: So which ones do you find most useful, which do you think you draw on more than any others?
>
> Karen: It's hard to say which ones I would draw on the most, I mean I think there is a massive combination of things and it depends whether you mean guidelines as such? I mean obviously NICE has got lots of guidelines and they are actually very good and the good thing about those is that they are regularly updated, they are easily accessible, so it's very easy to find the guidelines. They also have the long winded version and they have the quick reference guide so it does make it easier and I think they are very useful on a day to day basis.
>
> (Interview, Nurse Practitioner, Riverside- 45:09-012)

Others echoed Karen's view:

> Dee: The NICE guidelines, especially with the flow charts are nice and easy to follow and I tend to look more so at the quick reference guidelines because they are more user friendly than plodding through pages that may not always say anything. Or anything that's relevant to our practice. The NICE guidelines I find are more user friendly than perhaps looking at the NSF which is hundreds of pages.
>
> (Interview Practice Nurse, Mountainside- 3:031-032)

> Elle: I think they are laid out very well in NICE as well because I printed some off recently, because we had an e-mail to say that it had been updated for the diabetics so we sort of pulled one off and its quite self explanatory isn't it the way they sort of write it out - yes, no - tick the boxes so I thinks it's quite easy to follow.

(Interview Practice Nurse, Mountainside- 4:043-044)

On occasions some drugs recommended by NICE guidelines were not used in practice, as the GPs preferred not to prescribe them, local context was again seen to have an impact on overall standardisation. As Dee notes during a discussion on NICE guidelines and practice protocols:

> JC: So what sort of occasions, what would make you use your practice protocols as opposed to say NICE guidelines for diabetes, what sort of situations would lead you to use practice protocols.
>
> Dee: If there are medications that I know that are not favoured in practice, I mean the NICE guidelines are still using Glitazones and as a practice we are not using them. So we tend to go more with what the practice, because the GPs will not prescribe, even though there is evidence to say that they should still be used, our patients who are already on the Glitazones with no problems are still on them

(Interview Practice Nurse, Mountainside- 3:053-54)

(Interestingly since this discussion one of the two brands of Glitazones in common use has now been banned from use due to concerns about long term effects).

Other organisations providing guidelines on particular conditions and mentioned by the practice nurses included the BTS and The British Hypertension Society (BHS). Some guidelines were considered invaluable; Brenda had recently taken on increased responsibility for reviewing patients with asthma and noted:

> Well currently I am working with my Asthma *(British Thoracic Society)* guidelines fairly close to my body.

(Interview, Practice Nurse, Mountainside- 1:027)

Some excellent international sites are also easily available online but none of these were mentioned by the practice nurses as sources they used. Jackie, who had recently become a non-medical prescriber noted that useful information sources for her were the Medicines and Healthcare products Regulatory Agency (MHRA) and Welsh Medicines Resource Centre (WeMeRec). Issy who was also a prescriber referred to the MHRA and NPC as valuable sources of information and regular updates. Although some were more aware of particular guideline sources than others, despite the internet being readily available within all the

treatment/consultation areas and the surfeit of guidelines readily available, many of the nurses were either unaware of some of the online resources or did not use them:

> JC: Do you use sites that are a little bit easier to use/ access? Perhaps Clinical Evidence, Clinical Knowledge Summaries-the old Prodigy sites, do you use these?
>
> Cara: I tend not to use the internet that much, I get a little bit, there is so much on there.....
>
> (Interview, Practice Nurse, Mountainside- 2:045-047)

> JC: Right yes - do you use any of the other guideline sites, things like Clinical Evidence and Clinical Knowledge Summaries?
>
> Brenda: I haven't tended to, the only thing I've gone onto when looking on the internet is drug related things if I'm looking for a patient drug and I can't find it in the BNF, then I would look then, or if patients ask me questions about, not asthma stuff, just some things - like someone came in asking about infectious disease and I sort of ended up sitting with her in the room and Googling things together because I wasn't 100% sure what I was telling her and I didn't want her to go away with nothing really so I ended up looking on it for her on the sites for her and giving her some stuff to go away to look at, just depends on what is available really.
>
> (Interview, Practice Nurse, Mountainside- 1:033-036)

Despite the easy availability of a range of evidence based sites the source referred to find information was Google, indicating that although standardisation has contributed to evidence based approach for conditions included in QOF, in other areas this was still lacking. Indeed when asked about evidence based sources Cara put them in the same category as a general internet Google search indicating a lack of awareness of their purpose.

Other types of guideline developed to assist practitioners, such as Map of Medicine were not used by the nurses and in fact were viewed with negativity by one of the GPs who was concerned about the message behind its inception:

> I find Map of Medicine I just can't get to grips with that, I can't get to grips with any of the hospital sites to be honest, I am slightly nervous about their motivation for providing information because I just wonder whether they are just providing information just to keep patients out of hospital, pass the responsibility to primary care.
>
> (Interview, GP, Riverside- 43:70-71)

The nurses when asked could easily name a list of available guidelines and information resources and were generally positive about some of these (particularly NICE), although

were less aware of the range of evidence based sources specifically developed for primary care, which linked with a lack of specific organisational dissemination.

6.6 Conclusion

This chapter commenced with an overview of the sources of knowledge available to and discussed by the practitioners in interview or observed during clinical practice in the two sites-Mountainside and Riverside. Drawing on Eraut's (Eraut 1985, 2000, 2007, 2011), (Eraut and Hirsch 2007), theories of work based learning I discussed how both propositional and non propositional knowledge impacts on practice nurses within the context of how they develop and expand their constellation of knowledge, and how this subsequently becomes embedded. In both Mountainside and Riverside the practitioners drew on a wide variety of knowledge sources, including colleagues both within and outside the general practice environment, who were found to be a useful and easily accessible source of information, and were perceived as reliable and accurate. The knowledge and experiences the nurses were exposed to become embedded in a form of logic that the nurses can subsequently use in clinical practice, with this knowledge constructed from a diverse range of sources. I then considered the impact of both local and global knowledge sources in terms of both the nurses' awareness of these sources and their perceived usefulness. The awareness and degree of enthusiasm to evidence based resources (apart from QOF) varied, although some were mentioned as a positive influence on practice. Apart from NICE, who have now taken responsibility for QOF standards the practice nurses very rarely accessed the on line evidence based guidance available to them, standardised templates developed for QOF were a far stronger influence, combined with individual knowledge and information from colleagues.

A number of initiatives have taken place over the past ten-fifteen years to increase evidence based guidance and resources available to primary care practitioners resulting in exposure to a much wider range of information; since 2004 this has been increasingly led by the move

towards standardisation through templates developed to meet the financial incentives for the QOF (Department of Health 2003). A range of locally adapted protocols, mainly written by the nurses, were available in both sites and updating them was seen as an important annual exercise, although the nurses' attitude towards them with regard to their usefulness was mixed and with the increase of guidelines they appeared to have become superfluous. However there seemed to be reluctance to relinquish them, perhaps because of nurses' positive attitude to protocolised care that enables them to expand their practice within a safety net of a standard approach. There was a significant amount of overlap between guidelines and protocols, although protocols on the whole provided a more localised guide often providing information about locally available resources.

Using theories drawn from knowledge management and Gabbay and le May's (2011) concept of clinical mindlines, I investigated knowledge sources, which in combination with the organisational and cultural influences at the meso level of practice detailed in chapter five influence how knowledge is accessed and utilised. Some aspects of the SECI spiral appeared evident, the *internalization (explicit to tacit)* phase of the SECI spiral was observed with the nurses executing approaches to care where an evidence based approach had become absorbed into their way of practice. *Combination (explicit to explicit)* was also partially observed in the process of adapting guidelines into local protocols, although as noted the actual use of these appeared limited. *Socialization (tacit to tacit)* had been observed through the sharing of knowledge derived from clinical incidents and in house education discussed previously. The SECI spiral alone did not account for the way practice nurses attain and mobilise knowledge. The way in which practice nurses' work is structured has resulted in them being particularly influenced by the standardisation movement. Much of the work they have inherited in general practice has been as a direct result of the focus on improving the care provided to patients with chronic disease with regards to the evidence base. The impact of standardisation has encouraged a template focused approach to care which whilst allowing for expansion of the nursing role does not allow for alternate decision-

making around care in the case of complexity and individual patient need, an issue I further explore in the final analysis chapter. In addition to the increased responsibility for chronic disease management the nurse practitioners in both sites and the practice nurses in Riverside took on increasing responsibility for first contact care, a role that is not influenced by QOF and includes a diagnostic and decision-making process that, although addressed by post registration courses they had undertaken, was not an integral process developed in initial nurse training. Aspects of Gabbay and le May's (2004, 2011) mindlines could be seen, in that guidelines alone are not enough to influence the way the nurses practice. The practice nurses, like the GPs in Gabbay and le May's study, drew on a wide range on knowledge but were subject to different influences relating to role preparation, professional status, and networks of knowledge that shape how evidence and standards are approached and applied to care.

In chapter seven, my final data analysis chapter, I consider how knowledge constructed by the practice nurses and influenced by the sources outlined here is used within the context of the clinical encounter, whilst also considering the influence of standardisation and determining how decisions are made when standards are deviated from or do not apply to the situation. Furthermore I consider the influence of the individual patient on the encounter and how evidence is sometimes used visibly within the encounter to support the decisions made and to encourage participatory care. I consider whether the term *bricolage* is more appropriate than mindlines for practice nurses. Derived from the word *bricolage* and from the verb *bricoler*, the core meaning of the term in French is to, fiddle or tinker and, by extension, "to make creative and resourceful use of whatever materials are at hand (regardless of their original purpose)". Suggested by my research supervisor this term appeared to provide a broader description of practice nurses knowledge than mindlines alone and aptly summed up the messiness of knowledge creation and the differential sources that play their part in implementation. I continue to use the concept of mindlines to underpin the data analysis in chapter seven but consider whether bricolage may be a more apt term.

7. Chapter Seven: Knowledge use in the clinical encounter

7.1 Introduction

Previous chapters in this thesis have considered the organisational and cultural contexts in which the practice nurses worked and the sources of knowledge available to them in the two sites- Mountainside and Riverside. I have outlined how knowledge was disseminated at meso level, and the macro and meso organisational and cultural factors that support or impede knowledge flow. I argued that practice nurses' knowledge utilisation has to be understood in the context of profound changes to the clinical role and broader rationalising trends in health policy which have created an impetus for standardisation. I also argued that orthodox nurse education does not routinely equip nurses for the roles that they have now undertaken, but in the study sites continuing professional development was broadly supported. Most of the nurses indicated that this had increased their clinical knowledge in areas of expertise but also had raised their awareness of the importance of evidence and the mechanisms for locating this and incorporating it into practice. Nevertheless, despite the availability of a broad range of evidence based sources, many of these were not used. I also considered how far the sites in the study might be considered communities of practice. Lave and Wenger (1991) argue that the primary focus of this social theory of learning is social participation, being active participants in the practices of social communities and constructing identities in relation to these communities, this participation shaping what we do, who we are and how we interpret what we do. The practice nurses in both sites clearly engaged in elements of social participation through social learning, albeit often led by the GPs.

In this chapter I concentrate on how these influences impact on patient care delivered at micro level, discussing how knowledge is conceptualised and applied to the everyday clinical

encounter within the context of the varying roles practice nurses undertake, and considering their individual and collective expertise. I also consider how other influences, such as the patients themselves, determine the actions taken and how evidence is sometimes made visible and used as a tool within the clinical encounter.

Michael Polanyi (1958) philosophised, in the published collection of his lectures 'Personal Knowledge,' that all knowing relies upon commitment and personal judgement. He notes that tacit knowledge in particular is characterised by the fact that it is personal, context specific and subsequently difficult to communicate. This was evident when discussing with the practice nurses the reasoning behind some of the decisions they made within the context of the clinical encounter. Sometimes their activities were unmistakably informed by 'evidence', sometimes less so, with a number of factors playing a part in the decisions made and actions taken. On occasions they would verbally articulate their reasoning processes, whereas on others it was difficult to express what knowledge and processes they drew upon, as when Cara in the previous chapter said, 'I would know it', but then expanded on this to say 'I know it because I've been taught it and we discuss it.' The data explored in this chapter specifically relates both to knowledge use and the nurses own understanding of how they integrate and apply knowledge to their everyday practice. Smith and Farquhar (2000) sum up the ultimate goal of knowledge management, as being to:

> Improve organizational performance by enabling individuals to capture, share and apply collective knowledge to make optimal decisions. . . in real time.

'Real time' is defined as the time available to make a decision, determine, and perform a subsequent action, which in this study subsequently impacts on patient(s) care and clinical outcomes. 'Real time' is of particular importance in primary care where consultations are time limited.

Nonaka and Takeuchi (1995), in their work on how Japanese organisations successfully manage invention and growth of new knowledge, postulate that tacit and explicit knowledge interact and interchange both within and between individuals, resulting in organisational

learning and growth through a knowledge spiral. Within this SECI spiral combined knowledge is transformed into something that 'makes sense' to practitioners, when put within the context of their own existing knowledge and experience. In the context of healthcare it is this sense making and the actions derived from it that ultimately define clinical decisions. These actions, and the nurses' reasoning behind the actions they take, are the focus of this chapter.

As in the previous data chapters the data analysis is underpinned by a number of theoretical frameworks. In addition to drawing on organisational theories such as the SECI spiral developed by Nonaka and Takeuchi (1995), I take into consideration the decision-making theory developed by Hammond (1988) who argues that thinking is neither completely analytical nor intuitive but lies on a continuum that varies according to the task properties. Hammond's (1988) work on the Cognitive Continuum theory has subsequently influenced empirical work on both medical decision-making (Hamm 1988) and nurses decision-making (Thompson et al 2000, Thompson et al 2004). Rycroft-Malone's et al's (2007) study on protocol-based care similarly concluded that standardised care processes become intertwined with other sources of evidence, including patients' experience. They acknowledge that whilst there has been a shift to recognise that the use of evidence in practice is mediated by several factors, including context, considering decision science theory such as Hammond's in combination with evidence based practice models will increase understanding of how individual practitioners combine and use evidence. Gabbay and le May's (2004, 2011) concept of clinical mindlines and the impact of this collective process on care delivery provides the ongoing thread underpinning the analysis. Mindlines as they note are:

> A collective *process* that provides not only a flexible set of propensities to act in optimal ways in different circumstance, but also a large range of well tried modulators for all likely occasions (p.46-47)

The developing role of the practice nurse has provided opportunities to extend their jurisdiction to diagnostic roles, as well as their increasing role as the point of 'first contact

care'. What cannot be discounted is that the changes to the practice nurse role have, in part, been driven by redrawing of the boundaries between medical and nursing work 'led by demands placed on practices by agencies of the state' rather than led by the profession itself (Mc Donald et al 2009:1208), with the inherent risk that there may be gaps in their preparation to carry out these roles. My intention was to explore how the nurses used knowledge but also to consider whether experience and the roles and tasks they now carry out in practice influence the way they action this knowledge within the clinical encounter. How do practice nurses develop and grow their mindlines, how are they used in practice, and what influences are evident when attempting to determine how they evolve?

7.2 Developing autonomy

7.2.1 Growth and change

As discussed in chapter one the role of the practice nurse within primary healthcare has undergone a number of changes, moving from a task orientated role whose initial key function was to support GPs in delivering patient care, to that of an autonomous practitioner assessing, planning and implementing care for patients presenting with a wide range of conditions. This role also varied, from the nurse practitioner roles observed in both Mountainside and Riverside to the minor illness clinics run by the nurses in Riverside and the chronic disease management clinics run in both sites. As part of the data generation at both sites I investigated the roles the nurses undertook to determine whether this had an impact on both the types of scenarios they were faced with and the decisions they made when delivering care at the micro level patient encounter. The roles the nurses carried out were also partly related to experience and when differences were noted it was sometimes difficult to differentiate between those related to role or task and those related to experience. The nurses working in the treatment room tended to be less experienced in the field of practice nursing, although some of the experienced practice nurses would work across more than one role. The following two sections outline decisions encountered by the nurse

practitioners and practice nurses running chronic disease management and minor illness clinics.

7.2.2 Developing autonomy-diagnosis and decision-making

Both Mountainside and Riverside employed nurse practitioners, practice nurses whose roles had evolved to one that appeared closer to a medical practice model, diagnosing and prescribing within a short defined consultation slot. Witz and Annandale (2006) interpret this approach as bringing nursing closer to the professional traits associated with medicine, i.e. being defined in terms of expertise and the exercise of diagnosis and clinical judgement, rather than, as McDonald et al (2009:1207) suggest, the unique holistic approach of nursing 'combining physical care with attention to the patient's psychosocial needs'.

The nurse practitioners had undergone specific educational and practical preparation for their diagnostic role which incorporated the acquisition of a non medical prescribing qualification; they took responsibility for the full package of care provided within each consultation, although on occasions they would consult with the GPs in times of uncertainty or to clarify a decision made. They made decisions related to diagnosis and treatment based on a range of learnt procedures that influenced their knowledge of the situation in hand, performing a clinical examination; comprehensive history taking; as well as drawing on knowledge gained from experience and education. Sox et al (1988), discussing factors influencing medical decision-making, suggest that in day to day clinical practice physicians have to rely on imperfect, indirect indicators of the patient's true state obtained through history and physical examination to make a diagnosis, and this applied to the cases seen by the nurse practitioners. The cases seen by the nurse practitioners varied in complexity, sometimes they were similar to those seen in the minor illness clinics, whilst other cases were more multifaceted, presenting with more than one problem and resulting in a higher level of uncertainty. Similar to medical decision-making this resulted in the nurse practitioners needing to draw on a range of skills to diagnose and manage the conditions presented to them, as can be seen in the following observation of Karen's clinic:

> 15.00 74 year old female 'not feeling well', abdominal pain, ? trapped wind. Karen took previous medical history, asked about bowel movements using Bristol stool chart (*medical aid developed at University of Bristol to classify human faeces*), asked about symptoms, questioned patient re current problem. Requested urinalysis. Performed an abdominal examination. BP taken which was within normal limits. Based on the above, Karen suggested a viral cause and to return 'if pain gets worse'. Patient mentioned her mother had diabetes, Karen suggested getting checked. She *(the patient)* was also concerned about a lesion on the side of her nose (*following removal of a previous cancerous lesion*). Karen examined it, suggested it was dry skin and to return if any changes occurred.
>
> Karen mentioned after the consultation she was concerned that there may be a more serious underlying problem, as this was a lady who doesn't attend often.
>
> (Observation, Nurse Practitioner, Riverside-21:15-18)

Karen expanded on this process during interview, explaining how she utilises a variety of knowledge sources, and in fact what appears to an onlooker as tacit or experiential knowledge is in fact a combination of knowledge from a variety of sources. This included formal educational knowledge gained on her nurse practitioner course and knowledge gained through exposure to similar clinical conditions through observation, discussion and reflection with her GP mentor which had been absorbed and ingrained into practice, alongside her intuitive thought that there was something more serious going on, related to knowledge of the patient herself.

> JC: So when you are faced with clinical decisions and obviously in your role working as a nurse practitioner you are seeing quite complex cases in some conditions, would you feel that you draw on evidence to help you with your clinical decision?
>
> Karen: Yes, it wouldn't necessarily mean I would be looking things up at the time, because the thing is a lot of the knowledge use is retained, so yes you would be looking at a combination of things, you would be looking at sort of your own knowledge, experience of dealing with patients with similar conditions, you would also be basing it on evidence you have picked up from NICE guidelines, that sort of thing, and also the individual patient.
>
> (Interview, Nurse Practitioner, Riverside- 45:25-27)

The 'retained' knowledge that Karen referred to was developed from her experiential knowledge of dealing with patients with similar conditions including a degree of pattern recognition, which could then be supplemented with referral to additional evidence sources, depending on the complexity of the case. Jackie, nurse practitioner in Mountainside exhibited a similar range of skills that influenced her decision on treatment, including eliciting the patient's concerns through the use of consultation skills:

> 11.05 female patient presenting with chest pains since Christmas, felt like trapped wind, relieved by antacids. These had become worse in the last week whilst on holidays and were also accompanied by vomiting. History obtained and a diagnosis of Gastro-oesophageal reflux disease (GORD) made. A course of proton pump inhibitors *(omeprazole*) was initiated. Patient expressed concern re possibility of gallstones, bloods were arranged and her concerns addressed.
>
> (Observation, Nurse Practitioner, Mountainside-44:29-31)

The consultation Jackie was faced with again involved a degree of uncertainty, brought out into the open through the patient expressing her concerns and resulting in further investigations being arranged. As Gabbay and le May (2011) note problem solving depends on both the perception of the circumstances and the possible consequences, actions undertaken being deeply contextual and resulting in clinical challenges being met differently. The patient's expressed concerns that she may have gallstones impacted on the consultation outcome, illustrating the number of factors that influence the management of the clinical encounter, all within a relatively short period of 'real time'.

Olly, worked as a locum nurse practitioner in Riverside. He was a non medical prescriber, but had not undertaken a formal nurse practitioner programme. His background was emergency care and he also worked in the local 'out of hours' service as a nurse practitioner. Similar to Karen and Jackie his consultations demonstrated a mix of skills; history taking, clinical assessment, pattern recognition and eliciting the patient's concerns, all of which were again combined in order to decide on the course of action:

> 15.50 30 year old lady, previous medical history (PMH) of asthma, recently taken doxycycline (*for skin condition*), now wheezing. Using 2 puffs ventolin 5-6 times daily. Olly asked about PMH, performed clinical assessment, peak flow (PEFR), oxygen saturation (SATS). Asked about continuing to take antibiotics, Olly-'yes, if it is that Dr T won't want to put you back on it, wheezing could be a side effect, or it could just be seasonal.' Performed chest examination, prescribed 3 days of oral steroids and antihistamines. Discussed other potential causes *(of wheezing*), latex allergy (patient a mental health nurse, uses gloves daily).
>
> (Observation, Nurse Practitioner, Riverside-28:16-17)

This particular scenario demonstrated the number of uncertainties that can arise in an encounter, in this case the potential causes of wheezing which would require further investigation. The nurse practitioners used a range of knowledge and skills, which when

melded together with the information cues from the consultation resulted in a decision. Determining the exact source of knowledge used through observation was inherently difficult with each clinical encounter subject to individual contextual influences. Practitioners can additionally over exaggerate the use of formal sources that they use to guide the encounter. Olly, for example, mentioned his enthusiasm for CKS an evidence based website providing practical 'know how', then used a different procedure than that suggested by CKS to later diagnose a case of suspected cystitis. Thompson et al (2004) suggest that one of the challenges of researching how people respond to information deficits is that deficits, or information needs are unobservable and researchers can only hypothesise about the likely needs of nurses based on what they say, what we can deduce from watching their behaviour, or preferably both. I would add to this that complex situations require complex solutions. As Karen commented,

> It would be great if medicine was black and white but it isn't. If it was I think it would be brilliant, you know, you could also most have a computerised system where you fire lots of questions and put them into the computer and then it will give you the diagnosis but medicine isn't like that unfortunately. Especially general practice.
>
> (Interview, Nurse Practitioner, Riverside-45:031-032)

The information needs required were not always straight forward, and could be related to any element of the consultation; diagnosis, assessment, management or individual patient need. Although evidence is important for clinicians, it is simply an additional source of information that needs to be contextualised within their own mindline in the context of the individual case with which they are faced (Gabbay and le May 2011), and accessed if considered appropriate.

7.2.3 Developing autonomy - chronic disease management and minor illness

Chronic disease management clinics were run in both Mountainside and Riverside. In both sites the practice nurses did not become involved in the clinics until they had undergone additional educational preparation for their roles in the form of post registration disease specific diploma modules. When discussing CDM clinics the nurses demonstrated clear knowledge of both the conditions patients presented with, including diagnosis, ongoing

management and the treatments they were on, but consultations were to an extent guided by the computer template developed to meet the needs of QOF. Consultations were focused on monitoring the patients' condition and providing health promotion and advice, but still included making decisions regarding appropriate management of each individual case. An example of a typical routine consultation is shown below:

> 10.45 Female patient in 60's who had recently had her Metformin dose increased, HbA1c since improved. Problems with weight, diet good but not losing weight, exercise discused. Commenced on BM *(blood sugar)* monitoring x 2 weekly following discussion regarding the evidence base *(for blood sugar monitoring).* Patient shown how to use the equipment and record her results.
>
> (Observation, Practice Nurse, Mountainside-39:18-19)

The negative element attached to this template approach was brought home in relation to the discussion on diet, the patient's dietary habits were elicited through asking her 'How's your diet, good?' with no further discussion as to what her 'good diet' actually consisted of. Consultations could also be complex and the need for decision-making evident, as can be seen in the following respiratory clinic consultation.

> 11.00 Middle aged lady attended with hay fever, recently wheezy at night, requesting bronchodilator. Pip stressed the importance of having a proper asthma diagnosis. Took peak flow reading, SATS, temperature, asked about nature of the cough, performed chest exam, took PMH. Asked the patient,'Why did you come today, what's the main problem?' Suggested spirometry to ascertain diagnosis, patient agreed to a bronchodilator trial, but stated couldn't take Ventolin (*Salbutamol*) as she thought she was allergic to it. Pip consulted BNF for alternative, asked me 'What do you think?' She then suggested that the patient try Salbutamol again with a spacer, as the side effects the patient mentioned she had were suggestive of normal side effects, not an allergy.
>
> (Observation, Practice Nurse, Riverside-51:12-13)

Pip was faced with a number of decisions within the twenty minute consultation period, to determine the nature of the problem and decide on the most suitable diagnostic route (which is available from the BTS Asthma guidelines (2009), and of which Pip had mentioned in previous discussion and was clearly aware of) and then to determine whether the patient's stated allergy to Salbutamol was indeed an allergy or a side effect and would alter the diagnostic route chosen. The decisions faced by the nurses running the CDM clinics could be equally as complex and contain a similar degree of uncertainty as those seen by the nurse practitioners.

