An Exploration of Healthcare Professionals’ Attitudes and Perceptions Towards a Local Hospital Drug Formulary and their Impact on Prescribing Practice

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School of Health Science
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Mita De Apni Hasti Ko Agar Kuchh Martaba Chaahen Hai,
Ke Daana Khaak Mein Milkar Gul-e-gulzaar Hota Hai

Erase yourself, if you seek to achieve a higher status,
As a seed is sown deep into the earth to one day blossom

- Poem recited by author's Father -
ACKNOWLEDGEMENTS

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ABSTRACT

**Background:** Hospital drug formularies are developed in order to support safe, effective and cost-effective prescribing. Their utilisation is based on the assumption that prescribers and other users will follow guidance outlined within them. The role of formulary users’ attitudes has been largely overlooked in the research literature. The nature and impact of attitudes to formularies on influencing prescribing practice have not been fully investigated. This study seeks to address this issue through a local practice based research project.

**Objectives:** To determine the attitudes and experiences of users and key stakeholders with the utilisation of a new formulary at a local hospital trust.

**Methodology:** Semi-structured interviews were conducted exploring the views of doctors, pharmacists and non-medical prescribers. An online self-completion questionnaire was sent to all key stakeholders. In addition prescribing data was also extracted from the Pharmacy computer system to assess impact of the new formulary. Data collection was thus split into two phases with modifications made to the formulary based on preliminary findings and emerging themes.

**Results:** The local formulary symbolises a ‘critical split’ in the approach to resource management and patient care. Pharmacists are ‘closely bound’ to the formulary, relying on it for retrospective decision-support and ultimately seen to improve pharmacists’ autonomy while prescribers consider it to be over-rationalisation eroding their professional autonomy. Although the quantitative data in this study demonstrates a statistically significant improvement in doctors’ perceptions of using the formulary, the distinct divide between doctors’ and pharmacists’ attitudes towards the formulary remained. Prescribing data extracted showed no significant impact of the formulary on prescribing practice.

**Conclusion:** The study confirms the existence of deeper sociological constructs, particularly concerning autonomy and professionalism. Doctors claim an ability to manage uncertainty during patient consultations while pharmacists claim to be drug ‘experts’. The monopoly on drug knowledge is therefore contested ground. This study concludes that both the formulary and the pharmacy profession need to be more influential, and embrace a more ‘humanised-bureaucracy.’ It is recommended that pharmacists build on a new philosophical union with the formulary and focus on asserting their claim and dominance on the monopoly of drug knowledge.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS...........................................................................................................3
ABSTRACT......................................................................................................................................4
TABLE OF CONTENTS....................................................................................................................5
LIST OF TABLES.............................................................................................................................9
LIST OF FIGURES..........................................................................................................................10
LIST OF PRACTICE-BASED EXAMPLES.......................................................................................11
LIST OF APPENDICES..................................................................................................................12
GLOSSARY......................................................................................................................................13

SECTION 1 - Rationale for the practice-based study.................................................................15

Chapter 1 Introduction.................................................................................................................16
  1.1 Overview...............................................................................................................................16
  1.2 Medicines in the National Health Service.........................................................................16
  1.3 The rise of evidence-based medicine...............................................................................17
  1.4 The medicines management strategy..............................................................................18
  1.5 Formularies as key medicines management tools..........................................................19
  1.6 The relationship between formularies and healthcare professions..............................20
  1.7 The overlooked role of attitudes in formulary development........................................22
  1.8 Summary of Chapter 1.......................................................................................................22

Chapter 2 The Professional Arena............................................................................................24
  2.1 Introduction...........................................................................................................................24
  2.2 Sociology of professionalism.........................................................................................24
  2.2.1 Sociological perspectives............................................................................................25
  2.2.2 The ‘professional project’...........................................................................................27
  2.2.3 Specialist knowledge.....................................................................................................29
  2.2.4 The Iron Cage of bureaucracy....................................................................................29
  2.3 Professionalism in healthcare...........................................................................................30
  2.3.1 The medical profession...............................................................................................32
  2.3.2 The pharmacy profession............................................................................................36
  2.3.3 Established models to understand the doctor-pharmacist interaction......................45
  2.4 Summary of Chapter 2.......................................................................................................49
Chapter 3 Formularies and Change Management