Liaising with others (either the GPs or the nurse prescribers) was sometimes necessary to complete the consultation and provide the patient with a prescription if a change of medication was indicated.

> 12.10 Male patient attended for asthma check. Taking Symbicort once a day for six months. PEFR 510. Fiona asked re symptoms/home monitoring according to surgery asthma protocol. Advised patient when to monitor at home and discussed treatment. Nurse manager *(Issy)* who is an independent non-medical prescriber was called in to authorise and sign the repeat prescription.
>
> (Observation, Practice Nurse, Mountainside-33:19)

If the consultation was routine and no treatment changes were required this liaison was not necessary.

> 10.00 62 year old man (ex-miner) recently diagnosed with COPD *(chronic obstructive pulmonary disease)* attended for a monthly review. History was taken and current symptoms determined. Georgie explained how his medications worked. FeV1 *(forced expiratory volume in 1 second)* taken with hand held monitor as well as PEFR. Slight improvement from previous readings noted, to continue on current medication regime. Advised re flu/pneumovax vaccinations.
>
> (Observation, Practice Nurse, Mountainside branch surgery B2-36:10-11)

Similarly the practice nurses running the minor illness clinics in Riverside liaised with the GP covering the clinics that day if a prescription was required; consulting with a colleague was therefore required to complete the consultation. Rather than the GP being simply a first point of call for further advice, discussion of the case was a necessary process in order for a prescription to be provided. The nurses took on an information broker role, assessing and monitoring the patient need and shaping the outcome of care (Allen 2007). Contrary to the wider nursing literature (Allen 2007), however, within both Mountainside and Riverside the nurses' role was clearly visible and their skills acknowledged. As Brendon, Riverside GP acknowledged:

> ……the role of the nurses has changed dramatically over the last 20 years. They are now diagnosticians, they initiate treatment, they are clinicians, working at different levels, we all work at different levels don't we?
>
> (Interview, GP, Riverside-48:087)

Allen (2007) argues that nursing work is orientated to the overall functioning of effective healthcare systems, rather than being centred on the individual:

> At different points in nursing's history it has been unclear whether the route to occupational progression lay in assuming high status medically devolved work or in the

> pursuit of autonomous professional status, separate from but equal to medicine. In recent years, it is the latter approach that has prevailed, and the defining feature of nursing's efforts to build a profession has been to establish a discipline that is distinct from medicine (p.42)

Within primary care the nurses' role lies within both approaches, they have taken on medically devolved work such as minor illness and diagnostic work, whilst also expanding their role as holistic providers of care to patients with CDM. Alongside this, work previously undertaken by practice nurses which was very task orientated in nature, such as phlebotomy, has been devolved to a growing team of HCA's. The practice nurses' initial training had not however prepared them for the diagnostic role.

Gabbay and le May (2011) note that the multifaceted mental resource they called mindlines consists of a blend of knowledge accumulated from the various and innumerable sources to which clinicians are exposed throughout their careers. As noted in Chapter five, in order to investigate how clinicians acquire the core of their mindlines during early training Gabbay and le May (2011) drew on observations of third year medical students in the UK and newly qualified doctors and medical students in the USA. Unlike the medical students in their study, whose mindlines related to diagnosis and treatment were laid down at an early stage of their training, the diagnostic and management role the practice nurses and nurse practitioners were now taking on was a very different role from that for which they were originally prepared. Their clinical sciences, soft skills (for example: professionalism, ethics, communication), attitudes and values drawn from their initial training and early experiences (Gabbay and le May 2011) would have been embedded in a similar apprentice style to that of the medical students, however they had not been exposed to anatomy, physiology and disease processes in the same depth. Indeed as Laura noted, discussing her role in the minor illness clinic and information she would access to support this role, she needed to draw on a range of sources to meet the gaps in her knowledge:

> ……..WIKIPEDIA sometimes and ANATOMY as well is quite a good one, especially for the minor illness because in our education the anatomy wasn't as wide as we need probably, so we use that, and sometimes I use GOOGLE when I need to find out

> where the bones or the nerves are, so GOOGLE and usually into WIKIPEDIA from there.
>
> (Interview, Practice Nurse, Riverside-30:021-022)

This reliance on easily available non evidence based internet sources indicated a lack of knowledge regarding basic anatomy and physiology inherent in medical students' training, but lacking in Laura's mindline, therefore necessitating access to an additional source of knowledge to carry out the role. Rather than an inherent mindline Laura would seek out what was available to her (accessing a bricolage of knowledge). Although the sites Laura mentioned are not subject to any form of quality control and are clearly not comparable to evidence based sources her comments were made in relation to basic anatomy and physiology not EBP.

Rather than having the implicit 'thumbnails' and 'flowsheets', the embedded personal guidelines related to diseases and disease processes that are an important part of learning to be a doctor (Gabbay and le May 2011:94), and are expanded upon when moving into general practice, the practice nurses running the minor illness clinics, like the nurse practitioners, had to develop a new range of skills and knowledge that were unlike those that their basic nurse training equipped them for, including that of dealing with diagnostic uncertainty, complexity and decision-making. When discussing with Laura whether she felt guidelines influenced the treatment decisions she made in the minor illness clinic, she noted that the nurses would be more inclined to make standardised decisions, providing them with a safety net:

> Laura: Yes I think they do, I think we at the surgery use them quite a lot, there's recently been the evidence for the treatment of conjunctivitis, not treating in the first three days and we are going by that, we had a teaching session on that so we are using that. So I think we do try and follow it. I suppose also we have got three or four of us doing minor illness, nurses, so I think we have to be *very cautious*, we are *very cautious,* about following about what we should be doing.
>
> JC: About giving the same advice?
>
> Laura: Yes giving the same advice, and starting off on the same medication, for example, a twenty six stoner, we would start off on locorten-vioform rather than going straight on to gentamicin, unless we have evidence that's what's needed. So we do try to stick to that.

(Interview, Practice Nurse, Riverside-30:058-063, my emphasis)

In addition to the standardisation imposed on CDM from macro level influences, standardisation had proved an attractive proposition to support the nurses in taking on the medically devolved roles and enabling them, to increase their autonomy within the clinical encounter. These standardised approaches, rather than being part of a mindline constituted the bricolage of knowledge on which they drew.

7.3 EBP - related to experience or task?

Within Mountainside and Riverside further delineation of the practice nurses' role was evident dependent on individual experience of working as a practice nurse. In the cohort included in this study the experience varied from eighteen months to twenty years. The roles and tasks that the practice nurses undertook in both Mountainside and Riverside varied. I was keen to determine whether this impacted on their knowledge use and whether a combination of factors, including difference in individual experience, had an impact on the use and application of evidence, or whether the task itself was the guiding influence. As Gabbay and le May (2011) debate, is it that much of clinical work is routine and doesn't actually require conscious reasoning, or is it that decisions are reached through such a complex, integrated process that it is difficult to untangle the logic within? Rather than rate the usefulness of any one knowledge source I explored how all the sources the nurses were exposed to were combined, melded and put into action within the context of their experience and the types of clinical encounter with which they were presented. .As per all health professionals the work of practice nurses has been subject to the paradigm shift towards provision of more standardised evidence based health care. Cara who had worked as a practice nurse for twenty years, took a positive approach to the changes in primary care instigated by the evidence based movement and suggested that this had without doubt changed her thinking and her practice with regard to accessing evidence:

> Oh I would say it's definitely changed, yeah without a doubt, yes. I think in lots of ways it's matured to a point where you look for it *(evidence)* whereas you think I wonder

> what the evidence is about different things or I wonder what they have written up about that. Whereas before you just wouldn't.
>
> (Interview, Practice Nurse, Mountainside- 2:031-032)

The change in Cara's role had led her to expand her mindline to include accessing evidence to support the decisions she took, something that perhaps wouldn't have happened when she began in practice twenty years ago, in a role more governed by task.

Skills the nurses required for their practice nurse role developed later in their careers. This could be seen from observing those nurses 'new' to practice, they often had vast experience in other nursing fields but, depending on what their previous roles were, the practice nurse role could be quite different. Their knowledge they required grew with the role, as Brenda who had been a part time practice nurse in Mountainside for less than two years noted:

> ….I think you probably come into the job initially and just *wing it a little bit*, you know just by sort of doing, and then in some respect I think I should really find out about this thing cause it's a little bit different to me, but I don't like to not know things so if I go out to ask for information then I get lots of information back.
>
> (Interview, Practice Nurse, Mountainside-1:141, my emphasis)

Brenda's information needs were accessed through a variety of sources which I discuss below. The nurses with less practice nurse experience were generally less involved with chronic disease management and/or minor illness clinics and spent a greater portion of their time in the treatment room.

Brenda noted that the type of care provided in the treatment room sometimes necessitates a different approach to decision-making. We were discussing how during my observation of the treatment room sessions, guidelines and easily accessible evidence didn't appear to be as easily 'at hand' as they were during chronic disease management clinics. Within the CDM clinics consultations were guided by the computer templates delivered for QOF. Guidelines were therefore easily incorporated into the consultation without having to look any further, although these were limited to the QOF indicators, (for example entering a blood pressure reading for a patient with diabetes would instantly indicate whether the patient's blood pressure was within the required evidence based indicators). Protocols guiding treatment room and all other nursing activities (in Mountainside) were based in a central area, not

within the individual clinic rooms, although there were computers within each room with internet access. Additionally time slots for treatment room activities were limited to ten minutes, rather than the 20 minutes allocated for CDM reviews, the 'real time' available to review the patient, make a decision and then deliver the consultation being quite restricted.

> Brenda: Yes, because the thing of going into chronic disease management is you get more time as well. When you are in the treatment room it's just patient after patient, and very little time in between and you keep thinking I'll look that up later on and I'll check on that, and when the patient comes back a week later you think, oh I didn't actually do that, whereas in chronic disease management you have more time, so I do think that now (*as I move into CDM*) I'll have time to look up more things and search *(for information).*
>
> (Interview, Practice Nurse, Mountainside-1:149-150)

In relation to the knowledge needed to carry out her role, Brenda mentioned that a number of factors came into play. Here she expands on the number of sources (*experience, colleagues, patients' needs, common sense*) that she draws upon in order to develop the mindline to carry out her role, a role for which she is growing and defining her knowledge base, in her words 'seeking it out'. All of these factors then impact on the decision she makes regarding the care to be carried out:

> …..but basically it's sort of seeking it out, what do you do about this and what if I use that, and all the time there are some things that I wouldn't use because I don't like them personally and I've not seen any great work with them. You just want to find the time, and I think that if the patient comes in with a question you are just scuppered for the day and then you go off on a complete tangent, but I just think that if I have got time in treatment, *(referring to the treatment room),* and they *(patients)* want to go through stuff with them, I will do.
>
> Quite often if there is a lull or somebody comes in, I'll do a smear or have a discussion about family health if I can. Cause I've got a bit of time then. It's just seeking out someone to help you on occasions and I think the HCA's here are very good because they have been here a long time. It's manageable. It's more of a panic thing thinking what do I do, and then you think its common sense really, there are only a few things to put on wounds that are going to work and the rest are new trends coming and going all the time.
>
> (Interview, Practice Nurse, Mountainside-1:153-154)

Brenda's comments about the HCA's reinforces Thompson et al's (2004) point about nurses preference for human sources as the most useful, accessible and time efficient source of information. In the 'real time' of the clinical encounter, popping out and asking a colleague

allowed access to instant answers, regardless of the evidence base the answer contained. Easily accessible local knowledge was valued regardless of the professional source.

I noticed a disparity between CDM consultations and the more task focused treatment room consultations with respect to evidence utilisation. On a number of occasions I observed that practice in the treatment room appeared not to follow recommended guidelines, as can be seen in the consultation below:

> 14.55 Patient attended for ear syringing, had been using oil for 3 weeks (*contrary to guidelines*). Patient was questioned re possible contraindications and the receptionist had given a pre-information leaflet. Cotton wool was again inserted in the patient's ears after the procedure, which is contrary to current guidelines *(CKS).*
>
> Amy noted that "Patients are often given differing advice by the GPs, oiling for anything from 1-14 days".
>
> (Observation, Practice Nurse, Mountainside-31:028-033)

I noted in my field notes after another clinic observation:

> Although guidelines seem to be clearly accessed for chronic diseases that fit into QOF, other areas such as ear syringing and wound care appear to be more ad hoc, these are also patients that seem to be seen by the least experienced nurses.
>
> (Observation, Practice Nurse, Mountainside- 41:035-036)

Despite patients being given differing advice, and the easy availability of evidence based guidelines on the topic, Amy had not sought this evidence out or questioned the practice, but carried out the procedure in a rote fashion learnt from observing others. Amy had worked as a practice nurse for three years; she had recently completed asthma and cytology diplomas, and had earlier mentioned to me that this increased knowledge has made her more cautious about her practice. Prior to the observation of the treatment room clinic, I had that morning observed Amy during a mixed respiratory and hypertension clinic, the care Amy provided for the respiratory and hypertension reviews had, in contrast to the above consultation, taken an evidence based approach using the in house computer templates to guide the consultations. The disparity in the approach between the treatment room and the CDM clinics appeared in this instance to be more closely linked to context; the limited time and not having guidelines and templates as easily available, rather than experience or individual knowledge.

Gabbay and le May (2011) suggest that mindlines are built up over careers and involve absorbing knowledge from disparate sources. Meeting the needs of clinical practice involves a great deal of knowledge that goes far beyond technical knowledge and skills and encompasses a vast range of different types of knowledge, both general and specific to local context (Gabbay and le May 2011). They suggest that although some refer to this as the 'science of intuition' (Greenhalgh 2002), this term should be expanded to include tacit or implicit knowledge that clinicians can access but not explain. Clinical experience played a part in the decisions made about treatment, this experience, however, can also be subject to negative influences. Karen had worked as a nurse practitioner in Riverside for sixteen years, the last six years as a nurse practitioner following completion of a nurse practitioner Masters degree. The following is an extract from an observation of one of her clinics:

> 12.30 Two young boys. Older one fell off bike, hurt finger, swollen, infected, Karen prescribed antibiotic cream. Younger one, impetigo, diagnosis based on examination, explanation given to Mum.
>
> Karen discussed difficulty in assessing severity of impetigo at times, she had seen a child previously with impetigo and eczema, treated topically with Fucidin, but the condition had spread rapidly and the child developed impetigo pneumonia. We discussed how isolated cases can affect future clinical judgement.
>
> (Observation, Nurse Practitioner, Riverside-27:42-45)

Karen's discussion after the consultation pointed out how isolated cases can impact on clinical judgement resulting in a predisposition for or against a particular treatment based on individual experience, rather than drawing on a wider knowledge base. Greenhalgh (2010) notes that making decisions on personal clinical experience is a normal human reaction; the danger of relying on this method is that it can lead to ignorance of wider collective experience. This clinical mentality has long been acknowledged in medicine, with the claim that there is no substitute for clinical experience conveniently giving doctors a powerful edge over non doctors (Friedson 1988). Karen's previous clinical experience had not impacted on her decision in this scenario but clearly remained in her mind, and along with her theoretical knowledge of how to diagnose and treat impetigo would become an implicit part of her mindlines.

Gabbay and le May (2011) suggest that there are a number of phases involved in growing mindlines, these include 'laying the foundations' which takes place in the early years of learning a profession, and 'cultivating contextual adroitness', which ranges from developing expertise to processing new information and finally using information to keep up to date. Additional influences, such as routinisation and governance had an impact on the practice nurses' decision-making process, where governance was noted to influence the consultation, limited experience and lack of confidence did appear to play a part.

Jackie worked as a nurse practitioner in Mountainside, at the time of observation she had just completed the 1st year of a 2 year Nurse Practitioner Masters degree, had worked in the practice for 8 months and was not yet a non medical prescriber. Prior to working as a nurse practitioner Jackie had 15 years experience as a district nurse, followed by a role as lead nurse for diabetes working for a local health board. Despite this extensive previous experience she was still new in terms of the nurse practitioner role. During an observation of a consultation in Jackie's clinic in Mountainside I noted the following:

> 09.40 Lady in mid 50's, with a suspected new diagnosis of type 2 diabetes mellitus (DM), presented with deteriorating vision. Recently had blood sugar taken at the pharmacist, which was 30. Presenting symptoms of thirst/weight loss/reduced vision/itchy/polyuria. Jackie discussed that FPG (*fasting plasma glucose*) taken in surgery was 15. Urinalysis requested for ketones which was negative. Jackie commenced blood sugar monitoring to be carried out over the weekend (*by the patient*), with an appointment made for Monday for repeat diagnostic bloods and to commence treatment. Discussed the local expert patient programme with the patient.
>
> Note from fieldnotes: In combination with the symptoms this patient's FPG was clearly diagnostic of type 2 DM according to diagnostic World Health Organisation (WHO) guidelines. I was surprised that a further test was requested; Jackie said that it was practice policy to have two results before treatment.

(Excerpt from field notes following observation, Mountainside-15:18)

Despite the patient presenting with clear diagnostic criteria, Jackie justified her decision to perform a repeat diagnostic blood test based on a policy developed at practice level to guide practitioners in the diagnosis of diabetes, not on the WHO (2006) evidence based criteria which I would have expected her to be aware of given her background in diabetes care. It was not clear why the practice policy differed from the WHO criteria. The overarching

influence on the decision regarding diagnostic criteria, rather than an integrated mindline or drawing on evidence was a reference to practice policy. Unlike the practitioners in Gabbay and le May's (2011) study nurses' decisions were subject to another element, that of governance by another profession. Jackie's recourse to a policy that was clearly not based on evidence did not seem to be related to inexperience, which was unlikely given her previous diabetes role, but more of an acceptance of an instruction from a perceived higher authority. Timmermans and Berg (2003) outline similar behaviour in newly qualified resident doctors in the USA, noting:

> Because residents reside at the bottom of a steep authority ladder, few residents actively challenged attending (*more senior doctors*), or pointed out that their superiors' recommendations were outdated when their own critical literature and research review suggested alternative patient management (p.159)

Jackie was clearly not lacking in the confidence to discuss issues that guided her practice, however, as she noted in interview when discussing the role of the newly appointed GP clinical leads in Mountainside:

> UM well, Dr K is my mentor and lead for the diabetes services but I do tend to try to go and sound things out with him and discuss things a lot. One example was me using one of the new diabetes drugs and were they happy for me to go ahead and use it, so those type of things really and I did go through it with Dr K and discuss side effects; what advantages there would be to the patient those sort of things, what sort of interactions there would be with other medication and appropriate usage, things like that really.
>
> (Interview, Nurse Practitioner, Mountainside-7:062-062)

There remained an element of permission by another profession in her role. She clearly had a supportive mentor but this was coupled with an element of agreement seeking. This was perhaps inevitable in the employer/employee situation but was additionally enforced by her limited experience of working in a primary care practice. Whether or not the nurses sought out evidence for their role and then implemented this was dependent on the task and other influencing factors. This included adhering to practice policy and having the confidence to question accepted practice, confidence which grew with experience.

7.4 Impact of standardisation on the clinical encounter

7.4.1 Protocols and templates

The range of protocols available to the practice nurses in Mountainside and Riverside, their development and the practice nurses' views on them have previously been discussed. Here I discuss the role they play within the clinical encounter. They are discussed in relation to the paper and computer based protocols which were written and updated by the nurses, and the computer based templates designed to meet the needs of QOF, which were considered a GP responsibility, although updates and changes were always discussed with the nurses. They both meet Berg's (1997:1081) definition of a set of instructions which may be elaborate or precise, designed as a flow chart, or consist of vague and general recommendations, but 'they all guide medical personnel through a sequence of steps'.

The use of protocols as a tool for aiding 'decision-making' has been an area of debate for some decades (Berg 1997). The arguments against protocols suggesting that reducing the work of managing a patient's trajectory to a series of formally rational, individual decisions loses from view the social process of decision-making determined by the heterogeneous nature of the settings in which health care workers find themselves which is:

> characterised by the (re)construction of data in and through ongoing interactions between health care workers and patients, the flexibility of medical criteria, and the intertwining of a "decision" with the context in which it is produced
>
> (Berg 1997, p.1083)

Gabbay and le May (2011) suggest that practitioners often have their own hierarchy of evidence, which differs from that promulgated by the EBP movement, that is, seeking out information through reliable shortcuts 'information seeking heuristics'. In terms of their use as a knowledge resource, the following extracts illustrate how the nurses considered the in house protocols to be exactly that, an easily accessible source of information to guide practice, used when perhaps the situation they faced was not yet internalised into their knowledge base.

> Yes I tend to use those for family planning and contraception. Even though I'm not so hot on the information there, when the patients ask me questions quite often I don't know so I use those for those.
>
> (Interview Practice Nurse, Brenda, Mountainside- 1:099-101)

> Yeah and we all have files for all the protocols cause I do the DMARDS *(disease monitoring arthritis drugs*) results and all the things I'm not sure of I just look in the protocol for that and then if I need it I would ring the Nurse Specialist as well in the District General Hospital if I had any queries with that as well. It's all sort of written down and all sort of at hand. Yeah protocols for everything.
>
> (Interview Practice Nurse, Fiona, Mountainside- 5:047-048)

They also provided an aide memoiré, again particularly in the case of non routine situations:

> Yes, I mean lots of things you do on a day to day basis, you don't have to think about, but sometimes you do, and you think God, you need to go and find things out, but anything, for like even depo provera, you know different things like contraception and all sorts of things you need to go and read. Even when you do things every day, some things come in that are totally different to the norm or you have to recheck things, like all our protocols for prostap and zoladex and things like that, there are loads of things really.
>
> (Interview Practice Nurse, Cara, Mountainside- 2,107-108)

> Yes that's if it is something that you are not doing very often and I suppose because I tend to be in chronic disease clinic more than I would be in treatment room, then if it's something to do with the treatment room then I would be more likely to be using the practice protocols, if I'm not sure of something
>
> (Interview Practice Nurse, Dee, Mountainside- 3:063-064)

Whereas the in house practice protocols were generally a cognitive guide (although there were some exceptions in relation to prescribing guidance), with the option of using them as an additional source of knowledge to guide the clinical encounter, QOF templates had both a cognitive and governance purpose for both the nurses and the GPs who were required to used them to meet the financial QOF targets. Computerised templates developed to meet the needs of QOF through facilitating data collection have raised questions about the opportunities for nurses to apply judgement, when the nursing process follows routines and checklists designed by others (McDonald et al 2009). However for less experienced nurses they provided clear guidance, so for Brenda:

> JC: You use the chronic disease management templates on the computer though do you, so when somebody comes in, it flashes up what the BP should be and that type of thing.
> Brenda: Yeah Yeah,
> JC: and they are all evidence based and updated?
> Brenda: It makes it a lot easier.

(Interview, Practice Nurse, Mountainside-1:107-113)

In addition to easily accessible knowledge, protocols and the QOF templates did add another element to practice. They provided a safety barrier, particularly in relation to generating patient prescriptions. In effect they provided permission for the nurse to complete a task bypassing the need for complex decision-making. This worked particularly well within the chronic disease management clinics, where the QOF templates indicated where medication and treatment changes were necessary. The nurses who weren't non medical prescribers decided on changes to medication according to the templates, they then printed these prescriptions to be signed by a prescriber. The nurses sometimes briefly discussed with the prescriber their reasons for altering medication, or the prescription would be signed later with no discussion taking place, this procedure therefore involved an element of trust on behalf of the prescriber, who would not have seen the patient. The templates had a dual purpose, to help the nurse generating the prescription make the decision about medication changes, and for the prescriber signing the prescription knowing that decisions had been made following an agreed formula. Similar to Rycroft-Malone et al's (2009) findings, protocols provided a safeguard for nurses to take over the more rules based care, running the clinics independently and developing skills beyond the traditional scope of practice including prescribing, diagnosing, ordering tests and deciding on treatments.

Laura in Riverside, who was not a prescriber, ran a hypertension clinic. She used a practice protocol, in conjunction with the QOF template to alter hypertensive medication; the protocol was based on BHS and NICE guidelines. She additionally used the Framingham CHD risk tool to assess patients' need for statins (cholesterol lowering drugs). Laura noted how evidence from guidelines had been incorporated into the protocols to ensure consistency in advice given and medication provided-the combination element of knowledge conversion, explicit to explicit, where recombining or reconfiguring bodies of existing explicit knowledge lead to creation of new bodies of local knowledge (Panzarasa et al 2002). If it was felt that

the situation was not covered by the protocol, then further advice would be sought, as was seen in the following observation of a hypertensive clinic:

> 11.30 Hypertension review. Laura has been reducing patient's beta blockers. Patient been feeling short of breath and had pain in hip, Laura thought not related to medication changes. Advised to see GP. Laura checked for any side effects relating to the new hypertensive medication. BP checked, medication raised in line with protocol as BP raised slightly. Laura sends 'note to GP to let them know what I'm doing'
>
> (Observation, Practice Nurse, Riverside-22:43-44)

Where protocols or templates were not available and the decision was considered outside of the nurses' jurisdiction, the task was directly referred on to the GP, the protocol acting as a marker of role boundaries, as was demonstrated in the following consultation.

> Young female going on holiday, requesting repeat prescription for anti-depressants. Jackie suggested medication review with GP after her holidays. Also requested oral contraception, referred to GP to commence as no protocol for nurse practitioner to commence oral contraception.
>
> (Observation, Nurse Practitioner, Mountainside- 44:32-33)

The element of governance could once again be seen to impact on the decision made, in this case the decision to refer on for treatment, as no standardised care approach was available. At the time of data collection Jackie was awaiting the results of her non medical prescribing assessment, so like the other practice nurses in Mountainside she still relied on protocols to generate prescriptions. McDonald et al's (2009) work suggests that the way practice nurses describe their work as increasingly governed by standardised templates and protocols raises additional queries regarding the extent to which nurses are able to consolidate new knowledge and combine it with judgement to tailor individualised care, rather than treat patients as disease bearing objects. Greatbatch et al (2005) disagrees and notes that nurses utilise their own experience and deliver individualised care even when presented with computer informed algorithms. A number of incidents were noted when the nurses clearly took into account individualised patient needs and altered their decisions accordingly and these are discussed later.

7.4.2 Guidelines

The practice nurses within both sites emphasised that evidence based guidelines had a direct impact on the decisions they made. I begin this section with a prologue of remarks made during interviews which illustrate the nurses' positive attitude towards using guidelines prior to illustrating various ways in which they were used.

> JC: Do you feel that the guidelines inform the clinical decision you make, would you say they have an impact? For example if a patient came in a certain stage of asthma and you accessed the guidelines, would they inform the decisions you make.
>
> Brenda: Yes I think so, before I wouldn't have understood it at all, and wouldn't have appreciated why we were doing certain things but I do understand it more, yes I would say that it is supportive isn't it, it's making me aware that what I'm doing is a safe way of doing it.
>
> (Interview Practice Nurse, Mountainside-1:049-052)

> Dee: Yes they do, yes definitely, and then we liaise with the GPs whether they agree. Sometimes they don't, but then it's up to us then to argue the case of the person concerned if the evidence is there to go in that direction.
>
> (Interview Practice Nurse, Mountainside-3:033-036)

> Jackie: Obviously with regards to diabetes, everything is evidence based but you also rely on years of experience as well, but obviously your practice has to be safe at the end of the day so I would say that clinical experience forms part of the decision you come to, it maybe forms the basis but at the end of the day your practice has to be safe so you would go with the guidelines.
>
> (Interview, Nurse Practitioner, Mountainside-7:030-031)

> Nicky: I actually do try and use evidence based guidelines because at the end of the day when things go wrong then that's your support if you like, um I find sometimes that they are too rigid, um and also sometimes, I think I said one time before, is that if your colleagues don't use those guidelines or don't even know they exist or whatever then it makes it very difficult for you, you know I'm not a very persuasive person so it makes it very difficult for you to sort of try to influence other people.
>
> (Interview Practice Nurse, Riverside-47:007)

A number of inter-related issues could be seen that demonstrated their enthusiasm for guidelines: safety, defence, evidence for argumentation and increased understanding of the situation with which they were faced.

Discussing the British Thoracic Society (2009) asthma guidelines Fiona noted that generally she would follow the guidelines;

> JC: Are there any occasions when perhaps you might move away from the guideline, perhaps individual scenarios?

> Fiona: Well perhaps but on the whole they are set down really you know step up step down
>
> (Interview Practice Nurse, Mountainside-5:057-059)

As with the protocols and QOF templates, safety and consistency of practice played a major part in the nurses' use of guidelines to support their clinical practice. It was difficult to determine whether this enthusiasm towards guidelines translated into practice. Throughout the observational period limited episodes of database searching for guidelines or research literature were seen during clinical practice to make evidence based decisions on individual patients or group of patients, although it was clear that in the time periods allotted for clinical consultations it was unlikely that this would be undertaken during the consultation. Thompson et al's (2004) and Gabbay and le May's (2011) studies similarly found that it was very rare for clinicians to directly access evidence based information during clinical encounters. When evidence sources were consulted this tended to be where clinical scenarios moved away from the routine and familiar, a move away from the incorporated knowledge in their mindlines, as Karen discusses here in relation to a hypertension consultation that I had observed earlier:

> JC: So when you give out a plan, obviously you review her previous medical history? You mentioned you looked at her as an individual, did you look at things like the British Hypertension Guidelines as well or would you say that was part of your innate knowledge?
>
> Karen: Yes my innate knowledge (laughs). When it's time to add the fourth anti hypertensive then I admit that I am starting to get the BNF out and think right ok what am I going to do next, but yeah
>
> (Interview, Nurse Practitioner, Riverside- 45:73-76)

A number of the nurses in Riverside however, used Web Mentor, the inbuilt IT system that supplied evidence based professional and patient information during consultations, although often this was used simply to print off specific patient information leaflets. Mountainside nurses used a similar system, but tended only to use it for printing patient information leaflets. Olly, the locum nurse practitioner in Riverside mentioned that he used CKS for most patients, preferring it to Web Mentor and had found it invaluable in his other role working as a nurse practitioner for the local GP out of hours service, although as noted earlier his

practice didn't always reflect this! Laura discussed the guidelines she commonly uses; this is followed with an example of how Web Mentor was used during a minor illness consultation.

> Laura: Yes we use that one (*referring to Web Mentor*), we use HOWIS, I don't know whether this is relevant to what you want? For travel information, we always use HOWIS website *(to access TRAVAX, a website providing advice and support on travel immunisations for health professionals*), it looks fantastic, we used TRAVAX and paid for it but HOWIS TRAVAX is very good so we use that one a lot.
>
> (Interview, Practice Nurse, Riverside-30:021-022)

> 11.15 Children with rashes. Examined; Laura-'looks like slapped cheek disease'. Consulted 'Web Mentor', linked to the computer system EMIS, and provides evidence based professional and patient information.
>
> (Observation, Practice Nurse, Riverside-22:041-042)

Nicky noted the importance of considering all the factors within a patient consultation and discussed how she had recently argued the case of a patient with the GP, where she felt the necessary course of action differed from the guideline recommendation. The guideline recommendation was that patients whose spirometry results were outside the normal limits should be referred for an x-ray. Nicky's patients were just within the range of normal limits but she felt that an x-ray was warranted.

> Nicky: I do have an incident of this, about somebody who admitted to me they smoked pot *(cannabis)* and they had come for spirometry and the doctor wasn't necessarily going to arrange an x-ray and that's in the COPD guidelines. But I felt that the FeV1/ FVC *(forced vital capacity)* ratio wasn't quite, he was a young man, wasn't as good as perhaps you would expect a young person. Because they were normal, they were only just normal, and for a young person you would expect them to be well normal if you see what I mean, and I felt that was one of the danger of guidelines, because I was thinking he *(the doctor)* was going on it should be this and it's that and so it's normal, but I was like looking and thinking yeah but this is a thirty two year old man and then I said about the pot, and I said that when I did the respiratory course, the tutor, she said smoking pot is worse for you than smoking tobacco and you know I went along to the doctor and told him that and he said well I'm not sure about the research, so I dug out a bit of research, gave it to him, and he said it was inconclusive, *(laughter).* It was British Lung Foundation research, so I had gone to a very sensible source for the research, anyway he did get his chest x-rayed which is obviously what I wanted, um, but I have forgotten the name of the patient so I can't look up what happened next. But I think there is a danger of guidelines, they are guidelines, aren't they so you have you have to interpret them a little bit so you don't just go by the absolute values, you need to go on what's before, what the patient is or whatever.
>
> (Interview, Practice Nurse, Riverside-47:019-020)

Nicky's point highlighted a number of issues, she had drawn on knowledge gained during her asthma course and applied this to the case in hand, noting that the guidelines were

referring to an average patient, and wouldn't have taken into account other extenuating factors, in this case the cannabis smoking that would have impacted on the spirometry results and determined whether an x-ray was required. Gabbay and le May (2011) emphasise that the essence of clinicians' practical skills lies in their ability to apply the context free knowledge provided by researchers, systematic reviewers and guideline writers to specific situations, taking into account both clinical and non clinical considerations. The data obtained is then subject to the practitioner's judgement of its value, the management of the patient's trajectory being a social process, as opposed to a sequence of individual, formally rational decisions (Berg 1997). The case Nicky highlighted demonstrated the importance of applying evidence based information in context.

Karen discussed how accessing guidelines could be used within a consultation, when they provided easily accessible evidence based knowledge that could support the decision-making process. Here she is referring to use of the CKS online guideline, and provides an example of its use during a consultation.

> Karen: Yes I am quite happy to do that in front of the patient. And sometimes, I saw someone last week who came in and I thought they had, they had lots of joint problems all at once and I went onto the website and I was looking through just to make sure that the bloods that I took the first time round were the appropriate ones, I didn't want to miss anything, and then sort of looking at history and I was sort of thinking what questions should I be asking and there were a few things on there that prompted me and I thought I haven't asked that question, and then it was a very useful thing to use.
>
> (Interview, Practice Nurse, Riverside-45:096-097)

The opinion of the nurses was that guidelines could generally be viewed as 'gold standard' and in cases where discrepancies were evident between QOF templates and the guidelines then the guideline advice would be prioritised.

> Jackie: You would go for the gold standard, you go for NICE guidelines, you go for the All Wales Consensus guidelines, so yeah there are discrepancies between them (*guidelines and QOF*). Which is very annoying sometimes.
>
> (Interview Nurse Practitioner, Mountainside 7:032-035)

Dee agreed and noted that where the QOF guidelines differed from the evidence base suggested by the guidelines she would adhere to the gold standard suggested by the evidence, rather than being unduly influenced by financial targets:

> Dee: No They are very helpful, I do a lot of reading around evidence based work and we do tend to stick to the guidelines, we use templates on the computers but the guidelines are tighter very often for chronic diseases then the QOF guidelines that are actually on the computer system, so we do tend as nurses I feel go to the guidelines recommended by the British Hypertension Society and by NICE as opposed to what the GPs look for by QOF
>
> JC: Ok, so the templates are sort of based on evidence according to QOF, as opposed to a guideline?
>
> Dee: Yes a lot of guidelines you know are tick boxes and looking at the QOF quotas, they want a blood pressure of 150/90 and you know the British Hypertension Society says 140/85 and we as nurses tend to aim closer to the guidelines rather than the QOF targets, which are higher.
>
> (Interview Practice Nurse, Mountainside- 3:007-012)

Dopson et al (2002) maintain that despite growing acceptance of the principle of evidence based practice, the relationship between the strength of the evidence base and clinical behaviour change remains weak. The attitude towards guidelines across both sites was generally positive; although on occasions it was felt they could be unrealistic, not meeting the needs of individual patients, Cara:

> They don't, they can't, it's impossible isn't it, especially when you are dealing with people. I mean if you are dealing with a robot, fair enough, they can do all that, but when you are dealing people it's absolutely impossible and I mean even NICE change their guidelines for diabetes with their blood pressure. You knew you were never ever in a month of Sundays going to achieve 130/75, 130/80 you knew, I think they have to be more realistic haven't they, I think sometimes they do tend to, I think they give these guidelines, do you know what I think it is, so that you aim for them so you might hit the right one that they really want. That's my theory on it.
>
> (Interview, Practice Nurse, Mountainside- 2:23-24)

Cara's feelings to a certain extent echo Hurwitz's (1999) argument about the increasing legal and political influence of guidelines. Drawing on Plato's work, Hurwitz advocates that care by guidelines is a debased practice in that they presuppose an average patient, rather than the particular patient whom a doctor is endeavouring to treat and that the work going into the creation of guidelines is rooted in the minds of guideline developers distant from the consultation, as opposed to the mental processes of clinicians. Enthusiasm for guidelines

was evident in both practices, but the nurses were clear that they would not be afraid to adapt the guideline where necessary, drawing on their own clinical knowledge and experience and individual patient need.

7.4.3 Standardisation v catering to individual patient need

The impact of standardisation and routinisation imposed to some extent by the onset of clinical guidelines, but accentuated through QOF, sometimes appeared to result in a situation, particularly where chronic disease management was concerned, of decision-making according to template. This was not always the case however, with patients often influencing the decisions made about care. Karen acknowledged that whilst guidelines influenced her clinical reasoning there were a number of other influences that may guide her decision:

> Obviously there are restrictions with guidelines because it doesn't take into account the individual sort of person, and some people's treatments work obviously a lot better than others anyway, and it's a bit like when you are looking at the numbers needed to treat, you are obviously going to have a lot of people where perhaps prescribing antibiotics wouldn't be useful, but there will be a percentage that would be useful, so I think that's the problem with evidence based guidelines, it can't really sort of be in an individual sort of guide, it is more sort of generalised really……..
>
> (Interview, Practice Nurse, Riverside-45:007-008)

This resulted in a case of 'Co-constructing clinical reality', action resulting from negotiation between the different meanings that the clinicians and patient attribute to the patient's illness, influenced by both the clinician's social, organisational and cultural environment and the patient's own construct of their condition (Gabbay and le May 2011).This influence could either be patient orientated, or influenced by the nurse where they felt that the treatment recommended by the evidence, guideline or standardised template, may not be the most appropriate option for the individual. An example of this type of scenario illustrated in the following consultation:

> 10.35 Female with type 2 diabetes, B12 deficiency, hypertensive, history of chest infections. Karen checked previous medical history, noted this patient often needs more than one course of antibiotics, mentioned how Sjogren's syndrome (*which the patient had*), perhaps reduces her immunity. Karen noted that she generally doesn't give more than one course of antibiotics, but in this individual it often seems necessary. Patient appeared to think that there was some relationship with when her

> B12 was due. Karen noted that B12 should remain in the system for three months, and that Dr B had revised the B12 policy, based on evidence, to three monthly B12, but since then some people had felt they needed it earlier, so if symptomatic could come in sooner (*this had been agreed at a practice level following discussion of the new policy*). Karen carried out a physical examination, no obvious sign of bacterial infection, therefore no benefit in further course of antibiotics. Suggested steam inhalations may help as patient had nasal congestion.
>
> Karen noted that there was no logic behind why some patients should become symptomatic earlier; all evidence shows that B12 levels should not drop before twelve weeks.
>
> (Observation, Nurse Practitioner, Riverside-18:21)

This consultation illustrated not only the complexity of the case itself and the different skills utilised to both determine the problem and decide on a course of action (taking a previous medical history, discussion with patient regarding presenting problem, physical examination), but also how patients often do not fit a traditional case scenario. Karen's experience meant she seemed happier to question practice policy and modify it where necessary for individual cases and this clearly influenced her decision. Her mindline was a blend of evidence drawing on a number of factors, one of those being experience with this type of complex scenario, and another being the discussion with colleagues (regarding the development of the new B12 practice policy). All this knowledge was captured, shared and an action executed in a 'real time' frame of a fifteen minute consultation.

The nurses were keen to emphasise that they would not slavishly adhere to guidelines, protocols or computer templates but would consider individual patient need. As Cara noted discussing the enhanced service requirements for diabetes and blood pressure:

> JC: Giving a prime example, you were saying about the enhanced service requirements for diabetes, the guidelines say 140/80 and you get somebody with 112/85?
>
> Cara: yeah you are not going to change any medication; they are just not going to fit into these boxes. The same with everything, even units of alcohol, all sorts of things like that, people just do not fit into boxes. You try and do it but you have to something that you can say look this is what the research shows but we will, let's aim for it, but not give people to, I think you have got to aim it towards them. For example people come to diabetic clinic and you go through alcohol intake, they might have four pints of lager a night so if they can reduce that to three for a bit, do you know what I mean?
>
> (Interview Practice Nurse, Mountainside-2:013-014)

Cara's point emphasised that the guideline recommendations didn't take account of the patient's social construct of their condition (Gabbay and le May 2011) and what they felt was important. Rather than imposing the guideline on the patient she identified that the crucial issue was negotiation. The guideline allowed no room for negotiation but Cara's mindline which was more flexible helped her to understand her patients' point of view. Dee supported this viewpoint and noted how they would use other tools and techniques available to support patients, particularly where patients were anxious.

> Dee: Yes absolutely I mean if they are out of target we do see them more frequently than the protocol says and we do keep quite a close eye on people if we are concerned and I mean very often if they are high (*referring to blood pressure readings)* we'll say if they have home monitors to monitor it at home, because a lot of people, even if they know us well, they still get a bit anxious when they come to clinic because they don't know what you are going to say to them.
>
> (Interview Practice Nurse, Mountainside-3:047-048)

Karen discussed how a number of factors would influence her decision regarding management. She would consider the evidence base within the guidelines but then also weigh this up against the individual patient need. In the following extract she discusses how she reached a decision regarding an appropriate anti-hypertensive for an elderly patient. One of the guiding influences was in fact the patient's mobility:

> JC: I think that again came up in the observation of the lady with the blood pressure, you know we were talking about the plan of action and how you developed the plan of action and you talked of how you reviewed her medical history, to make that decision. Your decision would be based on a number of factors, the evidence perhaps from the guidelines and also the individual?
>
> Karen: Yes I suppose that in her case, you are looking at evidence from the guidelines as to what age group she is, to what blood pressure table is most likely to be effective as she has systolic hypertension really, and then you would also be looking at what medication she was on, and like I said this morning in her case being on a beta blocker while she hasn't had a heart attack, she hasn't got angina so therefore a beta blocker wouldn't necessarily have been the first choice. The diuretic would probably be very effective but it means that she would probably be back and forth to the loo all the time and she already said she's not particularly mobile, not very steady on her feet, ace inhibitor, you know if she had diabetes, yes that would be a first line choice, but it's looking at what you would choose and what is least likely to give side effects as well. So that's another thing that's important.
>
> (Interview Nurse Practitioner, Riverside-45:069-072)

Karen also described how evidence is adapted taking regard of the patient's social needs, even where these may clash with her ongoing medical needs, considering the patient's individual requirements and her right to choose:

> We had somebody recently, an elderly lady with diabetes and her diabetic control wasn't very good and she was on insulin twice a day. She said she didn't want to be on it twice a day, she only wanted to be on it once a day because the community nurses going in twice a day was actually interfering with her quality of life because she felt her home was being invaded and she was losing her independence and in that case, you have to say to her right OK we will do what you would like, the knock on effect is that probably your diabetic control will deteriorate but if that's what you would really like to do then that's fine.
>
> (Interview, Nurse Practitioner, Riverside- 45:027)

Reviewed in isolation it may appear that this lady's care was not evidence based, but Karen clearly justifies the reasoning behind the decision made, which was a fusion of her research and practice based knowledge, she considered the evidence relating to ideal treatment and placed this within the context of all the patient's needs. This finding of common ground through exploring the patient's social construct is considered to be much easier when working from a clinician's mindline, rather than a formal protocol or guideline, allowing flexibility to develop common ground (Gabbay and le May 2011).

In addition to considering management in light of individual patient need, other organisational contextual factors were taken into consideration, one that perhaps would not be obvious to a guideline developer unaware of the factors that can influence primary care. For example, the decision to take a more cautious approach at the end of the week due to the surgery being closed at the weekend. I was discussing a patient consultation that I had observed with Mandy, where she had opted to give a patient antibiotics for some insect bites, the patient in question had been insistent on receiving antibiotics as she was attending a school speech day the following day and wanted an instant cure, rather than a conservative wait and see approach. Mandy's decision had appeared to have been influenced by the patient's demand for antibiotics as a quick cure.

> JC: So just drawing on the point that you mentioned about obviously providing patients with the correct information as well to allow them to make decisions, I noticed

> that when observing one of your consultations, and we had a couple of people in requesting antibiotics for insect bites and there were various different presentations of them weren't there? Do you feel sometimes influenced, I know I have discussed this with other nurses and sometimes the patient can very much influence the consultation in what they actually want, can you tell me a little more about that?
>
> Mandy: Well obviously the one that you are probably thinking about is Susan *(pseudonym*), who I knew personally, which can be quite difficult, and following that consultation she actually rang up and requested more antibiotics because they had worked but she had been bitten again since, so this time I refused and said you know what you are looking for now, if it's not that bad then the ice, antihistamines, and elevation, you know that's it, and actually she had been on the website and looked up Blandford fly which is around here now and she was able to glean information from that and she didn't ring back since. So I think in hindsight would I have done it or would I have not? I don't know, it's difficult because it was a Thursday and you know you have the weekend coming up and a lot can happen in three days particularly with bites and cellulitis and all that sort of thing, I could have given her a delayed script, there are a lot of options there, antibiotics, would they really have worked, don't know. Probably not. It wasn't proper cellulitis but it could have become such and she was adamant that she wasn't going to be able to sit down and elevate and all that sort of thing, perhaps I jumped in too soon.
>
> (Interview, Practice Nurse, Riverside-46:035-036)

Mandy's later comments demonstrated how incidents such as these could lead to expansion of her individual mindlines with regard to effective management of a difficult consultation through social learning:

> ….one of the sources of information we get is talks now with the dispenser *(in house pharmacist*) who picks articles, or we pick something that we are particularly weak on and we go through it or if we have a patient that's a bit difficult, all those sort of things, then we can go through that with him later which is much better really.
>
> (Interview, Practice Nurse, Riverside-46:040)

Knowledge would not remain static, but could be discussed, shared, reconstructed and potentially developed into a collective mindline to guide future practice.

7.5 Bringing evidence into the clinical encounter

As part of the negotiation process the nurses would bring information into the clinical encounter. This would be for two reasons, to explain the condition to the patient and provide them with some written information to support their discussion, but also to demonstrate to patients what the evidence said and why they were recommending that the patients consider changing their behaviour.

> Brenda: I don't tend to sort of use the computer when the patients are in the room because I find it a bit difficult and a bit too time consuming and also if I've got a book (*referring to patient information books*), I think it is quite good it I look at the book with them and they go home with the book as well……
>
> (Interview Practice Nurse, Mountainside, 1:027-032)

Evidence could be used to supplement what the nurse had said within the limited 'real time' of the clinical encounter and then given to the patient so they could go home and think about the issue further, which may involve discussing it with their own family and friends, thus perhaps shaping further their individual construct of their condition and it's management.

> Mandy: I think that sometimes 10 minute appointments are not enough, with the best will in the world, and people will come in with one thing and as they are walking out the door its 'oh by the way', and sometimes you can say look I haven't got the time to talk about it now but here is a handout, have a read of that and make an appointment to come back and discuss it, or it just reiterates that yeah OK so you have a fungal infection of your big toe, but actually it doesn't matter if we treat it or not. The same sort of thing for verrucas which you know people get terribly stressed about and warts and things like that, none of it works particularly well and evidence proves that, so it's nice to show that again it's not you being lazy by not wanting to be bothered but actually that's it.
>
> JC: Yes, so you are using the evidence not just to inform your practice but also to support what you are telling the patient?
>
> Mandy: And hopefully then, that carries on because if they realise well there is nothing that can be done, then they won't bother to come again. But you give them the parameters to say well if warts are growing around the edge of your fingers making writing difficult, or things like that then maybe we will cut them off. But specifically if they are on the back of your hand or something, then there is probably not a lot that anybody will do about it.
>
> (Interview, Practice Nurse, Riverside-46:023-028)

Guidelines were also useful as a negotiation tool with patients during the clinical encounter, providing easily accessible and visible support for the practitioners.

> Cara : But you do need and sometimes you need it for negotiation with patients as well cause it is always a great negotiation tool, …'I don't want medication'. Ah but look this is the evidence, we tighten up on this now, so you got that as well'. It's not just like you're saying it, we have this evidence now and if you do this, so you can negotiate with the evidence as well, you can use it as a tool for that. That's very important, I think, as well cause I mean even though you are sat there in a uniform and they think you know everything, you know what I mean, you said, but no seriously you have to negotiate, it's all about negotiation, isn't it? I negotiated with a chap this morning, …. 'No I really don't need any medication', ' But how long have you been diagnosed with this now?', and after so long you realise that this is what happens, this is all par for the course, Oh right, and then you say, we need to prevent, we need to tighten up and then he's fine then, you need to bring in a bit of evidence as well, it's no good saying because you are this, but if you say the evidence shows this and then you use it more.

> And I think I use it more than I think I do. If you know what I mean, I think I do it unconsciously.
>
> (Interview, Practice Nurse, Mountainside- 2:079-080)

Laura agreed that this approach had the dual benefit of both providing information, and also to visibly demonstrate risk factors, such as in cardiovascular disease and how simple steps could help patients reduce their risk.

> Laura: ….I do often access while the patient is here, sometimes to show them what I am trying to explain to them helps, I often give them patient information leaflets, we use those a lot, I use them an awful lot, so in that case I have always got Web Mentor open on the computer and can easily get information from them, sometimes dietary advice, they want to know what food contains, high potassium or something then I would look that up and print that off for them so I would often use that. The other one I have been using recently that I have just seen on the computer here is Q-RISK
>
> JC: Q-RISK - is that ….?.
>
> Laura: Yes Q-RISK is supposed to be taking over from the Framingham Scale. It's the CVD *(cardiovascular disease)* risk calculator. That's a very good one to get up and actually show the patient. They can access that themselves as well. That's another good one.
>
> (Interview, Practice Nurse, Riverside- 30:024-029)

7.6 Dealing with complexity-acknowledging gaps in individual 'mindlines'

One final category emerged when considering nurses' use of knowledge in the clinical encounter that reinforced the constitution of mindlines as an inseparable mix of numerous components that grow and change throughout clinical careers. This category was 'referring on', either in more complex cases or where the nurses felt their knowledge base was lacking. Taken at surface value it may seem like an obvious action to take, not knowing what to do so therefore referring on to someone with the appropriate expertise, but acknowledging these knowledge gaps allows identification of some of the elements of mindlines that have not yet developed fully to allow the process of judgement and decision-making to take place. Indeed this acknowledgement of knowledge gaps, learning when and when not to take responsibility, Gabbay and le May (2011:83) argue is a 'crucial part of clinical mindlines'.