3.1 Introduction..................................................................................51
3.2 Hospital drug formularies..........................................................51
3.2.1 Historical overview of formularies.........................................51
3.2.2 Working definition for a formulary........................................55
3.2.3 Formulary formats...............................................................57
3.2.4 Formulary compliance..........................................................58
3.2.5 Personal formularies.............................................................60
3.3 Change management...............................................................62
3.3.1 The relevance of change management.................................62
3.3.2 The change agent.................................................................63
3.3.3 Planning the stages of change...............................................64
3.3.4 Characterising the nature of change....................................67
3.3.5 Understanding the drivers and resistors to change................69
3.3.6 Attitudes and perceptions resisting change.........................71
3.4 Attitudes impacting on formularies..........................................72
3.5 Summary of Chapter 3.............................................................74

SECTION 2 - The practice-based project

Chapter 4 Development of the Prescribing Guide

4.1 Introduction..................................................................................77
4.2 East and North Hertfordshire NHS Trust....................................77
4.3 The Prescribing Guide...............................................................78
4.4 The present study of the Prescribing Guide...............................81
4.5 Aims and objectives..................................................................82

Chapter 5 Research Approach

5.1 Introduction..................................................................................84
5.2 Epistemological stance..............................................................84
5.3 Literature review.........................................................................85
5.4 Overarching research strategy....................................................87
5.5 Qualitative research instruments..............................................89
5.5.1 Consideration of qualitative research instruments...............89
5.5.2 Semi-structured interviews..................................................91
5.6 Quantitative research instruments..........................................93
5.6.1 Consideration of quantitative research instruments..........93
5.6.2 Self-completion questionnaires.........................................95
5.6.3 Prescribing trends and formulary adherence.......................96
5.7 Analysis of qualitative research data.......................................98
7.3.4.3 The importance given to the pharmaceutical industry .........................172
7.3.4.4 The importance given to pharmacists .............................................172
7.3.4.5 The importance given to the local DTC ...........................................173
7.3.4.6 The importance given to NMPs .......................................................174
7.3.4.7 The importance given to the Prescribing Guide ..............................174
7.3.5 Statements about the Prescribing Guide ...........................................175
7.3.5.1 Responses to the statement 1 .........................................................175
7.3.5.2 Responses to the statement 2 .........................................................176
7.3.5.3 Responses to the statement 3 .........................................................176
7.3.5.4 Responses to the statement 4 .........................................................177
7.3.5.5 Responses to the statement 5 .........................................................177
7.3.5.6 Responses to the statement 6 .........................................................178
7.3.5.7 Responses to the statement 7 .........................................................178
7.3.6 Open-ended questions ....................................................................178
7.3.6.1 Comments from first questionnaire ...............................................179
7.3.6.2 Comments from second questionnaire ...........................................181
7.4 Formulary data extracted from pharmacy computer ..................................183
7.4.1 Non-formulary drug prescribing .........................................................183
7.4.2 Formulary-approved prescribing .......................................................188
7.5 Summarising findings from self-completion questionnaires ....................191
7.6 Summary of Chapter 7 .......................................................................192

Chapter 8 Discussion .............................................................................193
8.1 Introduction .........................................................................................193
8.2 Reflections on study limitations .........................................................193
8.2.1 Recruitment of participants and Stakeholders ..................................193
8.2.2 Analysis of qualitative data .............................................................194
8.2.3 Stakeholder Meetings .....................................................................195
8.2.4 Semi-structured interviews .............................................................195
8.2.5 Online self-completion questionnaires ...........................................196
8.2.6 Quantitative data extracted from Pharmacy computer .....................197
8.3 Reflections on findings .....................................................................197
8.3.1 Initial perceptions of the Prescribing Guide .....................................197
8.3.2 Key conceptualisations of the Prescribing Guide .............................198
8.3.3 Rationing and resource management ..............................................200
8.3.4 The 'critical split' depicted by the formulary ....................................201
8.3.5 Reflections on the 'lived experiences' of doctors .............................202
8.3.6 Reflections on the 'lived experiences' of pharmacists ......................211
8.3.7 Reflections on the 'lived experiences' of NMPs ................................215
8.3.8 The Prescribing Guide and the role of healthcare professionals ....217
8.4 Implications for pharmacy practice ...................................................223
8.4.1 The 'virtual dystopia' in which pharmacists operate .......................223
8.4.2 Proposing a new philosophical model for change ............................225
8.4.3 The optimised ‘professional project’ for the pharmacy profession......227

Chapter 9 Final recommendations and conclusions.............................................229

9.1 Recommendations to improve the Prescribing Guide..................................229
9.2 Future directions for formulary research.....................................................231
9.3 Final conclusions............................................................................................232