On occasions the nurses were unable to make a decision, not because they were unable to source the appropriate evidence, or because of any of the three elements that Thompson et al (2004) describe as being part of decisional complexity (time limited decision-making, multiple and diverse decision goals, conflicting decision elements), but because they were simply being faced with a task for which the necessary knowledge to make an appropriate judgement had not yet been developed. As Nicky noted, when I asked her what she did when faced with a difficult clinical decision:

> It depends on what it is really, and it depends on if there was a doctor who I thought was an expert in that area, for example if there's a doctor who comes in. There is a locum one day a week, at the moment, she is a dermatologist right and a patient came in the other day with this sort of rash, he came for another reason and he was down to see me, and I didn't know what it was, so I said 'Well I will book you in to see this doctor', so you know, so yes and if they say they use such and such a guideline I might even go and look at it.
>
> (Interview, Practice Nurse, Riverside-47:155-156)

Dealing with an issue such as this was not related to any particular element of the task, or the type of decision to be made but was simply a case of Nicky not having the knowledge or clinical experience to deal with the case. Making a decision on management and treatment of a rash was not something that she could have solved through accessing research based information or a guideline, her ability to make an evidence based decision was lacking in an essential element, that of clinical expertise in the particular area. The potential for increasing her knowledge by finding out and using an appropriate guideline may help her in developing her mindline for rashes in future, but alongside this she would also need further clinical experience, the imbibing of practical and intellectual skills, including analytical and problem solving skills and pattern recognition until they become second nature, the development that is an integral part of mindlines (Gabbay and le May 2011).

Lack of a collective mindline amongst the practice nurses in Mountainside was noted by Issy in relation to the knowledge required to manage complex cases of both hypertension and CKD. In these cases the protocols and templates were still used to guide the consultation, but where clinical encounters did not follow a straight forward pattern the template did not

help in the decision-making process and the patient would be referred on. This was quite different than simply not being aware of, or not using appropriate evidence based resources to support the judgements and decisions made. Both hypertension and CKD templates had been developed collectively using a number of sources, a further example of the combination element of the SECI spiral (explicit to explicit), what had not occurred was the internalization stage (explicit to tacit) (Panzarasa et al 2002), as without the underlying knowledge and understanding the nurses' mindlines had not developed to deal with the complex clinical encounters with which they were presented.

> Issy: The hypertension one (*referring to the British Hypertension Guideline*), which is the other major one that we look at; I think the medication is always an issue and it's something that we probably haven't got the same depth of experience in hypertension. You'd think you would as a general nurse on managing blood pressure but actually it's quite a difficult decision for the nurses in clinic to take on the changes they've had with the algorithm for that, although it looks simple, because you see people with other existing chronic disease it does get more complicated, so that probably usually gets referred to the doctor but that's fine. If it's straightforward we'll do, we'll follow the little algorithm.
>
> (Interview, Nurse Manager, Mountainside-6:035-036)

> Issy:….. now we're looking at chronic kidney disease, that's a new thing for us and that has been quite a struggle for all the nurses actually to take on board, so from that point of view we have to look at various sources to inform our practice, and in clinic it can be quite difficult because we're getting quite complex results coming through on patients which we're not hugely familiar with. When in doubt we repeat the tests or just consult with one of the doctors, see what they think as well and that's all we can do really, is refer to another clinician if there's anything that you don't think you can to deal with safely and appropriately. We've got the guidelines there but people don't always fit into those little boxes do they?
>
> (Interview, Nurse Manager, Mountainside-6:047-048)

Limited time to make a decision could also have an impact but a decision to refer on was generally combined with an acknowledged lack of knowledge to manage the case. In the encounter outlined below Karen, despite her experience, identified an area in which her knowledge was limited. In regard to gynaecological knowledge she identified that she was a novice rather than an expert. Although further information seeking may have helped her with the judgement and decision, the combination of lack of knowledge plus the limited 'real time' of the consultation combined with a number of problems made referral for the gynaecological problem the sensible option.

> 10.50 90 year old lady came in with three problems: twisted ankle; swollen hand joint;? UTI (*Urinary tract infection*) with PV *(per vagina)* discharge, concerned as going on holiday. Karen suggested working through one problem at a time, took history, examined ankle, and advised re appropriate footwear. Examined hand, suggested NSAID (*non steroidal anti-inflammatory*) gel and cold compress. Karen asked about medication, patient taking diclofenac QDS(*four times daily)* long term, discussed the importance of taking with meals and not on an empty stomach, suggested needed medication review with GP. Noted time too short to discuss today, but suggested reducing diclofenac and increasing paracetamol. Re PV discharge, previous samples had shown no bacterial infection. Repeat appointment made with GP. Karen noted she would have dealt with it, but limited time and acknowledged her limitation in gynaecological knowledge.
>
> (Observation, Nurse Practitioner, Riverside-27:022-023)

A final important point to make as practice nurses' roles continue to expand and diversify is ensuring they have the underlying knowledge and clinical experience to identify all the elements that impact on the encounter. In the encounter outlined below Mandy had seemingly gathered all the information she required to make an analytical decision but in fact, possibly due to her lack of knowledge, had missed an essential element in the patient's history, the medication (ibuprofen) that the patient had recently started on that is linked to onset of wheezing.

> Elderly man with cough, wheeze and sore throat. Mandy reviewed history, asked re current inhaler use. Chest examination, peak flow, SATS assessed. Referred patient for spirometry, 'may give you a short, sharp, burst of steroid as made you feel better last time'. Mandy keen to distinguish whether patient has asthma or COPD, to determine plan. Went to discuss with GP. GP noted that patient had been recently started on ibuprofen which may have exacerbated his asthma, arranged chest X-ray and gave a prescription for steroids.
>
> (Observation, Practice Nurse, Riverside-24:047-048)

Identifying a lack of knowledge and when to refer on or seek help is a vital part of learning and developing as a clinician. Mindlines develop and grow throughout careers and are not limited to theoretical knowledge, as practice nurses expand their roles as well as knowing where to source information to meet their decision needs, they also need to be able to recognise where their mindlines are still developing and that a combination of knowledge and clinical expertise is necessary to make an appropriate decision within the clinical encounter.

7.7 Conclusion

This chapter has explored how nurses use a combination of knowledge within the context of individual patient encounters, partly accessed through their mindlines developed from education, clinical experience and individual, collective and professional socialisation, and partly through accessing a bricolage of knowledge. Using the concept of clinical mindlines as an ongoing framework, the wide range of sources on which the nurses draw on to action the decisions they make has been discussed. This has included their individual expertise, collective expertise and the role of protocols, decision-making templates and evidence based guidelines. The influence of individual patient needs has been discussed and how the practice nurses incorporate patients' physical and social needs into the decisions they make, along with the concept of bringing evidence visibly into the consultation.

The concept of mindlines as proposed by Gabbay and le May (2004, 2011) although not limited to any particular primary care professional, drew heavily on how doctors develop and grow their clinical expertise. The role of the practice nurse continues to develop and expand; this has in part been led by the macro level influences imposed on primary care and the increasing requirements on general practice. The preparation nurses undergo, although having some similarity to doctors doesn't prepare them to deal with diagnostic uncertainty. Some of the specific skills practice nurses require are developed from the time they begin as a practice nurse, supplemented by ongoing educational programmes. The roles they carry out vary from the diagnostic role carried out by the practice nurses running minor illness clinics and the nurse practitioners, to the rules based care of the chronic disease management clinics. The cases presenting in the chronic disease management clinics can vary from straight forward routine checks to complex cases requiring not only appropriate knowledge and skills but the clinical experience to recognise patterns within the clinical presentation. Alongside minor illness and chronic disease management the practice nurses provide services such as wound management, health promotion and screening, which may appear more routinised in nature but still require an element of judgement and decision-

making. These services are less influenced by QOF and also appeared to be less influenced by the evidence base, although protocols were available for the tasks nurses were unsure about and they stated they would use these to guide their practice.

Standardisation of care clearly plays a part and the reasons for this appear to be two fold. In relation to chronic disease management standardisation has been imposed upon general practice in the form of QOF with the aim of improving evidence based care. The decision-making templates that have arisen from the needs of QOF have enabled the practice nurses to become more autonomous in relation to delivering care to patients with chronic disease, providing them with templates to generate prescriptions and to manage the patient consultation. In some cases (hypertension and CKD in Mountainside) it was identified that the templates and protocols were not enough to enable the nurses to deal with complex cases, the nurses' mindlines still needing to develop before they can operate autonomously. Secondly standardisation has provided the nurses with a 'safety net' so where they have taken on new roles they have clear boundaries in which they can operate. The element of governance also plays its part with practice nurses responsible to GPs as their employees; although within both sites the views of the nurse were raised and discussed and this could result in a change to a protocol and subsequently the decision made within the clinical encounter. As roles expand the practice nurses need to recognise the limitations of their mindlines and when it is appropriate to 'refer on'.

8. Chapter Eight: Discussion

8.1 Introduction

This study was conceived with the purpose of building evidence around knowledge utilisation amongst practice nurses, an area of nursing where specific research is sparse. Within this chapter I consider my findings in relation to the conceptual framework proposed in chapter three, whilst considering the similarities and differences between my findings and Gabbay and le May's (2004,2011) mindlines work. The findings are then further considered within the context of sociological ideas, including professional power and the continued impact of medically prescribed knowledge on both the roles the practice nurses undertook and the decisions they made, discussing how this impacts on their professional autonomy. Finally I consider how the notion of accessing a bricolage of knowledge adds new theoretical and practical insights into the way practice nurses access and subsequently use knowledge within the clinical encounter. The study presented in this thesis was designed and carried out at a time when the work carried out in general practice by GPs and practice nurses had become increasingly influenced by policy driven standardisation that had financial implications for the management of the practice and which inevitably impacted on knowledge dissemination and its utilisation in practice. Previous arguments have suggested two contradictory visions of EBP; the professional vision in which an individual practitioner routinely accesses professionally generated evidence to inform the care of a particular patient and the management vision where EBP is built into organisational routines and care delivered according to guidelines with little scope for the exercise of professional judgement, with the reality of clinical practice probably containing elements of both (Taylor and Allen 2007). The data presented in this thesis supports that practice nurses take a blended approach, using elements of EBP to support, but not substitute for, their professional judgement within the concept of the clinical encounter and that their knowledge use is subject to a number of other influences, as illustrated in the conceptual framework.

8.2 Consideration of the conceptual framework

8.2.1 Knowledge sources-propositional and non-propositional

Not surprisingly the practice nurses' knowledge was found to be developed from a mix of sources, both from formal education and from the nurses own individual experiences and role preparation. Social learning was seen to be a continuous process which subsequently impacted on the decisions made within the clinical encounter. Findings mirrored Eraut's (1994) work on the training of teachers, with the nurses merging knowledge from a variety of sources, then adapting and blending them within the context of their own and others' experience prior to implementation, which in turn was dependent on the individual patient scenario. To utilise contextual knowledge Warne and McAndrew (2004) suggest that nurses are required to harness their own personal knowing and patient experience knowledge to ensure patient centred care. This was evident in my data; the practice nurses articulated the impact of both experiential and continued formal and informal learning on their everyday practice, as well as the influence of patients. Findings indicated that individual knowledge was not static but grew and changed dependent on a number of factors, the clinical encounters the practice nurses were exposed to; their continuing education, particularly role related education; and the organisational context in which they worked. All of these factors shaped their knowledge acquisition and subsequent use. Both formally gained propositional knowledge and non-propositional knowledge gained from experience and exposure contributed to how the practice nurses organised and used knowledge.

8.2.2 Standardisation and global guidelines

The emphasis on the attractiveness of standardisation for nursing is echoed in the literature (Timmermans and Berg 2003, Rycroft-Malone et al 2007, Traynor 2009) and it can be argued that standardisation, predominantly that denoted by the QOF (DH 2003) was shown to have considerable impact on the knowledge the practice nurses used for care delivery. This was particularly evident in the chronic disease management clinics, which were run according to standardised computerised templates, specifically developed for QOF, with little

room in the consultation time available to explore any further issues. Practices in general have responded to the incentives offered by QOF by re-organising and providing a more systematic approach to management of chronic disease (Dixon et al 2011). Research is ongoing; however, to see whether the standardised knowledge disseminated to practitioners via QOF has made a difference to patient care, indeed Gillam (2010) suggests it has not. My data indicated that patients could sometimes be asked inappropriate questions and be subject to standardised as opposed to individual care, similar to that seen in Rycroft-Malone et al's (2007) study on protocol based care. A systematic review undertaken by Gillam et al (2012) on the impact of QOF on primary care concluded that both doctors and nurses believed that the person-centeredness of consultations and continuity were negatively affected. Patients' satisfaction with continuity declined, with little change in other domains of patient experience. Chew-Graham (2013) suggests that practitioners view QOF informed consultations as a means of 'surveillance' of patients. Patients felt that they presented themselves, often passively, to the practitioner for scrutiny, but left the consultation with unmet biomedical, informational and emotional needs.

Templates developed for QOF and to a lesser extent in house practice protocols did, nevertheless, enable the practice nurses to provide a complete package of care bypassing the need for complex decision-making. Both McGregor et al (2008) and Campbell et al (2008) discuss how the new GMS contract has given practice nurses increased responsibility. However they argue that discontent about how financial gains are distributed and negative impacts on core values may lead to detrimental long-term effects on motivation and morale. Maisey et al (2008) suggests that the impact of QOF has led to nurses experiencing an increased workload, but that conversely they enjoy more autonomy and job satisfaction and argues that practitioners would benefit from improved dissemination of the evidence to justify the inclusion of new performance indicators in the QOF. Gillam et al (2012) notes that nurses have reported enhanced specialist skills since the implementation of QOF, indicating that standardisation can contribute to knowledge utilisation.

My data indicated that the practice nurses were generally enthusiastic towards the standardisation imposed by QOF and felt it provided them with a 'safety net' to structure their practice, increasing their autonomy. They additionally used the templates developed for QOF to add in extra information that they identified as being useful to everyday practice, modifying these for local purpose but were keen to point out that individual patient need would take preference over the standardised approach promoted by QOF (or any other guideline). These findings are consistent with, whilst adding to, what is already known about the use of standardised care processes. Rycroft-Malone et al's (2007, 2008) evaluation of protocol-based care across five acute and primary care sites provides evidence that protocol-based care, whilst often patchy and dependent on contextual, professional and individual factors, has the potential to impact on nurses' roles, increasing autonomy and impacting on service delivery. Rycroft-Malone et al (2007, 2008) express concern, however, that this approach could lead to a 'tick box' mentality and restricted judgement and this was reinforced by the practice nurses in my study.

Evident in the data presented in this thesis was that standardisation did not impact to the same extent on other extended roles, the practice nurses' role in minor illness and the work of the nurse practitioners which involve decision-making around diagnosis and treatment, an expansion of the role which has involved taking on work previously carried out by GPs. This is an area not addressed in previous evidence utilisation studies that do not delineate between practice nurse roles (Mills et al 2009, Prior et al 2010).

A recently published study (Gerrish and Cooke 2013) on factors influencing EBP among community nurses including practice nurses, (using the DEBP questionnaire outlined in chapter two), highlights the range of information sources community nurses state that they use to inform their practice, including their frequent use of protocols and guidelines. Enthusiasm for evidence based guidelines was evident within my data; however it is difficult to determine whether this enthusiasm translated into practice, with limited evidence seen of

their use in practice as seen previously by Thompson et al (2004) and Gabbay and le May (2011). Inbuilt information systems developed to support QOF were used in practice, although this was often just to print patient information leaflets. Although evidence based guideline support systems, for example, 'Clinical Knowledge Summaries' and 'Map of Medicine', have been developed to support this role the nurses were less likely to access these and more likely to ask colleagues for advice. This was seen for both minor illness consultations and for aspects of the CDM work where the nurses felt less familiar, for example chronic kidney disease, where they were more likely to seek guidance from the GPs rather than seek evidence from the guideline. Asking colleagues was not simply an easily accessible source of knowledge but a way to enhance understanding of complex information or seek help in areas where the nurses' mindlines had not yet developed. Standardisation contributed to practice nurses' knowledge use. However, similar to individual knowledge gained from propositional and non-propositional sources, this was subject to transformation or substitution where the knowledge from the standardised source didn't appear to fit with the clinical encounter, or where there was an overall lack of understanding of the knowledge presented.

8.2.3 Organisational context and its influence on dissemination of knowledge

How knowledge was disseminated to the practice nurses was an important area of investigation and subsequently formed a key element within my proposed conceptual framework. Internal dissemination rather than the external diffusion process outlined by Rogers (2003) was seen to be a more influential concept on the practice nurses' knowledge utilisation. Systematic reviews mapping early work in the field of research and knowledge utilisation (Estabrooks et al 2003) noted that much of this work focused on individual determinants, with Rogers' diffusion of innovations theory evident as the dominant theoretical framework. Rogers (2003) diffusion work suggests that social change occurs when new ideas are invented, diffused, adopted or rejected, Greenhalgh et al (2004) argues that the interaction between the innovation, the adopter and the context in which this takes

place is what influences this change, rather than the attributes of the setting or the intervention. Furthermore it has been argued that dissemination of robust evidence alone does not influence knowledge utilisation (Dopson et al 2002, Rycroft-Malone et al 2002). The data in my study indicated that knowledge flowed into practices from various sources (QOF, local and global guidelines, educational events) but that organisational culture had an impact on how this knowledge was disseminated and used. As Meijers et al (2006) note in their systematic review of studies using the PARIHS framework, determining the concept of organisational context on knowledge utilisation is challenging due to the multi-faceted, complex and varied environments in which nurses work. The part time nature of practice nurse employment created its own difficulties with regard to the development of effective dissemination systems and the practice nurses were generally subject to vertical rather than horizontal dissemination, which could be attributed to their position as GP employees. Organisational culture towards sharing of knowledge was however supportive, with some opportunities for team discussion and reformulation of evidence. Internal and external educational networking and continuing education, combined with the nurses' own professional responsibility provided opportunities for the seeking out of new knowledge which could then be discussed with practice colleagues, prior to adoption.

8.2.4 Individual Knowledge Conversion

At the centre of my proposed conceptual framework was the process of knowledge conversion. Nonaka and Takeuchi's (1995) model suggests that knowledge creation is anchored to the assumption that human knowledge is created and expanded through a process called knowledge conversion, a social interaction between tacit and explicit knowledge taking place between individuals. Combined knowledge is transformed into something that 'makes sense' to practitioners when put within the context of their own existing knowledge and experience, this sense making and the actions derived from it ultimately defining clinical decisions. This was evident throughout the data with various elements of Nonaka and Takeuchi's (1995) SECI spiral (*socialization, externalization,*

combination and internalization) observed, although similar to Gabbay and le May's (2011) study this was not seen in the clear sequence that the SECI spiral implies. Apparent was that evidence from various sources, including that from guidelines and standardisation in the form of QOF, would be influenced both by organisational context and by individual knowledge gained from both formal and informal education and experience, which subsequently influenced the decision made within the clinical encounter. Rycroft-Malone et al's (2013) latest PARIHS study notes that the prominent role played by individuals as part of the interaction between evidence and context is not currently explicit within the PARIHS framework and proposes that successful implementation of evidence into practice is a planned facilitated process involving interplay between individuals, evidence, and context to promote evidence-informed practice. For evidence to impact on clinical decisions the underlying process of individual knowledge conversion cannot be discounted as it plays a central role.

8.2.5 Specific influences on decisions made in the clinical encounter

Findings showed that use of knowledge within the clinical encounter was subject to two further influences, the limited real time of the consultation in which care is delivered and the influence of the patient themselves. As Rycroft- Malone et al (2007) highlight, identifying and being clear about what the other motivating factors are beyond the need for standardising care, may lead to greater commitment to the initial and sustained use of these approaches in practice.

8.3 More than Mindlines?

The concept of clinical mindlines initially proposed by Gabbay and le May in 2004 and presented in further detail in their 2011 book *Practice-Based Evidence for Healthcare* challenged the evidence based practice movement to rethink its assumptions, examining afresh how clinicians use knowledge. Gabbay and le May's work was unique and broke new ground in the way they considered the wide, variable and scattered range of influences

inherent in primary care practitioners' knowledge. They argued that too much effort has been spent on idealised models of how clinicians ought to use evidence, with not enough being done to understand why they so often don't, purporting that their study which was firmly rooted in real practice whilst drawing on a wide breadth of theoretical frameworks examined afresh how clinicians use knowledge. Whilst providing valuable insights into practitioners' knowledge, in order to substantiate the concept of mindlines Gabbay and le May (2011) drew on previous studies involving medical students and newly qualified doctors to support elements of their development, particularly in relation to the growth of mindlines, which they refer to as 'laying the foundations' and 'cultivating contextual adroitness'. Although these concepts are additionally supported with data from the primary care practices in which their ethnographic study was based, these concepts cannot be applied directly to other professions without considering the differences in how they are prepared for their roles. Gabbay and le May's work did not delineate the specific influences that impact on the practice nurse role, indeed they recommended that the methodology they employed is repeated with other professional groups. The specific influences evident in my data included the practice nurses' status as employees of general practitioners; the reduced hours they spent in the role with many nurses working part time; the influence of a very different type of educational preparation that reflected the age of the practice nurse population and when they trained; and their inexperience of the uniqueness of primary care practice when they enter the practice nurse role. Additionally the data identified that the practice nurses lacked collective mindlines for the more complex cases and conditions they were increasingly presented with.

8.3.1 Communities of Practice

Drawing on Lave and Wenger (1991) and Wenger's (1998) concept of communities of practice, Gabbay and le May (2011) suggested that CoPs were evident in the practice they observed, which contributed to informal networking. They argued that the key concepts of a CoP were present, learning from each other, establishing meaning in what they do and

developing their own identity into how individuals fit into both the context they are learning about and as a group as a whole. Furthermore they suggested that the CoP they observed consisted of a number of overlapping networks, informal and formal, unidisciplinary and multidisciplinary and including internal and external networks. However the main practical features suggested as being present in a CoP in Gabbay and le May's (2011) study were mainly identified in specific relation to a practice project being undertaken at the time for a formal quality award (prior to QOF) this specific project encouraging the growth of informal networks to share information. Research previously undertaken by Bate and Robert (2002) on three NHS collaboratives has suggested that to increase the impact and effectiveness of knowledge sharing, networks are superior to hierarchies to facilitate knowledge generation and transfer but that time-limited project teams such as that observed by Gabbay and le May (2004, 2011) are unlikely to be sustainable in terms of sustaining changes and quality improvements. For networking to create a CoP, a sense of mission is required, something that people want to accomplish arising from their shared value and understanding (Allee 2000). Certainly elements of this were evident in my data in the groups and meetings in which the practice nurses participated, but whilst sharing of knowledge, social learning and active participation was partially evident, these did not appear to constitute a CoP, with the opportunity to reformulate knowledge on an equal basis not always available.

8.4 Autonomy and professional power

Practice nurses working in the primary care environment are subject to the unique position of not just being part of a multi-disciplinary team providing care to NHS patients but are also employees of the GPs with whom they work. Primary care, as discussed in chapter one, is affected by both internal and external factors that impacts on both the work of those within it and inevitably the access to, and use of knowledge that drives the clinical decisions practitioners make. Evident from my data was variance in organisational structural arrangements for sharing and disseminating of knowledge and that despite a supportive organisational culture towards knowledge sharing, the position in which practice nurses are

situated limits opportunities for discussion and reformulation of knowledge. Knowledge dissemination through standardisation in the form of QOF took precedent over other forms of knowledge, particularly knowledge specific to purely nursing activities that is not addressed in the QOF. Whilst it has been argued that funding of specific services can facilitate role development amongst practice nurses, it has also been noted to constrain nurses to specific tasks which generate practice income (Halcomb et al 2008). Cutcliffe (2008) argues that aspiring to professional status by adopting the normative orthodoxies and dominant discourses of medical colleagues maintains nurses in a mostly subservient role, reinforcing this discourse as the only viable one and that nurses and clients might be better served by the creation and proliferation of a parallel discourse where their underpinning values are seen as equal, with an opportunity for nursing to perhaps focus on a health orientated rather than a sickness orientated healthcare system.

Furthermore Elston and Holloway (2001) argue that interpersonal and inter-professional conflict can arise from a lack of understanding of each others' professional roles and values, with members of each profession having different ideologies and subcultures developed during their education and training. Their study on the impact of primary care reforms in the UK on inter-professional working suggests that independent contractor status appears to be a source of power for GPs and that they are fearful of both losing this power to other professions and the blurring of boundaries, however this is being increasingly eroded by the state with new developments and increasingly bureaucratic roles (Elston and Holloway 2001). Additionally they argue that practice nurses expressed feelings of powerlessness in this inter-professional arena which appeared to be conditioned to some extent by traditional hierarchical training. Halcomb et al (2008) argue that general practice has lagged behind the acute care sector which has become less hierarchical and more inter-disciplinary and that this relates to negative power relationships relating to the employer-employee relationships and gender differences between the GP and nurse, as well as the funding model which privileges services delivered by the GP. Although Halcomb et al's (2008) argument is in

relation to Australian practice nursing, this argument applies equally to the UK system. Power and empowerment are complex issues, Bradbury-Jones et al (2008) draw on Foucault's (1980) writings arguing that power and knowledge are intertwined and that it is incumbent upon nurses to question the truths that hold sway within nursing and consider whose interests they best serve. They suggest that empowered patients who want to be actively involved in their care are at risk of being labelled 'difficult' and their knowledge disqualified. Bradbury-Jones et al (2008) suggest that nurses need to pay attention to this disqualified knowledge in relation to patients and themselves, being alert to the way in which they and service users are held within limiting and subjugating discourses. Whilst a move towards standardised knowledge could be seen in my data, there was also evidence of incidents that practice nurses were prepared to adapt knowledge to meet the needs of individual patients.

Potentially some tensions exist between the position in which practice nurses are situated and the nature in which knowledge is utilised in the primary care environment. As I have argued, the nature of the practice nurse role and their positioning resulted in them receiving knowledge, in particular medically prescribed knowledge, through horizontal rather than vertical dissemination, unlike the GPs who had more opportunity to share and reconstitute knowledge sourced from internal and external agencies. Opportunities to learn and engage in informal and unstructured conversations with others with similar responsibilities, has been noted as a valuable feature of networks (Lankshear et al 2013). The limited opportunity to discuss and reformulate knowledge within a wider network to an extent limited the practice nurses ability to practice as truly autonomous practitioners. This was not always the case, however, and the more experienced nurses were more confident in raising issues for discussion based on situations which they felt had caused them to question current practice. The nurses with less experience in the primary care environment were less likely to question existing practice and more likely to rely on untested knowledge from colleagues. The nurse practitioner role allowed for a more autonomous approach, enhanced by non-medical

prescribing which enabled completion of the consultation, although it is acknowledged that at the time of data collection only one nurse practitioner in Riverside and the nurse manager in Mountainside were non medical prescribers. This is consistent with findings from Rycroft-Malone et al (2007) that where nurses practised autonomously they could deliver more streamlined care that did not require follow up or referral to doctors. A true inter-professional approach results in blurred professional boundaries and requires trust, tolerance and willingness to share responsibility (Nolan 1995) and there was certainly evidence of a move towards this, particularly in Riverside, where there was evidence of appreciation of the independent role of the practice nurse and the knowledge that they contributed.

8.5 A bricolage of knowledge

A further concept, the idea of accessing a bricolage of knowledge, using 'whatever is at hand to deal with the current task' (Gobbi 2004, p.119) seems suitable to add to the mindlines theory when considering the work of practice nurses who are subject to different preparation, different role constructs and different restraints. Gobbi's work, drawing on the theories of Levi-Strauss (1966) suggests that nurses learn from multi-disciplinary knowledge bases, then either acquire sufficient familiarity to apply them to practice situations or learn them through the lens of that discipline. The bricoleur solves a problem using the tools at hand, although those tools are shaped and adapted to fit the situation being addressed (Levi-Strauss 1966). Evident from my data was that the practice nurses did not always have the mindline to draw upon as Gabbay and le May (2011) suggest, but dependent on their own experience and knowledge would make do with what was at hand, this may be a knowledgeable colleague, a protocol or guideline or a notebook of useful contacts. Warne and McAndrew (2009) argue that nurses draw upon a heterogeneous collection of fragments from varied sources which are then deconstructed and reconstructed within the context of working with an individual patient, a process that I observed on a number of occasions. Bricoleurs who possess knowledge and resources can also be effective in bringing about change (Cleaver 2002) and examples of this were seen in both sites. Aagard (2009)

suggests that the ability to utilise what is at hand to create something new or fill an unmet need is a universal nursing trait. The role of the practice nurse has grown and expanded, they have been presented with changes both from the type of work they were presented with, which required elements of what was previously considered medical knowledge, and standardisation which had impacted on the type of care they provided. The concept of bricolage provides additional practical and theoretical insights into the way practice nurses use knowledge.

9. Chapter Nine: Conclusion and recommendations

9.1 Summarising the study

The aim of this thesis was to explore the educational, organisational and contextual issues impacting on the access and use of knowledge by general practice nurses, including the role of evidence based guidelines, and to further explore the way in which this knowledge was implemented in relation to the clinical and nursing management of patients. The data allowed for a wider interpretation of the social construction of practice nurses knowledge, which was found to be subject to a variety of influences prior to and during implementation.

This thesis began with briefly revisiting the history of EBP; a concept which arose from EBM, a practice which initially centred on evidence based individual decision-making. I outlined how evidence based guidelines had increasingly moved to the forefront of the EBP movement alongside a growing focus on standardisation, which Timmermans and Berg (2003) have argued form an attractive strategy for less established professions. I discussed how EBM had rapidly been adopted and adapted under the guise of EBP, emphasising that this approach was not without its critics, with a lack of a substantial body of nursing research to guide practitioners (Moule and Goodman 2009) and little focus played to the influence of context (Kitson 1997). I then discussed the development of the practice nurse role, outlining the part practice nurses now play in the provision of first contact care and CDM management within the primary care environment and suggested that macro policy influences aimed at standardising primary care have potentially influenced the practice nurse role. With the continuing national focus on care provision in primary care I reinforced why practice nurses are an important group to study.

In order to establish how research in the field of knowledge utilisation developed and progressed, I carried out a historical scoping review of literature relating to research and knowledge utilisation and evidence implementation, whilst paying particular attention to empirical studies that included practice nurses. When this field of research began in the 1970s the centre of attention was on individual attributes, with later work increasingly emphasising the influence of context and organisational behaviour (Kitson et al 1998, McCormack et al 2002) and the links between knowledge utilisation and decision-making (Thompson 1999). More recent bodies of work focusing on KT, KTE and KTA have stressed the importance of appreciating the influence of other disciplines on the knowledge management agenda (Dopson et al 2002, Fitzgerald et al 2002, Ferlie et al 2005, Greenhalgh 2004). The scoping review established that very few studies have focused purely on practice nurses in relation to attitudes towards, and knowledge of, research and knowledge utilisation and evidence implementation, those which have generally used self report questionnaires. Practice nurses have, however, demonstrated enthusiasm for evaluated sources of information such as guidelines. The lack of in depth studies including practice nurses provided the rationale for the ethnographic approach I subsequently took to the investigation presented in this thesis.

Utilising an armamentarium of theories I proposed a conceptual framework to underpin the study presented in this thesis, drawn from organisational, social, educational and evidence implementation theorists. These included: diffusion of innovations (Rogers 1962); knowledge management (Nonaka and Takeuchi 1995); knowledge acquisition (Eraut 2000, 2007); collective learning though 'communities of practice' (Lave and Wenger 1991); and Timmermans and Berg's (2003) work on standardisation drawn from an STS (science, technology and society) and medical sociology perspective. The concept of 'clinical mindlines' (Gabbay and Le May 2004, 2011) provided a consistent thread throughout the thesis. Interviews, observation and documentary analysis of available knowledge sources including guidelines and protocols were used to generate

data and I provided an account of research processes justifying my choice of ethnography, the research methods used and outlining the ethical and governance processes followed.

The analysis chapters began with an introduction to the two primary care practice sites used for data generation. I discussed the wider macro and local meso organisational and cultural influences impacting on the study sites and investigated the dissemination/ diffusion flows within each practice. I then examined the numerous sources of knowledge on which the practice nurses drew. These sources were themed in relation to their origins: individual knowledge; practice knowledge and global knowledge; analysing how the practice nurses used them and their views and perceptions of the impact and influence of differing types of knowledge, propositional and non-propositional. In the final data analysis chapter I considered how knowledge is managed and used within the micro level of the clinical encounter. Throughout the data chapters I considered the individual contextual factors identified by the literature review as being of key importance to research implementation, these included: education, support, time, access, climate and role. Time was considered in relation to the 'real time' (Smith and Farquhar 2000) of the clinical encounter. These were contextualised within the wider picture of the organisational influences on construction and implementation of knowledge and the influence of individual patient expectations on the clinical decisions made by the practice nurses. Finally I discussed the findings in relation to the conceptual framework presented in chapter three and outlined how the concept of bricolage adds further insight into the social organisation of practice nurses' knowledge utilisation.

This final chapter considers the lessons learnt from this study and the potential implications for future evidence implementation strategies on practice nurses, highlights

the original contribution of this PhD and provides recommendations for practice, education and future research.

9.2 Key lessons learnt

This study has generated data that demonstrates the impact of a number of influences on the social organisation and implementation of practice nurses' knowledge at macro, meso and micro levels. Macro level policies affecting all primary care practices in the UK have played their part in the way in which primary care services are delivered and financed, specifically in the format of the GMS contract (Department of Health 2003) and have been keenly felt at meso level. Restructuring of the NHS in Wales (Welsh Assembly Government 2009a) has led to an increasing focus on the type and quality of service provided in primary care with an emphasis on keeping patients out of the secondary care setting through effective delivery of both primary and community services (Welsh Assembly Government 2009b). As we have seen the practice nurse role has evolved in response to these wider service changes creating a more complex professional skill mix including an expanded health care assistant role, delineation between the more traditional practice nurse 'treatment room' role, the chronic disease management role and the diagnostic 'first contact' role undertaken by nurse practitioners and nurses participating in minor illness clinics.

In this study a mixture of organisational, cultural, educational and people-related factors were found to impact on knowledge utilisation taking place at the meso and micro level in the primary care practices. This included enthusiasm towards EBP both amongst the nurses and at practice level; a supportive culture towards education which included both in-house and more formal educational courses; fixed dissemination processes and standardisation embedded into computer templates that guided CDM consultations. Conversely an element of gate keeping built in to constrain the guidelines practices were bombarded with; limited access to decisions made through horizontal discussions;

professional training that had not prepared nurses to deal with uncertainty; the part time nature of the practice nurse role; the employer/employee relationship with GPs; limitations in accessing evidence in 'real time' and lack of applicability of evidence to all patient scenarios; are all factors that structurally constrain knowledge use and implementation. Combinations of these factors were identified in each site. In Mountainside, for example, the less experienced nurses would have preferred a more structured approach to internal dissemination and relied on a single source for organisational dissemination, although the more experienced nurses felt adequately informed. In Riverside a more individualised approach to access relevant knowledge was evident, specifically in relation to the minor illness role, with nurses identifying their knowledge needs through appraisal. In both sites the GPs were a key resource for in house educational provision. Propositional and non propositional knowledge was seen to impact on the nurses' constellation of knowledge in both practices and the nurses in both sites engaged in continual social learning.

The conclusion of Gabbay and le May's (2011) clinical mindlines study recognised that their analysis is only preliminary and that there is a need to replicate this study with other types of practices and clinicians of different professions, ages, career stages, competence levels and consultation styles. They suggest that a great deal more detail using observational and interpretative research methods is needed to understand the precise ways in which clinicians seek out new knowledge and what they and their patients do with it. As they recommend, this study has responded to this challenge focusing on the social and organisational features of knowledge utilisation rather than just the individual uptake of research evidence.

Findings noted that organisational culture in both practices was supportive of EBP, although dissemination of external and internal sources of knowledge did show some variation. The part time employment of practice nurses could sometimes result in patchy

dissemination. Unlike other nurses employed in the NHS, practice nurses are directly employed by general practice and subject to terms and conditions set by their general practitioner employers, who are not NHS employees but independent contractors to the NHS, resulting in an element of medical governance. In Mountainside the practice nurse manager took a key role in identifying appropriate sources of evidence and ensuring flow of knowledge into the team. She additionally identified the educational needs of the nursing team in relation to the wider needs of the organisation. Meeting these needs, however, was subject to the agreement of the GP partnership in their role as employers which can impact on practice nurses' autonomy, although the practice was extremely supportive of ongoing education. Riverside had a more individualised approach; the senior nurse practitioner represented the nursing team at practice management meetings, these meetings however tended to be more focused on practice business. One of the GPs was responsible for disseminating NICE guidelines that were thought to be relevant; an element of gatekeeping was therefore seen in both sites in relation to organisational dissemination. Nurses identified their knowledge needs individually through the appraisal system which resulted in positive change, although interestingly this resulted in GP led seminars, the expansion of the nursing role, as in other healthcare environments, particularly in relation to minor illness, consisting of taking on more routine work previously carried out by GPs.

Informal networking involving all practitioners was however limited. Some opportunities for horizontal networking in each practice were seen but the practice nurses often received information through a vertical approach in a more didactic fashion, something Greenhalgh et al (2004) notes is often seen in nursing, but is perhaps more common in practice nursing due to their unique employment position. Some elements of a CoP approach were seen in Riverside in relation to the clinical incident scenario outlined in chapter five, albeit on a small scale. In order to foster more effective knowledge dissemination and allow social construction of knowledge multi-disciplinary networks

need to be developed and integrated into practices, allowing tacit knowledge, which is notoriously 'sticky' and travels poorly between and in organisations (Szulanski 1996), to be transformed into explicit forms of knowledge.

Standardisation played a major part in both the change in practice nurses roles and how knowledge is mobilised, with the nurses taking overall responsibility for delivering the CDM targets set by the QOF, launched initially as part of the GMS contract (Department of Health 2003) and now administered by NICE to ensure the quality indicators have a sound and updated evidence base. Macro level policy in the form of the QOF has had an enormous impact on the way primary care services are delivered and structured, particularly in relation to CDM. Standardisation with associated financial rewards for practices resulted in computer templates developed to meet the needs of QOF taking over from alternative evidence based guidelines in both practices as the everyday sources of knowledge on which the practice nurses drew, in relation to certain chronic diseases (diabetes, asthma, cardiovascular disease(s)). The nurses were keen to point out that they felt their practice was evidence based in these areas prior to QOF and that little had changed. Standardisation in the form of QOF has been seen to have both a positive and negative influence, positive in its focus on improving EBP in relation to CDM, whilst negative in promoting template driven care that takes little account of individual patient need and enhances certain aspects of care at the detriment of others. However, evident from my data was that the nurses would adapt evidence where dictated by individual patient need

The data also revealed that traditionally developed nurse developed protocols, designed for local use were still seen as important and updated annually but were rarely accessed. This had resulted in the more traditional nursing care activities, such as wound care and interventions such as ear syringing, to be less influenced by evidence. These are also areas that remain uninfluenced by macro level standardisation.

Practice nurses have been encouraged and supported to develop their roles, with additional support provided in relation to decision making in the form of guidelines, protocols and decision aides, these new roles however demand increasing skills and knowledge and rapid growth of their mindlines. This change in role has resulted in the need for a new kind of knowledge, dealing with diagnostic uncertainty, a role that the medical profession are prepared for from an early stage in their training. As practice nurse roles have expanded and diversified they are faced with more complex decisions that involve developing their range of knowledge and skills in order to support them in the clinical decisions they are required to make.

The variety of knowledge sources on which the practice nurses drew were examined and presented in relation to individual knowledge, practice knowledge and global knowledge. I considered the impact of both propositional knowledge in the form of formal education and non-propositional knowledge in the form of tacit and experiential sources. Apart from one nurse, all the practice nurses had undergone their training in the 1970's and 1980's and experienced a more traditional training focusing on nursing care, rather than the diagnostic role many of them were now undertaking. The use of practice knowledge, or what Gabbay and Le May (2011) term "knowledge in practice"- useful and easily accessible knowledge with no checks on the quality of the evidence provided, was an area examined. Data indicated that knowledge from colleagues was not subjected to further quality checks and the nurses rarely referred to appraising the quality of the evidence they accessed. The practice nurses who had recently undertaken post registration education programmes were, however, far more aware of the range of evidence based sources available, particularly subject specific sources such as guidelines relating to hypertension and respiratory conditions and were more likely to mention the importance of ascertaining the quality of evidence. Guidelines, they noticed were invaluable, particularly when taking on a new role, such as the asthma clinic. Gerrish et al (2011a), using a modified version of the DEBP to determine the factors influencing the contributions of advanced practice nurses (APN's) in

acute and primary care settings to promoting EBP among front line nurses, similarly concluded that the nurses' skills varied, but those with Masters' qualifications perceived themselves to be more skilled in all aspects of EBP.

Despite the vast increase in evidence based sources and the availability of the internet at the majority of the work stations, these were accessed infrequently during clinical encounters. NICE guidelines were generally considered useful, particularly the flowcharts which could be laminated and displayed in the treatment rooms. An example of the cultural influence on guideline use was demonstrated through observation of one nurse practitioner who worked at the surgery part time and was the only practitioner to use 'Clinical Knowledge Summaries' due to the fact that this was a commonly used resource in his main 'out of hours' role. The other practice nurses in both Mountainside and Riverside were far more likely to access the in house computer information portals if they needed to seek further evidence which reinforces that familiarity plays a key role in the choice of an information source. This additionally relates to Rogers' (2003) innovation attribute of the 'observability' of a new practice, the extent to which its use by an individual is perceived by others in their social network. Organisational behaviour was a significant influence with regard to accessing knowledge sources.

Findings have indicated that the practice nurses used a combination of knowledge gained through formal education and social learning, which they combined with tacit and experiential knowledge prior to application in the clinical encounter. Within the CDM clinics this was further influenced by the standardised computer templates. The action taken was not necessarily related to any single knowledge source, as they would adapt their decision and judgement dependent on the physical and social needs of the individual patient, this could also be influenced by their own individual experience of dealing with similar scenarios. Where it was felt necessary evidence was used in another way, brought visibly into the encounter to 'persuade' the patient in regard to changing behaviour or to reinforce a

message. Generally the more complex the scenario the more likely the practice nurses would turn to further sources to support them in their decision; this might result in not making a decision and referring on.

The cognitive continuum model developed by Hamm (1988) suggests that the major determinants of whether a person engages in intuitive or rational decision making (influenced by the evidence base) depends on where the task lies on a three dimensional continuum, which includes the complexity of the task, the ambiguity of the task and the form of task presentation. Thompson et al (2000, 2004) suggest that knowledge of the task alone is not a sufficient basis for predicting whether analytic or intuitive reasoning will be used, with engagement with the task influenced by preference for humans as information sources, and that useful information sources are grounded in clinical reality (based on usefulness rather than research). They suggest, however, that complex tasks are more likely to result in a move away from analytical decisions and towards more intuitive decisions, particularly where time is short. This was not supported by my data, the practice nurses and nurse practitioners in both Mountainside and Riverside were more likely to seek further evidence where a task was complex. In fact where a task was straight forward the practice nurses tended to be less likely to think analytically and more likely to simply ask a colleague if they were unsure of a procedure, rather than seek an easily accessible guideline. Humans were, however, as Thompson et al (2000, 2004) found, generally the most preferable source of information in cases of uncertainty, providing information that was context specific rather than produced by a generic guideline. As I have argued, however, the nurses' knowledge was influenced by multiple, as opposed to single sources. The micro context of the decision also played a part, not only the type of decision but the 'real time' (Smith and Farquhar 2000) available within the clinical encounter in which to make this decision, which was limited. The least experienced nurses were more inclined to simply turn to colleagues for information or not question the evidence base of their practice. Gerrish et al (2008) similarly suggests that seniority plays a part in EBP, with senior nurses more confident in drawing on organisational

information, research publications and the Internet. They noted that junior nurses were more likely to lack either the confidence or authority to initiate change and were much more aware of barriers such as lack of time and availability of information. Senior nurses demonstrated an element of expert practice in relation to their confidence in gleaning information from a variety of sources, including individual patients and synthesising this to inform their practice (Gerrish et al 2008).

Focusing the analysis on the concept of clinical mindlines (Gabbay and le May 2004, 2011) it has been possible to explore the social organisation of nurses' knowledge utilisation. Examples of mindlines were evident, in both complex and more straightforward scenarios. Practice nurses' mindlines did however differ from the ones observed in Gabbay and le May's GPs. Firstly the mindlines acquired in the nurses' initial training had not prepared them for dealing with diagnostic uncertainty, nor did they possess the same level of knowledge related to physiology and 'pattern recognition'. The more experienced practice nurses had acquired the 'contextual adroitness' (Gabbay and le May 2004, 2011) of the experienced practitioner, defined as the knowledge, attitude and beliefs that underpin their roles. The nurse practitioners were undertaking a new role, one which they had been prepared for educationally, but the level of expertise seen in the nurse practitioner in Riverside was also related to her development of 'contextual adroitness' gained from her prior experience in a practice nurse role. The growing of this 'contextual adroitness' took time and this difference in the practice nurses' mindlines was related to their experience in primary care as well as their formal post registration education. The final element of Gabbay and le May's (2011) mindlines is 'spiralling knowledge', absorbing changes and new information about practice that involves gathering ideas from varying sources, sharing and discussing them, combining with their own and others' tacit and experiential knowledge, before they become either local policy or are incorporated into individual mindlines and some evidence of this was seen in both practices.

Finally I suggested a further insight into understanding the social organisation of practice nurses' knowledge, the concept of a bricolage of knowledge. To enhance EBP, a focus on developing networks within practice to enable sharing, discussion and transformation of knowledge will ensure that evidence is kept at the fore, integrated into practitioners' mindlines as appropriate or becoming part of a bricolage to be drawn upon and applied as appropriate.

9.3 Original contribution

This study makes an original contribution in a number of areas. Little attention has previously been paid to the social construction of practice nurses' knowledge utilisation. Using an ethnographic approach the investigation I report in this thesis mapped the everyday knowledge sources to which the practice nurses are exposed, prior to considering the impact of the development of mindlines, combined with the use of a 'bricolage' of knowledge, on the clinical encounter. This incorporated investigation of the wider influences of organisational, cultural and educational impact. Previous studies on practice nurses have used self-report to determine individual barriers impacting on research implementation and observation which have been shown to differ from observed reality. Interviews and observation, along with Q-methodological modelling, have been used to consider practice nurses' reported and observed information behaviour in the context of clinical decision- making (Thompson et al 2004, McCaughan et al 2005). However as far as I am aware no studies have considered in detail the wider organisational and cultural influences at both macro and meso levels, in conjunction with the influence of the individual patient at the micro level of the clinical encounter. Additionally Thompson et al's (2004) study interviewed the nurses prior to observation to investigate reported and observed information behaviour, whereas my approach was to observe first then interview after, providing an opportunity to dig deeper into the nurses' underlying thought processes and reasoning. This provided me with the unique opportunity to discuss some of the decisions I had observed and to determine to an extent the influences upon this decision, demonstrating how the practice nurses fuse together

research and practice based knowledge and deliver this in the context of the patient's needs, but also take into account organisational issues (such as the practice being closed on the weekend).

Gabbay and le May's (2004, 2011) work provided a valuable framework for this investigation, some key differences were noted, however, in the practice nurses who whilst using mindlines, drew on a number of additional sources dependent on the situation with which they were presented. The analyses advanced in this study amount to an original contribution in examining the influence of standardisation in the form of QOF (Department of Health 2003) on practice nurses' knowledge implementation, a process heavily influenced by financial incentives aimed at GPs, combined with the contextual and educational influences inherent in the development and growth of the role. As practice nurses' roles continue to develop and change they are faced with a new concept their initial training did not prepare them for, that of dealing with uncertainty. This study considered the impact of that uncertainty and how the varying complexity of the encounters with which they are presented impacts on the type of knowledge on which they draw. Some decisions are fairly straight forward and adherence to evidence is occurring through the use of standardised care influenced by QOF and through evidence based guidelines, but many of the encounters practice nurses are faced with include a degree of complexity that cannot be addressed through the evidence base, complicated by individual patient expectations and the wider organisational environmental influences. The weaving of theory throughout the data analysis chapters, using a compendium of varying theories drawn from a wide range of disciplines is an added strength of this study, this armamentarium of theories (Estabrooks et al 2006) supporting me in navigating my way through a complex contextual terrain. Messages from this study can be used to inform education and policy. Policy makers need to consider the uncertainties and vagaries of clinical practice whilst ensuring appropriate and accessible information is available for practice nurses at the point of care. Educationalists need to prepare practice nurses for the uncertainty of practice and focus on advising practice nurses

how to access quality assessed useful forms of evidence, as searching and appraisal is rarely carried out in everyday clinical practice.

9.4 Recommendations

9.4.1 Recommendations for practice

1. Primary care practices should increase the opportunity for horizontal networking between the members of the primary care team and provide practice nurses with the opportunity to develop, share and refine their knowledge.
2. The data presented in this thesis indicated that social learning influences the growth and development of knowledge and that development of more formal multi-disciplinary networks or communities of practice has the potential to enhance dissemination. Strengthened networking would encourage horizontal dissemination and provide the opportunity for all parties to discuss externally received information and translate it into a form that is useful for practice.

9.4.2 Recommendations for education

The impact of the Welsh Government's focus on moving healthcare services from acute to primary/community care is still being felt with nurses moved into roles for which they have had little preparation, with a lack of appreciation of the complex environment of primary/community care where the evidence base does not always fit the situation with which they are confronted.