References.............................................................................................................234
Appendices............................................................................................................250

LIST OF TABLES

Table 1 Attributes of an ‘ideal’ profession (Taylor et al, 2003).........................25
Table 2 Some occupations commonly found in hospitals (NHS Careers, 2010).................................................................................................................30
Table 3 The TROPICS test to define the change situation (Paton and McCalman, 2000).................................................................67
Table 4 Attitudinal responses attributed to perceived source of change (Paton and McCalman, 2000).................................................................72
Table 5 Key features of the Prescribing Guide................................................71
Table 6 Participants for Stakeholder Meetings................................................89
Table 7 The various roles of ethnographers (adopted from Bryman, 2004).................90
Table 8 Participants for semi-structured interviews.........................................93
Table 9 Steps that can be taken in order to improve response rates to self-completion questionnaires (adopted from Bryman, 2004).............................95
Table 10 Timescale for the study.......................................................................101
Table 11 Semi-structured interviews conducted during study.........................115
Table 12 Linking qualitative findings to study’s aim and objectives..................117
Table 13 Stakeholder Meetings held during study.............................................153
Table 14 Doctors responding to the pilot self-completion questionnaires (n = 5).........................................................157
Table 15 Pharmacists responding to the pilot self-completion questionnaires (n = 4).................................................................................................157
Table 16 NMPs responding to the pilot self-completion questionnaires (n = 1)..........................................................157
Table 17 Total ‘approved’ and ‘not approved’ non-formulary drug prescribing at Lister Hospital August 2008-September 2008..158
Table 18 Extract from Microsoft Excel spreadsheet illustrating the initial error in total approved and unapproved counts.................159
Table 19  ‘Formulary-approved’ drug classes agreed to be targeted during substantive phase of research.............................................160
Table 20  Additional role details provided by respondents.........................163
Table 21  Total respondents to questionnaires with associated response rates................................................................................164
Table 22  Doctors responding to questionnaires by seniority......................165
Table 23  Pharmacists responding to questionnaires by seniority................166
Table 24  Non-medical prescribers responding to questionnaires by profession......................................................................................167
Table 25  Contingency table showing how many doctors, pharmacists and NMPs are able to access the Prescribing Guide (*HCP=Healthcare professional)................................................................168
Table 26  Contingency table showing the proportion of doctors who knew how to access the Prescribing Guide in QRE1 and QRE2 (*Q’re=Questionnaire)........................................................................................................168
Table 27  Original categories for ‘frequency of use’ were collapsed and amalgamated into two categories..............................................169
Table 28  Original categories for ‘importance of influences’ were collapsed and amalgamated into two categories..........................171
Table 29  Original categories showing ‘agreement to statements’ were collapsed and amalgamated into two categories.........................175
Table 30  Importance of career anchors when embarking on career and now (adapted from Guest et al, 2008b)........................................214

LIST OF FIGURES

Figure 1  Larson’s conceptualisation of the ‘professional project’ ..............28
Figure 2  Game theory and the doctor-pharmacist interaction based on PBE 10 .......................................................................................49
Figure 3  Key milestones in formulary evolution........................................53
Figure 4  Perpetual Transition Management model (adopted from Buchanan and McCalman, 1989)..........................................................65
Figure 5  Locating change on the change spectrum....................................68
Figure 6  An action-reflection-cycle (McNiff and Whitehead, 2006).............88
Figure 7  Flow diagram outlining stages in study........................................102
Figure 8  Statin usage at E&N Herts NHS Trust (July ’08 to June ’09)........161
Figure 9  Doctors responding to questionnaires by clinical speciality.........165
Figure 10 Pharmacists responding to questionnaires by clinical speciality.......................................................................................166
Figure 11 NMPs responding to questionnaires by clinical speciality...........167
Figure 12 A pie diagram showing doctors’ responses to open-ended questions in QRE1..............................................................................180
Figure 13  A pie diagram showing pharmacists’ responses to open-ended questions in QRE1 ........................................ 180
Figure 14  A pie diagram showing NMPs’ responses to open-ended questions in QRE1 ........................................ 181
Figure 15  A pie diagram showing doctors’ responses to open-ended questions in QRE2 ........................................ 182
Figure 16  A pie diagram showing pharmacists’ responses to open-ended questions in QRE2 ........................................ 182
Figure 17  A pie diagram showing NMPs’ responses to open-ended questions in QRE2 ........................................ 183
Figure 18  Total ’approved’ and ’not approved’ non-formulary drug prescribing at Lister Hospital August 2008-October 2009 .......... 185
Figure 19  Total ’approved’ and ’not approved’ non-formulary drug prescribing at QEII Hospital August 2008-October 2009 .......... 187
Figure 20  Boxes 1-12 summarise key findings from the online self-completion questionnaires ........................................ 191
Figure 21  Positioning tool representing the four identified conceptualisations of the Prescribing Guide ........................................ 199
Figure 22  The impact of the Prescribing Guide on the medical profession’s ‘professional project’ ........................................ 221
Figure 23  Positioning tool portraying how healthcare professionals currently conceptualise the Prescribing Guide ........................................ 223
Figure 24  The professional project for the pharmacy profession resulting from a new philosophical integration of future hospital drug formularies with the pharmacy profession ........................................ 228