1. Education clearly has a part to play and educationalists need to consider how to prepare nurses to access evidence appropriately, focusing on how knowledge is incorporated into practice, and placing appropriate emphasis on the importance of continued social learning.
2. Post registration programmes in particular should ensure that nurses receive specific preparation for the roles they will be undertaking in primary care, this should include preparation to deal with the uncertainties associated with clinical decision making.

3. Interdisciplinary pre and post registration models of education, which encourage health professionals to work together and combine the skills and knowledge of distinct professional groups to meet the needs of individual patients, should be developed to encourage sharing and implementation of evidence-based collaborative practices that can be tailored to meet specific individual patient need.
4. Pre registration programmes need to consider the changing nature of nursing roles and ensure nurses receive thorough preparation for the complexities of care with which they will be faced.

9.4.3 Recommendations for research

This study hopefully represents the start of an informed programme of research related to both primary and community nursing.

1. Further work needs to take place to consider how established implementation science models and frameworks can be adapted and developed to take into account the everyday complexities outlined in this thesis.
2. Further investigation is also indicated to determine the potential benefits of instigating multi-disciplinary communities and networks of practice that include patient and public involvement.
3. Interpretative research is required to determine patients' views of the impact of standardisation in the form of QOF on their ongoing care.
4. In addition to my interest in evidence utilisation I have a particular interest in long term condition management, another area where guidelines do not always fit, with patients often presenting with a complex mix of co-morbidities alongside specific social as well as health care needs. Future studies need to consider support strategies for nurses to use when caring for these patients, considering best practice drawn from systematic reviews of patients' perceptions of their anticipated physical and psychosocial needs.

References

Aagrad (2009) *Bricolage:* Making do with what is at hand. *Creative nursing* 15(2):82-84

Allee V. (2000) Reconfiguring the value network. *Journal of Business Strategy* 21(4):36-39.

Allen D. (2007) What do you do at work? Profession building and doing nursing. *International Nursing Review* 54(1): 41-8

Allen D. and Lyne P. (2006) *The Reality of Nursing research Politics, practices and processes.* Oxon: Routledge

Appleton J. (2009) *Starting a new research project* in Neale J (ed) *Research Methods for Health and Social Care.* Basingstoke: Palgrave Macmillan

Arksey H. and O'Malley L. (2005) Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology* 8: 1–14

Atkin K., Lunt N., Parker G. and Hirst M. (1993) *Nurses Count: a National Census of Practice Nurses.* York: Social Policy Research Unit, University of York

Backer TE. (1991) Knowledge utilization: The 3rd wave. *Knowledge: Creation, Diffusion, Utilization* 12(3): 225-40

Barbour RS. (1998) *Engagement, representation and presentation in research practice* in Barbour RS. and Huby G. (eds) *Meddling with Mythology AIDS and the Social Construction of Knowledge.* London: Routledge

Barbour RS. (2008) *Introducing Qualitative Research.* Los Angeles: SAGE

Baszanger L. and Dodier N. (2004) *Ethnography* in Silverman D (ed) *Qualitative Research. Theory, Method and Practice (*2nd edn*)* London: SAGE

Bate SP. and Robert G. (2002) Knowledge management and Communities of Practice in the Private Sector: Lessons for Modernizing the National Health Serve in England and Wales. *Public Administration* 80(4): 643-63

Becker HS. (1999) Problems of Inference and Proof in Participant Observation in Bryman A. and Burgess RG. (eds) *Qualitative Research Volume 11* London: Sage

Benner P. (1984) *From Novice to Expert: Excellence and Power in Clinical Nursing Practice.* Massachusetts: Addison-Wesley

Berg M. (1997) *Problems and Promises of the Protocol.* Social Science and Medicine 44(8): 1081-88

Bernard H. (1994) *Research Methods in Anthropology: Qualitative and Quantitative Approaches.* Sage Publications: Thousand Oaks, CA.

Brett Davies M. (2007) *Doing a successful research project.* Basingstoke: Palgrave Macmillan

BMA/NHS employers (2011) *Quality and Outcomes Framework guidance for GMS contract 2011/12* London: BMA/NHS employers

BMJ Publishing group (2011) *Clinical Evidence*. Available online at: http://clinicalevidence.bmj.com/ceweb/index.jsp. Accessed August 2011

Bonsall K., and Cheater F.M. (2008) What is the impact of advanced primary care nursing roles on patients, nurses and their colleagues? *International journal of Nursing Studies* 45(7): 1090-102

Brewer JD. (2000) *Ethnography.* Buckingham: Open University Press

British Thoracic Society and Scottish Intercollegiate Guidelines Network (2009) *British Guideline on the Management of Asthma.* London: British Thoracic Society

Bryman A. (1999) The Debate about Quantitative and Qualitative Research. in Bryman A. and Burgess RG.(eds) *Qualitative Research Volume 1.* London: SAGE

Bryman A. (2001) Introduction: A Review of Ethnography in Bryman A. (ed) *Ethnography Volume 1.* London: SAGE

Bryman A. (2004) *Social Research Methods.* (2nd edn) Oxford: Oxford University Press

Bryman A. and Burgess RG. (1999) Qualitative Research Methodology - A Review. in Bryman A. and Burgess RG. (eds) *Qualitative Research Volume 1.* London: Sage

Bulmer M. (1999) Ethical Problems in Social Research: The Case of Covert Participant Observation in Bryman A. and Burgess RG. (eds) *Qualitative Research Volume 1V.* London: Sage

Campbell S., Reeves D., Kontopantelis E., Middleton E., Sibbald B.S., and Roland M. (2007) Quality of primary care in England with the introduction of pay for performance. *New England Journal of Medicine* 357(2): 181–90

Carey L.(2003) Practice Nursing in Watkins D and Edwards J (eds) *Public Health and Community Nursing: Frameworks for Practice* (2nd edn) Edinburgh: Bailliere Tindall Elsevier

Carlson CL. and Plonczynski DJ. (2008) Has the BARRIERS Scale changed nursing practice? An integrative review. *Journal of Advanced Nursing* 63: 322–33

Carrier J. and Brassey J. (2006) How to find evidence to reliably inform practice. *Practice Nursing* 17(1*):* 40-3

Carrier J. (2009) *Evidence Based Practice.* in Carrier J. (ed) *Managing Long-term Conditions and Chronic Illness in Primary Care - A guide to good practice*. Oxon: Routledge

Centre for Workforce Intelligence (2012) *Workforce Risks and Opportunities Practice Nurses.* Surrey: Centre for Workforce Intelligence

Chaudhry B., Wang J., Wu S., Maglione M., Mojica W., Roth E., Morton S.C. and Shekelle PG. (2006) Systematic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care. *Annals of Internal Medicine* 144(10): 742-52

Chew-Graham C., Hunter C., Langer S., Stenhoff A., Drinkwater J., Guthrie E. and Salmon P. (2013) How QOF is shaping primary care review consultations: a longitudinal qualitative study *BMC Family Practice* 14:103

Cioffi J. (1997) Heuristics, servants to intuition, in clinical decision-making. *Journal of Advanced Nursing* 26: 203-8

Cioffi J. (2002) *What are clinical judgements?* in Thompson C. and Dowding D. (eds) *Clinical Decision-making and Judgement in Nursing.* Edinburgh: Churchill Livingstone
Cleaver F. (2002) Reinventing institutions: Bricolage and the social embeddedness of natural resource management. *European Journal of Development Research* 14 (2): 11–30

Clinical Knowledge Summaries (2009) *Urinary tract infection (lower) women.* Available online at: http://www.cks.nhs.uk/urinary_tract_infection_lower_women#-384783. Accessed July 2010

Closs SJ. and Bryar RM. (2001) The BARRIERS scale: does it 'fit' the current NHS research culture? *NT Research* 6: 853-65

Cochrane A. (1972) *Effectiveness and efficiency: random reflections on health services* London: Royal Society of Medicine press: London

Comte A. (1896) *The positive philosophy of Auguste Comte: freely translated and condensed by Harriet Martineau, with an introduction by Frederic Harrison. (Volume 1)* London: Bell & Sons

Cox SJ. and Holden JD. (2007) A retrospective review of significant events reported in one district in 2004–2005. *British Journal of General Practice* 57: 732–36

Crilly T., Jashapara A. and Ferlie E. (2009) *Research Utilisation & Knowledge Mobilisation-A Scoping Review of the Literature.* National Coordinating Centre for the Service Delivery and Organisation: London School of Hygiene & Tropical Medicine

Cross S. (2006) Supporting an evolving nurse role. *Practice Nursing* 7(9): 420-2

Davies S. (1999) Practice nurses' use of evidence based research. *Nursing Times* 95: 57-60

Davis K., Drey N. and Gould D. (2009) What are scoping studies? A review of the nursing literature. *International Journal of Nursing Studies* 46: 1386-400

Denzin N. (1989) *The Research Act: A Theoretical Introduction to Sociological Methods* (3rd edn) New Jersey: Prentice Hall

Denzin N. and Lincoln Y. (1998) Entering the Field of Qualitative Research. in Denzin N. and Lincoln Y. (eds) *Collecting and Interpreting Qualitative Materials.* London: Sage

Department of Health (1990) *General Medical Services Council - New GP contract.* London: HMSO

Department of Health (1991) *Research for Health: A Research and Development Strategy for the NHS.* London: HMSO

Department of Health (2000a) *The NHS Plan: a plan for investment, a plan for reform* London: HMSO

Department of Health (2000b) *An organisation with a memory* London: The Stationery Office. Available online at: http://www.clinicalgovernance.scot.nhs.uk/section5/documents/Org_with_mem_001.pdf. Accessed August 2010

Department of Health (2002a) *Securing Our Future Health: Taking A Long-Term View - The Wanless Review.* London: HMSO

Department of Health (2002b) *Liberating the Talents.* London: The Stationery Office

Department of Health (2003) *Delivering Investment in General Practice: implementing the new GMS contact.* London: HMSO
Department of Health (2005) *Research governance framework for health and social care: second edition* London: HMSO

Dixon A., Khachatryan A., Wallace A., Peckham S., Boyce T. and Gillam S. (2011) *The Quality and Outcomes Framework: does it reduce health inequalities?* London: HMSO

Dopson S., FitzGerald L., Ferlie E., Gabbay J. and Locock L. (2002) No Magic Targets! Changing Clinical Practice To Become More Evidence Based. *Health Care Management Review* 27(3): 35–47

Dopson S., Locock L., Gabbay J., Ferlie E. and Fitzgerald L. (2003) Evidence based Medicine and the Implementation. Gap *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine* 7(3): 311-330

Dowsell G., Harrison S. and Wright J. (2001) Clinical guidelines: attitudes, information processes and culture in English primary care. *International Journal of Health Planning Management* 16(2): 107-24

Dreyfus H. and Dreyfus S. (1986) *Mind over machine: the power of human intuitive expertise in the era of the computer.* New York: Free Press

Dunn V., Crichton N., Roe B., Seers K. and Wiliams K. (1996) Using research for practice: a UK experience of the BARRIERS Scale. *Journal of Advanced Nursing* 27: 1203-10

Eddy DM. (1990). Practice policies: where do they come from? *Journal of the American Medical Association* 263(9): 1265, 1269, 1272

Eddy D.M. (2005) Evidence-based medicine: a unified approach *Health Affairs* 24(1): 9-17

Edwards D., Hawker C., Carrier J. and Rees C. (2011) The effectiveness of strategies and interventions that aim to assist the transition from student to newly qualified nurse. *JBI Library of Systematic Reviews* 9(53): 2215-23

Elston S. and Holloway I. (2001) The impact of recent primary care reforms in the UK on interprofessional working in primary care centres *Journal of Interprofessional Care* (1):19-27

Eraut M. (1985) Knowledge creation and knowledge use in professional contexts. *Studies in Higher Education* 10(2):117-33

Eraut M. (1994) *Developing professional knowledge and competence.* London: Falmer Press

Eraut M. (2000) Non-formal learning and tacit knowledge in professional work. *British Journal of Educational Psychology* 70: 113–136

Eraut M. (2002) Conceptual Analysis and Research Questions: Do the Concepts of "Learning Community" and "Community of Practice" Provide Added Value? Paper presented at the *Annual Meeting of the American Educational Research Association* (New Orleans, LA, April 1-5, 2002)

Eraut M. and Hirsch W. (2007) *The Significance of Workplace Learning for Individuals, Groups and Organisations* Oxford and Cardiff Universities: Economic & Social Research Council Centre on Skills, Knowledge and Organisational Performance

Eraut M. (2008) *How Professionals Learn Through Work.* Surrey: University of Surrey

Eraut M. (2011) *How might we understand the complexities of theoretical and practical knowledge and how do they inter-relate?* University of Chester: Presentation notes

Estabrooks C. (1998) Will evidence based nursing practice make practice perfect? *Canadian Journal of Nursing Research* 30: 15–36

Estabrooks C., Floyd J., Scott-Findlay S., O'Leary K. and Gushta M. (2003) Individual determinants of research utilization: a systematic review. *Journal of Advanced Nursing* 43(5): 506-20

Estabrooks C., Winther C. and Derksen L. (2004) Mapping the Field: A Bibliometric Analysis of the Research Utilization Literature in Nursing. *Nursing Research* 53(5): 293-303

Estabrooks C., Thompson DS., Lovely JE. and Hofmeyer A. (2006) A guide to knowledge translation theory. *The Journal of Continuing Education in the Health Professions* 26(1): 25-36

Estabrooks CA., Squires JE., Standberg E., Nillson-Kajermo K., Scott S.D., Profetto-McGarth J., Harley D. and Wallin L. (2011) Toward better measures of research utilization: a collaborative study in Canada and Sweden. *Journal of Advanced Nursing* 67(8): 1705–18

Eve R. and Gerrish K. (2001) Roles, responsibilities and innovative capacity: the case of practice nurses. *Journal of Community Nursing online* 15(9) Available online at: http://www.jcn.co.uk/journal.asp?MonthNum=09&YearNum=2001&Type=backissue&ArticleID=384. Accessed 07/08/07

Evidence based Medicine Working Group (1992) Evidence based Medicine-A New Approach to Teaching the Practice of Medicine. *Journal of American Medical Association* 268(17): 2420-5

Eynon J., Carrier J., Rees S. and Cartwright A. (2012) Mothers' and health visitors' perceptions of the support provided to mothers who have experienced domestic violence: A systematic review. *JBI Library of Systematic Reviews* 10(42): 2711-84

Ferlie E., Fitzgerald L., Wood M. and Hawkins M. (2005) The Nonspread of Innovations: The Mediating Role of Professionals. *Academy of Management Journal* 48(1): 117-34

Fielding N. (1993) *Ethnography* in Gilbert N. (ed) *Researching Social Life.* London: Sage

Fitzgerald L., Ferlie E., Wood M. and Hawkins C. (2002) Interlocking interactions, the diffusion of innovations in health care. *Human Relations* 55(12): 1429–49

Flemming K. and Fenton M. (2002) *Making sense of research evidence to inform decision-making* in Thompson C and Dowding D (2002) (eds) *Clinical Decision-making and Judgement in Nursing* Edinburgh: Churchill Livingstone

Freshwater D. and Bishop V. (2004) *Nursing Research in Context.* Basingstoke: Palgrave Macmillan

French P. (1999) The development of Evidence Based Nursing. *Journal of Advanced Nursing* 29: 72-8

Foucault M. (1980) *Power/Knowledge: Selected Interviews & Other Writings 1972-1977* (Gordon C., ed.), Pantheon, New York.

Fox R. (1979) *Essays in medical sociology.* New York: John Wiley & Sons

Foxcroft D. and Cole N. (2000) Organisational infrastructures to promote evidence based nursing practice. *Cochrane Database of Systematic Reviews* Issue 3.

Funk SG., Tornquist EM. and Champagne MT. (1989) A model for the dissemination of nursing research. *Western Journal of Nursing Research* 11(3): 361-72

Funk SG, Champagne MT, Wiese RA. and Tornquist EM. (1991a) BARRIERS: the Barriers to Research Utilization Scale. *Applied Nursing Research* 4(1): 39–45

Funk SG., Champagne MT., Wiese RA. and Tornquist EM. (1991b) Barriers to using research findings in practice: the clinician's perspective *Applied Nursing Research* 4: 90–5

Gabbay J. and le May A. (2004) Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care *British Medical Journal* 329: 1013-6

Gabbay J. and le May A. (2011) *Practice-Based Evidence for Healthcare Clinical Mindlines* London: Routledge

Gans HJ. (1968) The Participant Observer as Human-Being: Observations on the Personal Aspects of Fieldwork. in Becker HS. (ed) *Institutions and the Person: Papers Presented to Everett C. Hughes* Chicago: Aldine

Geer B. (1999) First days in the Field. in Bryman A., and Burgess R. (eds) *Qualitative Research Volume 111.* London: Sage

Geertz C. (1973) *The Interpretation of Cultures.* New York: Basic Books

Gemmell I., Campbell S., Hann M., Sibbald B. (2009) Assessing workload in general practice in England before and after the introduction of the pay-for-performance contract. *Journal of Advanced Nursing* 65(3): 509-15

Gerrish K. (2003a) Evidence based practice: unravelling the rhetoric and making it real. *Practice Development in Health Care* 2: 99–113

Gerrish K. (2003b) Self and others: the rigour and ethics of insider ethnography. in Latimer J. (ed) *Advanced Qualitative Research for Nursing* Oxford: Blackwell

Gerrish K., Ashworth P., Lacey A., Bailey J., Cooke J., Kendall S. and McNeilly E. (2007) Factors influencing the development of evidence based practice: a research tool. *Journal of Advanced Nursing* 57(3): 328–38

Gerrish K., Ashworth P., Lacey A. and Bailey J. (2008) Developing evidence based practice: experiences of senior and junior clinical nurses. *Journal of Advanced Nursing* 62(1): 62–73

Gerrish K. and Cooke J. (2013) Factors influencing evidence-based practice among community nurses. *Journal of Community Nursing* 27(4): 98-101

Gerrish K., Guillaume L., Kirshbaum M., McDonnell A., Tod A. and Nolan M. (2011a) Factors influencing the contribution of advanced practice nurses to promoting evidence based practice among front-line nurses: findings from a cross-sectional survey. *Journal of Advanced Nursing* 67(5): 1079-90

Gerrish K., McDonnell A., Nolan M., Guillaume L., Kirshbaum M. and Tod A. (2011b) The role of advanced practice nurses in knowledge brokering as a means of promoting evidence based practice among clinical nurses. *Journal of Advanced Nursing* 67(9): 2004-14

Gigerenzer G. (1991) How to Make Cognitive Illusions Disappear: Beyond "Heuristics and Biases" Published in: Stroebe W. and Hewstone M. (eds) *European Review of Social Psychology* 2: 83–115 Chichester: Wiley

Gillam S. (2010) Should the Quality and Outcomes Framework be abolished? Yes. *British Medical Journal* 340:c2710 Available online at: http://www.bmj.com/content/340/bmj.c2710. Accessed on April 2011

Gillam S., Siriwardena A. and Steel N. (2012) Pay-For-Performance in the United Kingdom: Impact of the Quality and Outcomes Framework-A Systematic Review *Annals of Family Medicine* 10(5):461-8

Glaser BG. and Strauss A. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research.* Chicago: Aldine Publishing Company

Glasziou P. (2011) Foreword. in Howick JH. (ed) *The Philosophy of Evidence based Medicine.* Oxford: Wiley-Blackwell

Gobbi M. (2004) Nursing practice as bricoleur activity: a concept explored. *Nursing Inquiry* 12(2): 117-5

Gold RL. (1958) Roles in Sociological Fieldwork. *Social Forces* 36: 217-23

Goode E. (1999) The Ethics of Deception in Social Research: A Case Study. in Bryman A. and Burgess RG. (eds) *Qualitative Research Volume 1V.* London: Sage

Gosden T. and Torgenson D. (1997) The effect of fundholding on prescribing and referral costs: a review of the evidence. *Health Policy* 40: 103-114

Graham ID., Logan J., Harrison MB., Straus S., Tetroe J., Caswell W. and Robinson N. (2006) *The Journal of Continuing Education in the Health Professions* 26(1): 13-24

Greatbatch D., Hanlon G., Goode J., O'Caithain A., Strangleman T. and Luff D. (2005) Telephone triage, expert systems and clinical experience. *Sociology of Health and Illness* 27(6): 802-30

Greenhalgh T. (2002) 'Intuition and evidence-uneasy bedfellows?' *British Journal of General Practice* 52: 395-400

Greenhalgh T., Robert G., Macfarlane F., Bate P. and Kyriakidou O. (2004) Diffusion of Innovations in Service Organisations: Systematic Review and Recommendations. *The Milbank Quarterly* 82(4): 581-629

Greenhalgh T. (2010) *How to Read a Paper (*4th Edn*)* Oxford: Wiley Blackwell

Greenstone G. (2009) The roots of evidence based medicine *British Columbia Medical Journal* 51(8): 342-4

Griffiths J., Bryar R., Closs S., Cooke J., Hostick T., Kelly S. and Marshall K. (2001) Barriers to research implementation by community nurses. *British Journal of Community Nursing* 6(10): 501-10

Guba EG. (1990) *The alternative paradigm dialogue.* In Guba EG. (ed) *The paradigm dialogue.* California: Sage

Guba EG. and Lincoln YS. (1994) Competing paradigms in qualitative research. in Denzin NK.and Lincoln YS. (eds) *Handbook of Qualitative Research* California: Sage

Halcomb E.J, Davidson P.M. and Patterson E. (2008) Promoting leadership and management in Australian general practice nursing: what will it take? *Journal of Nursing Management* 16:846-852

Hallett C., Austin L., Caress A. and Luker K. (2000) Wound care in the community setting: clinical decision-making in context *Journal of Advanced Nursing* 31(4): 783-93

Hamm RM. (1988) Clinical intuition and clinical analysis: expertise and the cognitive continuum in Dowie J. and Elstein A. (eds) *Professional judgement: A reader in clinical decision-making* Cambridge: University press

Hammersley M. (1992) Deconstructing the qualitative-quantitative divide. in Hammersley M. *What's Wrong with Ethnography?* London: Routledge

Hammersley M. (1999) Deconstructing the Qualitative-Quantitative Divide in. Bryman A., and Burgess R. (eds) *Qualitative Research Volume 1* London: Sage

Hammersley M. and Atkinson P. (1995) *Ethnography: Principles in Practice*. (2nd edn) London: Routledge

Hammersley M. and Atkinson P. (2007) *Ethnography: Principles in Practice.* (3rd edn) London: Routledge

Hammond K., Stewart TR., Brehmer B. and Steinmann DO. (1975) Social Judgment Theory. in Kaplan MF. and Schwartz Sn (eds) *Human Judgment and Decision Processes* New York: Academic Press, Inc.

Hammond K. (1988) Judgement and decision-making in dynamic tasks. *Information and Decision Technologies* 14: 3-14

Harrison S., Dowswell G. and Wright J. (2002) Practice nurses and clinical guidelines in a changing primary care context: an empirical study. *Journal of Advanced Nursing* 39(3): 299-307

Harrison S. and McDonald R. (2003) Science, consumerism and bureaucracy: New legitimations of medical professionalism. *The International Journal of Public Sector Management 16*(2): 110-21

Havelock RG. (1969) *Planning for innovation through dissemination and utilization of knowledge.* Ann Arbor, MI: Center for Research on Utilization of Scientific Knowledge

Helfrich C., Damschroder L., Hagedorn H., Daggett G., Sahay A., Ritchie M., Damush T., Guihan M., Ullrich P. and Stetler C. (2010) A critical synthesis of literature on the Promoting Action on Research Implementation in Health Services (PARIHS) framework. *Implementation Science* 5(1): 82. Available on online at http://www.implementationscience.com/content/4/1/38. Accessed August 2011

Hibble A. (1995) Practice nurse workload before and after the introduction of the 1990 contract for general practitioners. *British Journal of General Practice.* 45(390): 35-7

Holloway I. and Wheeler S. (2002) *Qualitative Research in Nursing* (2nd edn) Oxford: Blackwell

Holstein JA. and Gubrium JF (1999) Active Interviewing. in Bryman A. and Burgess R. (eds) *Qualitative Research Volume 11.* London: Sage

Howick JH. (2011) *The Philosophy of Evidence based Medicine.* Oxford: Wiley-Blackwell

Hughes CC. (1992) 'Ethnography': What's in a word-process? product? promise? *Qualitative Health Research* 2(4): 439-50

Hunt J. (1981) Indicators for nursing practice: the use of research findings. *Journal of Advanced Nursing* 23: 373-79

Hurwitz B. (1999) Legal and Political Considerations of Clinical Practice Guidelines *British Medical Journal* 318: 661-64

Hutchinson A. and Johnston L. (2004) Bridging the divide: a survey of nurses' opinions regarding barriers to, and facilitators of, research utilization in the practice setting. *Clinical Nursing Issues* 13: 304-15

Jamous H. and Peloille B. (1970) Professions or self-perpetuating system; changes in the French university-hospital system In Jackson J. (ed) *Professions and Professionalisation.* Cambridge: Cambridge University Press

Janesick V. (1998) The Dance of Qualitative Research Design: Metaphor, Methodolatry, and Meaning in Denzin N. and Lincoln Y. (eds) *Strategies of Qualitative Inquiry* London: Sage

Joanna Briggs Institute. Available online at: http://www.joannabriggs.edu.au/Home. Accessed April 2009

Johnson DP. (2008) *Contemporary Sociological Theory* Texas: Springer Science + Business Media

Kajermo K., Bostrom AM., Thompson D., Hutchinson A., Estabrooks C. and Wallin L. (2010) The BARRIERS scale - the barriers to research utilization scale: A systematic review *Implementation Science* 5(1): 32 Available online at: http://www.implementationscience.com/content/5/1/32. Accessed August 2012

Katz E. (1962) The Social Itinerary of Technical Change: Two Studies on the Diffusion of Innovation. in Schramm W. (ed) Studies of Innovation and of Communication to the Public. *Studies in the Utilization of Behavioural Science* Vol 11. Stanford, California: Stanford University, Institute for Communication Research

Kay A. (2002) The abolition of the GP fundholding scheme: a lesson in evidence based policy making. *British Journal of General Practice* 52: 141-4

Kitson A. (1997) Using evidence to demonstrate the value of nursing. *Nursing Standard* 11: 34-9.