LIST OF PRACTICE-BASED EXAMPLES

Practice-based example 1 .................................................................................................................. 31
Practice-based example 2 .................................................................................................................. 33
Practice-based example 3 .................................................................................................................. 33
Practice-based example 4 .................................................................................................................. 34
Practice-based example 5 .................................................................................................................. 37
Practice-based example 6 .................................................................................................................. 38
Practice-based example 7 .................................................................................................................. 39
Practice-based example 8 .................................................................................................................. 41
Practice-based example 9 .................................................................................................................. 43
Practice-based example 10 ............................................................................................................... 46
Practice-based example 11 ............................................................................................................... 54
Practice-based example 12 ............................................................................................................... 56
Practice-based example 13 ............................................................................................................... 59
Practice-based example 14 ............................................................................................................... 62
LIST OF APPENDICES

Appendix 1  Preliminary exploration of current approaches to formulary development.................................................................251
Appendix 2  Prescribing Guide leaflet / Slides from Teaching Session accompanying launch of Phase II............................................252
Appendix 3  Summary of literature review......................................................273
Appendix 4  Interview topic guide....................................................................290
Appendix 5  Research participant information sheet............................................292
Appendix 6  Consent form...................................................................................293
Appendix 7  Agenda for Stakeholder Meetings..................................................294
Appendix 8  Online self-completion questionnaire (pharmacists)...295
Appendix 9  Covering email for online questionnaires.......................................297
Appendix 10 Letter from Hertfordshire Research Ethics Committee (HREC).................................................................298
Appendix 11 Reflexive account.................................................................302
Appendix 12 Modifications made to the Prescribing Guide...............................304
Appendix 13 Clusters of 368 codes.......................................................................305
Appendix 14 The construction of generalised ‘Statement 5’.................................307
Appendix 15 Summaries of discussions during Stakeholder Meetings.............308
Appendix 16 Figures (A-H) showing prescribing information...........................315
Appendix 17 The Prisoner’s Dilemma..................................................................324
Appendix 18 Example of a transcript from a semi-structured interview........326
# Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ASHP</td>
<td>American Society of Hospital Pharmacists</td>
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<tr>
<td>BMA</td>
<td>British Medical Association</td>
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<tr>
<td>BNF</td>
<td>British National Formulary</td>
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<tr>
<td>CQC</td>
<td>Care Quality Commission</td>
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<tr>
<td>CWR Model</td>
<td>Collaborative Working Relationships’ Model</td>
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<tr>
<td>CQUIN</td>
<td>Commission for Quality and Innovation framework</td>
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<tr>
<td>DGH</td>
<td>District General Hospital</td>
</tr>
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<td>DH</td>
<td>Department of Health</td>
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<td>DTC</td>
<td>Drug and Therapeutics Committee</td>
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<tr>
<td>eBNF</td>
<td>Electronic British National Formulary</td>
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<tr>
<td>FAME</td>
<td>The London Formulary and Evaluation Forum Steering Group</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Profit</td>
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<td>GMC</td>
<td>General Medical Council</td>
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<td>GP</td>
<td>General Practitioner</td>
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<td>HPA</td>
<td>Health Protection Agency</td>
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<td>ISMP</td>
<td>Institute for Safe Medication Practices</td>
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<tr>
<td>LREC</td>
<td>Local Research Ethics Committee</td>
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<td>MUR</td>
<td>Medicines Use Review</td>
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<tr>
<td>NHS</td>
<td>National Health Service</td>
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<td>NICE</td>
<td>National Institute of Health and Clinical Excellence</td>
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<tr>
<td>NMP</td>
<td>Non-medical prescriber</td>
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<td>NMS</td>
<td>New Medicine Service</td>
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<td>National Prescribing Centre</td>
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<td>NPSA</td>
<td>National Patient Safety Agency</td>
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<tr>
<td>P&amp;T C’mtee</td>
<td>Pharmacy and Therapeutics Committee (in US)</td>
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<td>Primary Care Trust</td>
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<td>Pharmaceutical Services Negotiating Committee</td>
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<td>QIPP</td>
<td>Quality, Innovation, Prevention and Productivity framework</td>
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<td>Quality and Outcomes Framework</td>
</tr>
<tr>
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<td>Online self-completion questionnaires from ‘Phase 1’ of study</td>
</tr>
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<tr>
<td>TROPICS test</td>
<td>Timescales, Resources, Objectives, Perceptions, Interest, Control, Source</td>
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<td>United Kingdom</td>
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<td>UKMi</td>
<td>United Kingdom Medicines Information</td>
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<td>US</td>
<td>United States (of America)</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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SECTION 1
Rationale for the practice-based study incorporating critical reflections
Chapter 1