Kitson A., Harvey G. and McCormack B. (1998) Enabling the implementation of evidence based practice: a conceptual framework. *Quality Health Care* 7: 149-58

Kitson A. (2008a) Editorial: The uncertainty and incongruity of evidence based Healthcare. *International Journal of Evidence Based Healthcare* 6: 1–2

Kitson A., Rycroft-Malone J., Harvey G., McCormack B., Seers K. and Titchen A. (2008b) Evaluating the successful implementation of evidence into practice using the PARiHS framework: theoretical and practical challenges. *Implementation Science* 3(1):1 Available online at: http://www.implementationscience.com/content/3/1/1. Accessed August 2012

Kitson A. (2009) Knowledge translation and guidelines: a transfer, translation or transformation process? *International Journal of Evidence Based Healthcare* 7: 124–39

Kitson A., Silverston H., Wiechula R., Zeitz K., Marcoionni D. and Page T. (2011) Clinical nursing leaders', team members' and service managers' experiences of implementing evidence at a local level. *Journal of Nursing Management* 19: 542–55

Kuhn TS. (1962) *The Structure of Scientific Revolutions.* Chicago: University of Chicago Press

Lankshear A., Lowson K.V., and Egbunike J. (2013) *Safer Patients Network: evaluation* The Health Foundation: Cardiff University/York Health Economics Consortium

Laurant M., Reeves D., Hermens R., Braspenning J., Grol R. and Sibbald B. (2004) Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Reviews* Issue 4.

Lave J. and Wenger E. (1991) *Situated learning: legitimate peripheral participation.* Cambridge: Cambridge University Press

Lester H. and Hobbs FD. (2007) Major policy changes for primary care: potential lessons for the US new model of family medicine from the Quality and Outcomes Framework in the United Kingdom. *Family Medicine* 39(2): 96–102

Levac D., Colquhoun H. and O'Brien K.K. (2010) Scoping studies: advancing the methodology *Implementation Science* 5:69 Available online at: http://www.implementationscience.com/content/5/1/69. Accessed August 2012

Levi-Strauss C. (1966) *The savage mind. London*: Weidenfeld and Nicolson

Lincoln YS. and Guba EG. (1985) *Naturalistic Inquiry* California: SAGE

Logan J. and Graham ID. (1998) Toward a comprehensive interdisciplinary model of health care research use. *Scientific Community* 20: 227–46

Luker K. and Kenrick M. (1992) An exploratory study of the sources of influence on the clinical decisions of community nurses. *Journal of Advanced Nursing* 27: 657-65

Luker K., Hogg C., Austin L., Ferguson B. and Smith K. (1998) Decision-making: the context of nurse prescribing. *Journal of Advanced Nursing* 17: 457-66

MacRoberts MH. and MacRoberts BR. (2010) Problems of Citation Analysis: A Study of Uncited and Seldom-Cited Influences. *Journal of the American Society for Information Science and Technology* 61(1): 1–13

Maisey S. Steel N., Marsh R., Gillam S., Fleetcroft R. and Howe A. (2008) Effects of payment for performance in primary care: qualitative interview study. *Journal of Health Services Research and Policy* 13(3):133-9

Marsh GW., Nolan M. and Hopkins S. (2001) Testing the revised barriers to research utilization or use in the U.K. *Clinical Effectiveness in Nursing* 5: 66-72

Martin J. (2007) The Next Generation New@WIPP Working *in Partnership Programme* (Issue 7). Available online at http://www.wipp.nhs.uk/uploads/jeanett_martin_article.doc. Accessed 07/08/07

McCaughan D., Thompson C., Cullum N., Sheldon T. and Raynor P. (2005) Nurse practitioner and practice nurses' use of research information in clinical decision-making: findings from an exploratory study. *Family Practitioner* 22(5): 490-7

McColl A., Smith H., White P. and Field J. (1998) General practitioners' perceptions of the route to evidence based medicine: a questionnaire survey. *British Medical Journal* 316: 361–365

McCormack B., Kitson A., Harvey G., Rycroft-Malone J., Titchen A. and Seers K. (2002) Getting evidence into practice: the meaning of context. *Journal of Advanced Nursing* 38(1): 94–104

McDonald R., Campbell S. and Lester H. (2009) Practice nurses and the effects of the new general practitioner contract in the English National Health Service: The extension of a professional project? *Social Science & Medicine* 68: 1206–12

McGregor W., Jabareen H., O'Donnell CA., Mercer SW. and Watt GCM. (2008) Impact of the 2004 GMS contract on practice nurses. *British Journal of General Practice* 58: 711-9

McKenna H., Ashton S. and Keeney S. (2004) Barriers to evidence based practice in primary care*Journal of Advanced Nursing* 45(2): 178–89

McKenna H. (2010) Critical care: does profusion of evidence lead to confusion in practice?* Nursing in Critical care 15(6):285-290

McKillop A., Crisp J. and Walsh K. (2012) Practice guidelines need to address the 'how' and the 'what' of implementation. *Primary Health Care Research & Development* 13(1): 48–59

McMaster University (1997) A new approach to teaching the practice of medicine. *Evidence Based Medicine Informatics Project*. Available online at: http://hiru.mcmaster.ca/ebm/overview. Accessed July 2007

Medical Research Council (1948) Streptomycin treatment of pulmonary tuberculosis. *British Medical Journal* 2: 769–82

Meijers JMM., Janssen MAP., Cummings G.G., Wallin L., Estabrooks CA., and Halfens RYG. (2006) Assessing the relationship between contextual factors and research utilization in nursing: systematic literature review. *Integrative Literature Reviews and Meta-Analyses* 55(5): 622-635

Miles M. and Huberman A. (1984) *Qualitative Data Analysis.* London: Sage

Mills J., Field J., and Cant R. (2009) The Place of Knoledge and vidence in the Context of Australian General Practice Nursing *Worldviews on Evidence-Based Nursing* 6(4):219-228

Mittman BS., Tonesk X. and Jacobson PD. (1992) Implementing clinical guidelines: social influence strategies and practitioner behaviour change. *Quality Review Bulletin* 1992; 18:413-422.

Moreno-Casbas T., Fuentelsaz-Gallego C., Gil de Miguel A., Gonzalez-Marıa E. and Clarke S. (2011) Spanish nurses' attitudes towards research and perceived barriers andfacilitators of research utilisation: a comparative survey of nurses with and without experience as principal investigators *Journal of Clinical Nursing* 20: 1936–1947

Moule P. and Goodman M. (2009) *Nursing Research* London: Sage

National Assembly for Wales. (2010) *Key statistics for Monmouth.* Cardiff: National Assembly for Wales

National Collaborating Centre for Chronic Conditions. (2008) *Type 2 diabetes: national clinical guideline for management in primary and secondary care (update)*. London: Royal College of Physicians

National Collaborating Centre for Primary Care. (2008) *LIPID MODIFICATION: Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease.* London: Royal College of General Practitioners

National Institute for Clinical Evidence. (2011) *Clinical Knowledge Summaries. Available online at:* http://www.cks.nhs.uk/home. Accessed Jan 11

Newell R. and Burnard P. (2006) *Research for Evidence Based Practice.* Oxford: Blackwell

Nolan M. (1995). Towards an ethos of interdisciplinary practice. *British Medical Journal,* 311, 305–307

Nolan M. (2005) Reconciling tensions between research, evidence based practice and user participation: time for nursing to take the lead. *International Journal of Nursing Studies* 42: 503–5

Nursing and Midwifery Council (2001) *Standards for specialist education and practice.* Nursing and Midwifery Council : London

Nursing and Midwifery Council (2008) Nursing and Midwifery Council *code of professional conduct: standards for conduct, performance and ethics.* London: Nursing and Midwifery Council

Nonaka I. and Takeuchi H. (1995) *The Knowledge-Creating Company.* Oxford, UK: University Press

O'Donnell CA. (2004) Attitudes and knowledge of primary care professionals towards evidence based practice: a postal survey. *Journal of Evaluation in Clinical Practice* 10(2): 197–205

Ormrod S., Ferlie E., Warren F. and Norton K. (2007) The appropriation of new organizational forms within networks of practice: Founder and founder-related ideological power. *Human Relations* 60: 745-67

Pakenham-Walsh N. (2012) Towards a Collective Understanding of the Information Needs of Health Care Providers in Low-Income Countries, and How to Meet Them. *Journal of Health Communication.*17(Supplement 2): 9-17 Available online at: http://www.tandfonline.com/doi/full/10.1080/10810730.2012.666627#.UqrRKNI7vAk. Accessed July 2012

Panzarasa S., Madde S., Quaglini S., Pistarini C. and Stefanelli M. (2002) Evidence based careflow management systems: the case of post-stroke rehabilitation *Journal of Biomedical Informatics* 35: 123–39

Pascale R., Sternin J. and Sternin M. (2010) *The Power of Positive Deviance: How Unlikely Innovators Solve the World's Toughest Problems.* Boston: Harvard Business Press

Patton MQ. (2002) *Qualitative Research and Evaluation Methods* (3rd edn) Thousand Oaks, California: Sage

Pawson R. and Tilley N. (1997) *Realist Evaluation.* London: SAGE

Plsek PE. and Greenhalgh T. (2001)The challenge of complexity in health care. *British Medical Journal* 323: 625-628

Polanyi M. (1958) *Personal Knowledge.* London, UK: Routledge & Keagan Paul

Ponzi LJ. and Koenig M. (2002) Knowledge management: another management fad? *Information research* 8(1): Paper no.145. Available online at: http://InformationR.net/ir/8-1/paper145.html. Accessed May 2013

Prior P., Wilkinson J. and Neville S. (2010) Practice Nurse use of evidence in clinical practice: A descriptive survey. *Nursing Praxis in New Zealand* 26(2): 14-25

Pritchard A. (1969) 'Statistical Bibliography or Bibliometrics?' *Journal of Documentation* 25(4): 348-49 Available online at: http://independent.academia.edu/AlanPritchard/Papers/602982/Statistical_bibliography_or_bibliometrics. Accessed March 2013

PRODIGY. (2011) *Aims of Prodigy.* PRODIGY. www.prodigy.clarity.co.uk

Puffer S. and Rashidian A. (2004) Practice nurses' intentions to use clinical guidelines *Journal of Advanced Nursing* 47(5): 500-9

Rashidian A., Eccles M.P. and Russell I. (2008) Falling on stony ground? A qualitative study of implementation of clinical guidelines' prescribing recommendations in primary care. *Health Policy* 85(2): 148-61

Rich RF. (1991) Knowledge Creation, Diffusion, and Utilization: Perspectives of the Founding Editor of Knowledge. *Science Communication* 12(3): 319-37

Roper J. and Shapira J. (2000) *Ethnography in Nursing Research.* USA: Sage

Rock P. (2001) *Symbolic Interactionism and Ethnography.* in Atkinson P., Coffey A., Delamont S., Lofland J. and Lofland L. (eds) *Handbook of Ethnography.* Los Angeles: Sage

Rogers E. (2003) *Diffusion of Innovations (5th edn)* New York: Free Press

Roland M. (2004) Linking physicians' pay to the quality of care: a major experiment in the United Kingdom. *New England Journal of Medicine* 351(14): 1448–54

Royal College of Physicians. (1999) Measuring clinical outcome in asthma - A patient-focused approach London: Royal College of Physicians

Royal College of General Practitioners. (2004) *Practice Nurses. Information sheet.* London: Royal College of General Practitioners

Royal College of General Practitioners. (2007) *The primary care practice and its team. Information sheet.* London: Royal College of General Practitioners

Rycroft-Malone J., Kitson A., Harvey G., McCormack B., Seers K., Titchen A. and Estabrooks C. (2002) Ingredient for change: revisiting a conceptual framework. *Quality & Safety in Health Care* 11(2): 174-80

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

Rycroft-Malone J., Fotenia M., Bick D. and Seers K. (2007) Protocol Based Care Evaluation Project *Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO) SDO/78/2004* London: HMSO

Rycroft-Malone J., Fotenia M., Bick D. and Seers K. (2008) Protocol-based care: impact on roles and service delivery. *Journal of Evaluation in Clinical Practice* 14: 867-73

Rycroft-Malone J. (2008) Evidence-informed practice: from individual to context. *Journal of Nursing Management* 16: 404–8

Rycroft-Malone J., Fotenia M., Bick D. and Seers K. (2009) Protocol-based care: the standardisation of decision-making. *Journal of Clinical Nursing* 18: 1490–500

Rycroft-Malone J. (2010a) Paying attention to complexity in implementation. Research *Worldviews on Evidence based Nursing* 3rd Quarter 7(3): 121-2

Rycroft-Malone J. (2010b) Using theory and frameworks to facilitate the implementation of evidence into practice. *Worldviews on Evidence based Nursing* 2nd quarter 7(2): 57-8

Rycroft-Malone J., Seers K., Chandler J., Hawkes C.A., Crichton N., Allen C., Bullock I., and Strunin L. (2013) The role of evidence, context and facilitation in an implementation trial; implications for the development of the PARIHS framework. *Implementation Science* 8:28

Rumrill P.D., Fitzgerald S.M. and Merchant W.R. (2010) Using scoping literature reviews as a means of understanding and interpreting existing literature. *Speaking of Research* 35: 399-404

Sackett D., Rosenberg WMC., Gray J.M., Haynes RB. and Richardson WS. (1996) Evidence based medicine: what it is and what it isn't. *British Medical Journal* 312: 1–2

Sackett D., Strauss S.E., Richardson WS., Rosenberg W. and Haynes RB. (2000) *Evidence based medicine: How to practice and teach EBM.* London: Churchill Livingstone

Satherley P., Allen D. and Lyne P. (2007) Supporting evidence based service delivery and organisation: a comparison of an emergent realistic appraisal technique with a standard qualitative critical appraisal tool. *International Journal of Evidence Based Healthcare* 5: 477–86

Scott A., Sivey P., Ait Ouakrim D., Willenberg L., Naccarella L., Furler J. and Young D. (2011) *The effect of financial incentives on the quality of health care provided by primary care physicians.* Cochrane Database of Systematic Reviews Issue 9.

Scott SD., Profetto-McGrath J., Estabrooks CA., Winther C., Wallin L. and Lavis JN. (2010) Mapping the Knowledge Utilization Field in Nursing from 1945 to 2004: A Bibliometric Analysis.*Worldviews on Evidence based Nursing* 7(4): 226–37

Seale C. (1999) *The Quality of Qualitative Research* London: Sage

Seers K., Cox K., Crichton N..J., Edwards R.T., Eldh A.C., Estabrooks C.A., Harvey G., Hawkes C., Kitson A., Linck P., McCarthy G., McCormack B., Mockford C., Rycroft-Malone J., Titchen A. and Wallin L. (2012) FIRE (facilitating implementation of research evidence): a study protocol *Implementation Science* 7:25 Available online at: http://www.implementationscience.com/content/7/1/25. Accessed August 2012

Sheldon T., Cullum N., Dawson D., Lankshear A., Lowson K., Watt I., West P., Wright D. and Wright J. (2004) What's the evidence that NICE guidance has been implemented? Results from a national evaluation using time series analysis, audit of patients' notes and interviews. *British Medical Journal* 329:1-8

Shore HL. (1972) Adopters and laggards. *The Canadian Nurse* 68(7): 36-9

Sibbald B., Laurant M. and Reeves D. (2006) Advanced nurse roles in UK primary care. *Medical Journal of Australia* 185(1): 10-2

Skyrme D. (1997) "Knowledge Management: making sense of an oxymoron". *Management Insight* No. 22. Available online at: http://www.skyrme.com/insights/22km.htm. Accessed May 2013

Small N. (1998) *The story as gift.* in Barbour RS. and Huby G. (eds) *Meddling with Mythology AIDS and the Social Construction of Knowledge.* London: Routledge

Smith MK. (2003, 2009) 'Communities of practice', *the encyclopedia of informal education.* Available online at: www.infed.org/biblio/communities_of_practice.htm. Accessed May 2011

Smith RG. and Farquhar A. (2000) The road ahead for knowledge management. *AI Magazine* (Winter): 17–40.

Sox H., Blatt M., Higgins M. and Marton K. (2007) *Medical Decision-making.* Philadelpia: ACP Press

Spradley JP. (2001) Interviewing in Ethnography in Bryman A. (ed) *Ethnography.* Volume 11 London: Sage

Stetler C. (1994) Refinement of the Stetler/Marram model for application of research findings to practice. *Nursing Outlook* 42(1): 15-25

Stetler C. (2001) Updating the Stetler model of research utilization to facilitate evidence based practice. *Nursing Outlook* 49(6): 272-79

Squires JE., Estabrooks CA., Gustavsson P. and Wallin L. (2011) Individual determinants of research utilization by nurses: a systematic review update. *Implementation Science* 6. Available online at: http://www.implementationscience.com/content/6/1/1/prepub. Accessed July 2012

Streubert H. and Carpenter D. (1999) *Qualitative Research in Nursing: Advancing the Humanistic imperative (2nd edn)* Philadelphia: Lippincott, Williams and Wilkins

Szulanski G. (1996) Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal* Winter Special Issue 17: 27-43

Taylor S. and Allen D. (2007) Visions of evidence-based nursing practice *Nurse Researcher* 15(1):78-83

The King's Fund (2011) *Improving the quality of care in general practice.* London: The King's Fund

Thomas LH., Cullum NA., McColl E., Rousseau N., Soutter J. and Steen N. (1999) Guidelines in professions allied to medicine. *Cochrane Database of Systematic Reviews* Issue 1

Thompson C. (1999) A conceptual treadmill: the need for 'middle ground' in clinical decision-making theory in nursing. *Journal of Advanced Nursing* 30(5): 1222-9

Thompson C. and Dowding D. (2002) Decision-making and judgement in nursing-an introduction in Thompson C. and Dowding D. (eds) *Clinical Decision-making and Judgement in Nursing* Edinburgh: Churchill Livingstone

Thompson C., McCaughan D., Cullum N., Sheldon TA., Thompson DR. and Mulhall A. (2000) *Nurses' use of research information in clinical decision-making: A descriptive and analytical study-final report.* London: The National Co-ordinating Centre for Service Delivery and Organisation, NHS R&D programme

Thompson C., McCaughan D., Raynor P., Cullum N. and Sheldon T. (2004) *The Potential for Evidence based Primary Care Nursing: Clinical Decisions and Research Information-use by Primary Care Nurses – Final Report.* York*:* University of York. Available from http://www.clinicaldecisionmaking.org.uk. Accessed on July 2007

Thompson C., McCaughan D., Cullum N., Sheldon T. and Raynor P. (2005) Barriers to evidence based practice in primary care nursing-why viewing decision-making as context is helpful. *Journal of Advanced Nursing* 52(4): 432-44

Thompson C. and Stapley S. (2011) Do educational interventions improve nurses' clinical decision-making and judgement? A systematic review. *International journal of Nursing Studies* 48(7): 881-93

Thorne S. (2000) Data analysis in qualitative research *Evidence Based Nursing* 3:68-70

Timmermans S., and Berg M. (2003) *The Gold Standard -The Challenge of Evidence based Medicine and Standardization in Health Care.* Temple University Press: Philadelphia

Timmermans S. and Mauck A. (2005) The Promises And Pitfalls Of Evidence-Based Medicine. *Health Affairs* 24(1): 18-28

Traynor M. (2009) Indeterminacy and technicality revisited: how medicine and nursing have responded to the evidence based movement. *Sociology of Health & Illness* 31(4): 494–507

Traynor M. (2011) Bibliometrics as politics: the case of emerging disciplines. *International Nursing Review* 58: 26–7

Upton D. and Lewis BK. (1997) *Survey of Attitudes Towards Clinical Effectiveness and Evidence Based Practice: Baseline Report.* Clinical Effectiveness Support Unit: Cardiff

Upton D. (1999) Attitudes towards, and knowledge of, clinical effectiveness in nurses, midwives, practice nurses and health visitors. *Journal of Advanced Nursing* 29(4): 885-93

Upton D., & Upton P, (2006). Development of an evidence based practice questionnaire for nurses. *Journal of Advanced Nursing* 53(4): 454-8

Van Maannen J. (1988) *Tales of the Field: On Writing Ethnography* Chicago: The University of Chicago Press

Walby S. and Greenwell J. (1994) *Medicine and Nursing Professions in a Changing Health Service.* London: Sage.

Walker L. and Avant K. (2005) *Strategies for Theory Construction in Nursing* (4th edn) New Jersey: Pearson Prentice Hall

Wallace DP. (2007) *Knowledge Management: Historical and Cross-disciplinary Themes* Libraries Unlimited: Santa Barbara

Walshe K. (2003) *Regulating Healthcare: A Prescription for Improvement?* London: Open University Press

Wathen B. and Dean T. (2004) An evaluation of the impact of NICE guidance on GP prescribing. *British Journal of General Practice.* 54(499): 103-7

Warne T. and McAndrew S. (2004) Nursing, nurse education and professionalisation in a contemporary context in Warne T. and McAndrew S. (eds.) *Using Patient Experience in Nurse Education* Basingstoke: Palgrave

Warne T. and McAndrew S. (2009) Constructing a bricolage of nursing research, education and practice. *Nurse Education Today* 29(8):855-858

Warnick WL. (2006) Global Discovery: Increasing the Pace of Knowledge Diffusion to Increase the Pace of Science. *American Association for the Advancement of Science (AAAS) Annual Meeting*

Welsh Assembly Government (2009a) *Consultation Paper II: Delivering the new NHS for Wales.* Welsh Assembly Government: Cardiff

Welsh Assembly Government (2009b) *A Community Nursing Strategy for Wales-consultation document.* Welsh Assembly Government: Cardiff

Welsh Assembly Government (2010) *Setting The Direction-Primary & Community Services Strategic Delivery Programme.* Welsh Assembly Government: Cardiff

Welsh Government (2011) *Welsh Health Survey 2009 and 2010* Statistical Directorate. Welsh Government: Cardiff

Wenger E. McDermott RE. and Snyder W. (2002) *Cultivating communities of practice: a guide to managing knowledge.* USA: Harvard Business Press

Wenger E. (1998) Communities of Practice. Learning as a social system *Systems Thinker.* Available online at: http://www.co-i-l.com/coil/knowledge-garden/cop/lss.shtml. Accessed May 2012

Wenger E. (1999) Communities of Practice, Learning, Meaning and Identify. Cambridge: Cambridge University Press

Wenger E. (2006) *Communities of practice-a brief introduction.* Available online at: http://www.ewenger.com/theory/index.htm. Accessed May 2012

White K.M. and Dudley-Brown S. (2012) *Translation of Evidence into Nursing and Health Care Practice* Springer: New York
Whyte W. (2001) On Making the Most of Participant Observation in Bryman A. (ed) *Ethnography* Volume 1 London: Sage Publications

Witz A. and Annandale E. (2006) 'The Challenge of Nursing' in Kelleher D., Gabe, J. and Williams G. (eds) *Challenging Medicine* (2nd edn) London: Routledge

Working in Partnership Programme (2006) *Why introduce an HCA into your practice?* London: NHS

Working in Partnership Programme (2006) *Competences from a general practice nurse's perspective.* Available online at: http://www.rcn.org.uk/development/general_practice_nurse_toolkit. Accessed April 2012

World Health Organisation (2006) *Definition and diagnosis of diabetes mellitus and intermediate hyperglycaemia* Geneva: World Health Organisation Press

Williams A. (1993) Diversity and agreement in feminist ethnography. *Sociology* 27(4): 575-89

Yoshioka A. (1998) Use of randomisation in the Medical Research Council's clinical trial of streptomycin in pulmonary tuberculosis in the 1940s. *British Medical Journal* 317(7167): 1220–3

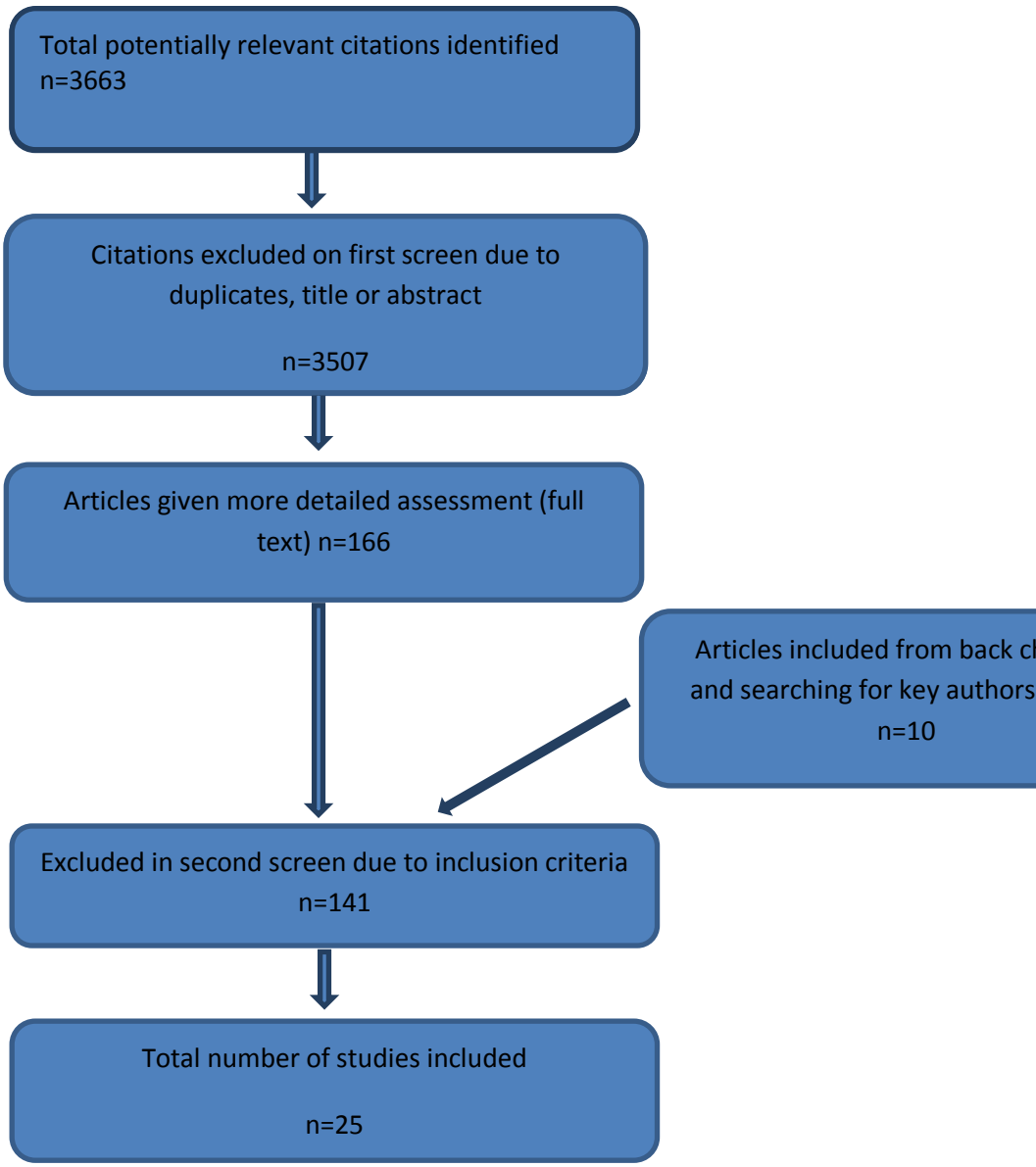
Youngblut JM. and Brooten D. (2001) Evidence based nursing practice: why is it important? *Clinical Issues Advanced Practice in Acute Critical Care* 12: 468–76

Appendices

Appendix 1: Search Strategy

Search History EBSCO Host: CINAHL PLUS with Full Text; MEDLINE

#	Query	Limiters/Expanders	Results
S13	S4 AND S12	Search modes - Boolean/Phrase	262
S12	guidelines OR evidence-based guidelines OR evidence based guidelines OR clinical guidelines	Search modes - Boolean/Phrase	315,827
S11	S8 AND S10	Search modes - Boolean/Phrase	305
S10	community nurses	Search modes - Boolean/Phrase	7,711
S9	S4 AND S8	Search modes - Boolean/Phrase	192
S8	decision making OR decision-making	Search modes - Boolean/Phrase	195,144
S7	PARIHS	Search modes - Boolean/Phrase	78
S6	S4 AND S5	Search modes - Boolean/Phrase	205
S5	barriers OR facilitators	Search modes - Boolean/Phrase	98,596
S4	S1 AND S2	Limiters - Full Text; Abstract Available Search modes - Boolean/Phrase	2,311
S3	S1 AND S2	Limiters - Abstract Available Search modes - Boolean/Phrase	6,704
S2	'practice nurses'	Search modes - Boolean/Phrase	20,903
S1	knowledge utilisation OR research utilisation OR research transfer OR knowledge transfer OR knowledge mobilisation OR diffusion OR evidence based practice OR decision making OR decision-making OR evidence-based practice	Limiters - English Language; Language: English; Research Search modes - Find any of my search terms	5,160,768


Total potentially relevant citations identified n=3663
Citations excluded on first screen due to duplicates, title or abstract
n=3507
Articles given more detailed assessment (full text) n=166
Articles included from back cl
and searching for key authors
n=10
Excluded in second screen due to inclusion criteria n=141
Total number of studies included
n=25

Appendix 2: Summary table mapping demonstrating key features, reason for inclusion and emergent themes

Author/country Year of publication	Focus of the research	Characteristics of study population	Reason for inclusion and review question study relates to	Research outcomes
Theme 1: Barriers and Facilitators **Sub theme i: Individual determinants**				
1.Estabrooks et al 2003	Systematic review on studies measuring individual influencing determinants on research utilisation behaviour	20 observational self report studies included	Identifies potential determinants associated with research utilisation Qu.1,2,3	Identified six categories of potential individual determinants: beliefs and attitudes; involvement in research activities; information seeking; professional characteristics; education and other socio-economic factors
2.Squires et al 2011	Update of Estabrooks et al 2003 systematic review	45 observational self report studies included	Updated previous review Qu.1,2,3	Adds in seventh category-critical thinking. Demonstrates overall poor methodological quality of self report study, identifies attributes associated with (not predictors of) research utilisation
Theme 1: Barriers and Facilitators **Sub theme ii: BARRIERS:the Barriers to Research Utilization Scale**				
3.Funk et al 1991a USA	Development of BARRIERS Scale to ascertain nurses opinions regarding barriers to, and facilitation of, research utilisation in practice	N/A	Development of the BARRIERS Scale Early research tool developed to assess attitudes to research utilisation. Most cited author in knowledge utilisation literature Qu. 1,2,3	Identifies three components: 1.Qualities of research 2.Characteristics of communication 3.Facilitation of utilisation
4.Dunn et al 1996 UK	Use of BARRIERS Scale	316 nurses from three different settings	First study in the UK to use BARRIERS Scale Qu. 1,2	Nurses appeared not to be fully prepared for using research, had difficulties co-operating with physicians, inadequate facilities for implementation and lacked the skills to evaluate research and the authority to change practice. Robustness of tool queried for UK use.
5.Griffiths et al 2001 England	Use of BARRIERS Scale	All community nurses (RR 51.55%) and practice nurses	One of few BARRIERS studies to include practice nurses Qu.1,2,4	Three main barriers were identified: insufficient time to implement research, inadequate facilities for implementation and a lack of

		(RR 40.5%) in one health authority		critical appraisal skills, particularly relating to statistics, Practice nurses identified that the second greatest barrier associated with research implementation was that "doctors will not co-operate with implementation"
6.Moreno-Casbas et al 2011 Spain	Use of BARRIERS Scale	Three groups included: nurse investigators (researchers) hospital clinicians and managers and primary health care nurses (similar, but not identical roles to practice nurses).	Inclusion of primary health care nurses Qu.1,2,4	Most consistently identified barriers relating to lack of confidence or skill and time constraints. Primary health centre nurses rated lack of awareness of research, being unable to evaluate quality, and the literature not being available in one place as the top barriers.
Theme 1-Barriers and Facilitators **Sub theme iii: Clinical Evidence and EBP questionnaires**				
7.Upton 1999 Wales	Clinical Effectiveness and EBP Questionnaire - self report tool to measure nurses perceptions of their practice and attitudes and knowledge/skills of EBP	370 community nurses responded, included 17 practice nurses	Inclusion of practice nurses Qu.1,2,4	Level of knowledge of EBP overall was low, as was knowledge of components of EBP. Personal or interpersonal skills defined as disseminating ideas about care to colleagues and sharing of ideas and information with colleagues were rated the highest. Respondents were more likely to change practice based on opinion of colleagues from the same profession. Barriers were more likely related to organisational issues, including lack of time.
8.O'Donnell 2004 Scotland	Postal questionnaire initially developed for GPs to survey the attitudes, awareness and use of evidence across key professional groups	Key professional groups working in primary care LHCs including lead primary care nurses.	Inclusion of lead primary care nurses Qu.1,2,4	Inter professional boundaries were considered a barrier by all groups except the GPs. Suggested facilitators to EBP implementation were protected time and training. Awareness of sources of evidence by the lead nurses was high.
9.McKenna et al 2004 Northern Ireland	26 item evidence based questionnaire	GPs ioners and community nurses	Includes practice nurses Qu.1,2,4	Lack of access to the internet and were less likely to access evidence based information sources. GPs and community nurses ranked barriers to EBP differently. All barriers had a

				time element
10. Upton and Upton 2006 Wales	Validation of Evidence based Practice Questionnaire	Recruited hospital and community nurses to test tool using to surveys	No separate data provided for practice nurses but tool used in later Practice Nurse study (Prior et al 2010) Qu.1,2,4	EBPQ was a valid and reliable self report measure which considers three aspects of EBP: day to-day application, individual attitudes and relevant skills, arguing that attitudes are part of organisational culture and play a key role in determining the success of workplace innovations
11. Prior et al 2010 New Zealand	Use of Evidence based Practice Questionnaire	55 practice nurses (RR 55%)	Exclusive study on practice nurses Qu.1,2,4	Significant relationships were identified between completion of post registration education, the knowledge and skills relevant to the implementation of EBP and the practice of individual components of EBP
12.Gerrish et al 2007 UK	Validation of Developing Evidence Based Practice questionnaire (DEBP)	Two surveys- hospital and community nurses. 1600 community nurses sampled including Practice Nurse's.	Demonstrates how field developing in relation to determining wider factors influencing EBP including organisational information and changing practice Qu.1,2,4	Concluded that the DEBP questionnaire is a valid and reliable measure for use with nurses working in hospital and community settings in England
13. Mills et al 2009 Australia	Use of Developing Evidence Based Practice questionnaire (DEBP)	Survey of Australian practice nurses. 1800 practice nurses surveyed, 590 responses, a response rate of 33%	Exclusive study on practice nurses Qu.1,2,4	Significant association between level of nursing qualification and nurses' perceptions of skilfulness about retrieving evidence for practice. Information gained from in-service training and conferences was the most frequently accessed source of practice knowledge. Primary barrier to changing practice on basis of 'best' evidence was insufficient time t work.
Theme 1-Barriers and Facilitators **Sub theme iv) Contextual factors-The PARIHS framework**				
14. Kitson et al 1998 UK	PARIHS framework (unnamed at this time)	N/A	Represents a major shift in the literature at that time away from the focus on individuals Kitson noted as one of the top 25 cited authors in the knowledge utilisation field in nursing from 1995-2004, only a few of whom	Argued that successful implementation of research into practice is a function of the interplay of three core elements: the level and nature of the evidence; the context or environment into which the research is to be placed; and the method or way in which the process of implementing the evidence is to be

			are from outside the United States and is noted as a scholar central to the field Qu. 1,2,3	facilitated.
15. Rycroft-Malone et al 2002 UK	PARIHS framework	N/A	Refined original framework Qu. 1,2,3	Changes and additions were made to the constituent sub elements as a result of critical thinking around their constitution and how they related to EBP.
16. Meijers at al 2006	Systematic review of studies using PARIHS framework	10 studies reporting a relationship between contextual factors and research utilisation by nurses in clinical practice	Review of empirical studies- recommends observational and interventional methods with less reliance on self report Qu. 1,2	Reports on relationship between contextual factors and research utilisation by nurses in clinical practice, mapping these to the PARIHS framework
17. Helfrich et al 2010	Systematic review of studies using PARIHS framework	Twenty four articles were included, six core concept articles from original PARIHS authors and eighteen empirical articles ranging from case reports to quantitative studies that had used PARIHS as an organising framework for analyses	Review of empirical studies- identifies importance of interplay between elements and sub elements of the framework including leadership Qu. 1,2	Determine strength and limitations of PARIHS framework
Theme 2 Judgement and Clinical decision-making				
18. Luker and Kenrick 1992 England	Decision-making in the context of nurse prescribing	47 community nurses working in four district health authorities	One of the first studies to evaluate decision-making in the context of nurse prescribing Qu.1,2,3	Nurses' clinical decisions were informed by three main sources of knowledge: knowledge based on research and tested theories; knowledge based on practice and nursing experience; and knowledge which is common sense and current in everyday life

19. Luker et al 1998 England	Evaluation of community nurse prescribing	49 district nurses, practice nurses and health visitors working across eight demonstration	Evaluates community nurse prescribing, Includes PN's and identifies influences on decision-making Qu. 1,2,3,4	Data allowed certain areas to be identified which either caused anxiety or where a decision about what to prescribe proved to be more difficult. Experience was also found to be strongly influential
20. Hallet et al 2000 UK	Nurses' clinical decision-making in the context of wound care in the community setting	62 community nurses (including some unqualified)	Discusses decision-making relating to wound care in the community, some relevance to PN's Qu.1,2	Clinical decision-making appeared to be rapid and effortless, based on a sound rational knowledge base and applied to situations familiar though experience
21. Thompson et al 2005 UK	Barriers to nurses' research information use, in the context of clinical decision-making	82 primary care nurses	Identifies barriers to research information amongst primary care nurses Qu.1,2, 3,4	Three perspectives on barriers to research information use emerged: the need to bridge the skills and knowledge gap for successful knowledge transfer; information formats need to maximize limited opportunities for consumption; and limited access in the context of limited time for decision-making and information consumption
22. McCaughan et al 2005 UK	Patterns of decision-making and information seeking behaviour	29 practice nurses 4 nurse practitioners	Draws only on the data relating specifically to nurse practitioners' and practice nurses' use of research information in clinical decision-making Qu.1,2,4	The types of decisions made by the nurses were captured in a seven fold typology; assessment, diagnosis, intervention, referral, communication, service delivery and organisation and information seeking. practice nurses do not appear to be engaging with the latest advances in information technology offered by the NHS IT strategy
Theme 3 Practice nurses attitude towards guidelines				
23. Harrison et al 2002 UK	Attitude to implementation of clinical practice guidelines relating to asthma and stable angina. Interviews over three year period.	Practice nurses in 29 practices	Investigates Practice Nurses attitudes towards guidelines Qu.1,2,4	The NHS's policy drive towards guideline-based clinical care has provided practice nurses with increased legitimacy in their relationship to both patients and employers and has placed them in a power sharing position. Practice nurses were generally welcoming towards guidelines, and used them in a way that enhanced their autonomy
24. Puffer and Rashidian 2004	Practice nurses ' intentions to use clinical guidelines	48 practice nurses	To examine the utility of the theory of planned behaviour in	Practice nurses were determined to adhere to the guidelines if they felt they could control

England			explaining variations in practice nurses' intentions to offer smoking cessation advice in accordance with CHD guidelines. Qu.1,2,4	whether they followed them or not, had a positive evaluation of the guidelines, and were confident in their own ability to follow them. Attitudes and perceived behavioural controls are important cognitive factors that influence practice nurses' intentions to use clinical guidelines. Future interventions to increase practice nurses' intentions to implement guidelines could attempt to address the elements identified as important factors in this study.
25. McKillop et al 2012 New Zealand	Use of a cardiovascular risk reduction guideline in primary care. Focus groups.	32 participants including four doctors and twenty practice nurses	Investigates Practice Nurse's attitudes towards guidelines Qu.1,2,4	Participants expressed that the difficulties of evidence implementation can be attributed to variation in primary health care practice environments and that solution finding needs to be context specific and achieved through collaborative teamwork. Nurses felt they were able to take on a more satisfying role in direct patient care

Key:
LHCs - Local health co-operatives
RR – Response Rate

Appendix 4a: Consent form [Staff]

Title of Study: "Utilisation of evidence based clinical guidelines by general practice nurses"

Name of Researcher: Judith Carrier

	Please initial box
I confirm that I have read and understand the Participant Information Sheet [Staff], for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.	☐
I understand that data collected during the study may be looked at by Research Governance staff working in Cardiff University, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
I agree to the use of audio-recording, and understand that verbatim quotations from my interview may be used anonymously in the report produced from this study and in papers produced for publication and for conference presentation, but I can withdraw the use of any part of the material at any time before the report is published..	☐
I agree to take part in the above study.	☐

_____	_____	_____
Name of staff member	Date	Signature
_____	_____	_____
Name of person taking consent	Date	Signature

When completed, 1 for staff member; 1 for researcher site file

Appendix 4b: Consent form [Observation of meetings]

Title of Study: Utilisation of evidence based clinical guidelines by general practice nurses"

Name of Researcher: Judith Carrier

	Please initial box
I confirm that the participants in the meeting have read and understand the Participant Information Sheet (Observation of meetings) for the above study. They have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
I understand that participation is voluntary and that participants are free to withdraw at any time without giving any reason.	☐
I understand that Research Governance staff working in Cardiff University where relevant may look at data collected during the study. I give permission for these individuals to have access to notes taken at the observed meetings.	☐
All the participants present at the meeting understand that verbatim quotations from the meeting may be used in the report produced from this study and in papers produced for publication and for conference presentation.	☐
On behalf of those present at the meeting I agree for observations from this meeting to be included in the above study.	☐

_____ _____ _____

Name of chairperson Date Signature

_____ _____ _____

Name of person taking consent Date Signature

When completed, 1 for chairperson; 1 for researcher site file

Appendix 5: Interview schedule/Topic guide

Utilisation of evidence based clinical guidelines by general practice nurses

Data for this study will be generated using participant observation, in order to learn about the culture in which practice nurses operate and to increase understanding of their behaviour. Initial observation will be followed up by semi-structured tape-recorded interviews. Roper and Shapira (2000) note that in an ethnographic study both formal and informal interviews allow the investigator to discover the salience or meaning that observed behaviours have for group members. In the proposed study the interviews will allow for an assessment of the perspectives, beliefs and values of practice nurses towards types of evidence, including evidence based guidelines, whilst observation will determine whether these beliefs are translated into evidence utilisation, as well as giving an indication of the relationships with colleagues and patients which assist in shaping beliefs and values.

As the data collection process evolves it may prove necessary to undertake alternative lines of enquiry, for example interviewing significant others such as GPs and/or practice managers. The aim will be to select people, situations and experiences that help to explore the questions to be addressed exploring subjective patterns of personal, group and organisational experience and gauging the meaning of this experience whilst taking account of situational context (Brett Davies 2007).

The interview questions will be based on the practice observed. In an ethnographic study the exact questions to be asked are not decided beforehand, but a list of issues to be covered will be decided upon and these will fit with the research agenda (Hammersley and Atkinson 1995). The interviews will not be in a fixed sequence or restricted to a single mode of questioning, but will be flexible to the discussion that emerges.

Some of the issues that I anticipate to be discussed in the interviews with the practice nurse participants in the study include:

- How do you feel about evidence based guidelines, do you find them useful or restrictive?
- How accessible and readable are the evidence based guidelines that are relevant to your practice?
- Do you feel guidelines inform the clinical decisions that you make?
- What other sources of information do you draw on to guide your practice and why?
- What support does the practice provide regarding increasing the team's awareness of guidelines?
- Are practice protocols (if used) based on evidence, do you use these to guide your practice?
- Are practice protocols (if used) reviewed regularly by the team when new evidence emerges?
- What type of educational preparation have you received to assist you in accessing and using evidence?
- Do you feel you have received adequate preparation in accessing and using evidence?

- What is the general attitude of the practice to evidence based guidelines, do you feel they support or restrict practice?
- Are guidelines discussed at team meetings?
- How do the practice ensure that the practice nurses are aware of new evidence that implements on practice?
- Are practice protocols (if used) based on evidence, are the practice nurses encouraged to use these to guide their practice?
- Are practice protocols (if used) reviewed regularly by the team when new evidence emerges?
- What educational opportunities are provided by the practice in relation to evidence based clinical guidelines?
- What other type of information sources do practice nurses use to guide their clinical practice?

The above list of questions is by no means exhaustive and further issues may be discussed, based on the observation of practice. The questions will be designed as triggers to stimulate discussion related to the research agenda, rather than sharply define particular areas for discussion.

References

Brett Davies M (2007) Doing a successful research project Basingstoke:Palgrave Macmillan

Hammersley M and Atkinson P (1995) Ethnography: Principles in Practice (2nd ed.) London:Routledge

Roper J and Shapira J (2000) Ethnography in Nursing Research USA:Sage

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Application	5.5	29 January 2008
Investigator CV	A Williams	01 February 2008
Investigator CV	J Carrier	28 January 2008
Protocol	1	01 March 2007
Letter from Sponsor	Cardiff University	18 January 2008
Peer Review	School of Nursing & Midwifery Studies	25 April 2007
Compensation Arrangements	UMAL	01 August 2007
Interview Schedules/Topic Guides	1	28 January 2008
Participant Information Sheet: Staff - Observation of Meetings	1	08 January 2008
Participant Information Sheet: Patient	1	08 January 2008
Participant Information Sheet: GP's & Practice Managers	1	08 January 2008
Participant Information Sheet: Practice Nurses	1	08 January 2008
Participant Consent Form: Observation of Meetings	1	08 January 2008
Participant Consent Form: Staff	1	08 January 2008
Response to Request for Further Information	J Carrier	26 March 2008

R&D approval

All researchers and research collaborators who will be participating in the research at NHS sites should apply for R&D approval from the relevant care organisation, if they have not yet done so. R&D approval is required, whether or not the study is exempt from SSA. You should advise researchers and local collaborators accordingly.

Guidance on applying for R&D approval is available from http://www.rdforum.nhs.uk/rdform.htm.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review

Here you will find links to the following

a) Providing feedback. You are invited to give your view of the service that you have received from the National Research Ethics Service on the application procedure. If

Appendix 11: Initial Coding frame

Theme	Categories	AtlasTi Codes
Sources of knowledge	Knowledge from colleagues	Alternative information sources
practice	In house protocols and computer templates	In house computer templates Protocols
global	Evidence based guidelines/ reference guides-paper and online	Database searching Reference to guideline use QOF Risk calculation tools Lack of awareness of guidelines (negative exception)
	Other sources	Internet
individual	Individual level	Tacit/experiential knowledge Learned diagnostic skills (clinical examination/history taking) Educational preparation
Dissemination/diffusion Knowledge flow	Process	Cascading
	Facilitators	Attitude Familiarity
	Barriers to knowledge flow	Barriers to accessing evidence Organisational support-not structured
Organisational influence	Organisational support-positive	Organisational support-positive Organisational support-encouraging self responsibility
	Organisational support-negative	Organisational support-lack of time Organisational support-nurses not included Organisational support-ad hoc Organisational support-not structured
	Organisational support-influence at national level (macro)	Organisational support-more national guidance Organisational support-e-mail alerts
	Educational influence	Education-impact of
Knowledge use in clinical encounter	Influence of evidence	Standardisation of care Decision-making-influence of evidence
	experiential knowledge	Diagnosis-based on clinical examination /history taking skills Education-impact of
	Rationale for evidence use	Guidelines-referral to use
	Negotiation	Adapting care to individual need Care based on individual need-negative exception Conflicting advice
		Referring on complex cases Dealing with complexities

Appendix 12: Sources of Knowledge

Sources of knowledge						
Evidence based guidelines/ reference guides-paper and online	**Generic search engines**	**Databases and evidence portals**	**Protocols and in house computer templates (Decision aides)**	**Journals and books**	**Colleagues and others**	**Risk calculation tools**
CKS	Google	PubMed	QOF templates	Practice Nursing	GPs	Q-RISK
Map of Medicine	Wikipedia	CINAHL	In house protocols (written)	Generic GP journals	Other practice nurses (within team)	Cardiovascular risk charts (within BNF)
Web Mentor (Riverside) DXA (Mountainside)	Internet in general	Cochrane	In house protocols (computerised)	The 'green' book (immunisation)	District nurses	
NICE		HOWIS e-library			Specialist nurses	
NPC					Drug company representatives	
MHRA					Community psychiatric nurse	
BNF					Community midwives	
GP Notebook					Specialist clinics e.g. opthalmology	
BHS					Husband (a GP)!	
BTS						
TRAVAX						
SIGN						
WeMeRec						
All Wales consensus guidelines: Designed for the Management of Adults with Diabetes Mellitus across Wales						

Appendix 13: Clinical Knowledge Summaries guidance

Insect bites and stings - Management

View full scenario

Definition

Small local reactions to insect bites or stings present with localized pain, swelling, and erythema at the site of the bite or sting. Most can be managed symptomatically.

What self care advice should I give for someone with an insect bite or sting?

If a person has been stung and the stinger is still in place:

Remove it as soon as possible by flicking or scraping with a fingernail, piece of card, or knife blade

Never squeeze the stinger or use tweezers, as this will cause more venom to go into the skin.

Remove ticks as soon as possible.

Wash the area of the bite or sting with soap and water.

Apply ice to reduce swelling, if present.

Do not scratch, as this will cause the site to swell and itch more, and increase the chance of infection

If there are signs of a severe allergic reaction (generalized symptoms, breathing difficulties, and/or hypotension) seek urgent medical help.

Bites from fleas, mites, and bedbugs may be due to an infestation.

The source of the infestation should be confirmed and then eliminated.