Introduction

1.1 Overview

Section 1 comprises Chapters 1, 2 and 3. Chapter 1 broadly addresses the political and clinical context in which prescribing is carried out within the United Kingdom (UK) and briefly introduces the rationale for the present study. Chapters 2 and 3 will explore some of the less salient characteristics of the prescribing arena while drawing on practice-based examples from the author’s own professional experience as a Senior Formulary Pharmacist at East and North Hertfordshire NHS Trust. It is hoped that these practice-based examples will help illustrate key concepts and articulate the practice-based problem that underpins the rationale for the research. Since these examples were originally the subject of critical reflections, they will be presented in the first-person narrative in order to maintain authenticity.

Section 2 will then turn to the study itself beginning, in Chapter 4, with a description of the ‘Prescribing Guide’, a new hospital drug formulary at East and North Hertfordshire NHS Trust.

1.2 Medicines in the National Health Service

Expenditure on the National Health Service (NHS) has risen consistently since it was established on 5th July 1948. In its first full year of operation, the Government spent £11.4bn on the NHS. Sixty years later, in 2008/9, spending on health in the UK witnessed an approximate ten-fold increase to over £100bn far outpacing the rise in both Gross Domestic Profit (GDP) and total public expenditure (Harker, 2011; NHS Choices, 2011).

While the NHS has recently enjoyed “record levels” of investment, it would appear the tides are now changing. Amidst new and pressing health challenges plus increasing demands, the previous Government had announced “the rate of growth will not be as great from now on and for the foreseeable future” (DH, 2008, page 23). Compounding the situation further, the current economic
recession has also taken its toll on public finances. As a result of these factors, the NHS is now, instead, required to produce ‘efficiency savings’ in the region of £20bn by the end of 2013/14 (Hughes and Thorp, 2010; BBC, 2010).

In the emerging picture then, it is not so surprising that a principal concern of many NHS organisations is whether or not they will finish the year within budget (Malson and Wang, 2009). The impact on the NHS means even greater rationing of limited resources – a largely undesirable situation yet necessary.

It is often cited that within the NHS, the prescription of medicines is the most frequent therapeutic intervention and therefore constitutes a significant cost burden to the allocated healthcare budget (NPC, 2011; Picton and Quinn, 2011). For instance, in 2010, the overall NHS expenditure on medicines alone was £12.9 billion, with a 31.7% spent solely on hospital prescriptions – a significant increase (30.9%) in hospital prescribing from the previous year (The NHS Information Centre, 2010). As Jenkings and Barber (2004) explain, since the use of medicines represents the area of healthcare for which the most scientific evidence exists, it is therefore also subject to control using the principles of scientific rationality and represents the current era of ‘evidence-based medicine’.

1.3 The rise of evidence-based medicine

In addition to and indeed as a consequence of being the principal therapeutic intervention, the ‘quality’ of drug prescribing has been called a “foundation stone” for high quality patient care (NPC, 2011). The importance of quality here could be clarified in terms of Cribb and Barber’s (1997) notion of ‘good prescribing’. In summary this refers to a combination of: “what the patient wants”; the “greater good” – referring to a consideration of ‘cost’ in a national utilitarian system such as the NHS; and the “technical / rational”, that is, the scientific measurement of specific features of medicines – a reference to the ‘evidence’ of clinical effectiveness (Barber, 2004, page 450).

The term ‘evidence-based medicine’ was popularised after Sackett et al’s (1996, page 71) notable definition of the term:
“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.”

The use of robust evidence-base is now, to a great extent, considered a hallmark of good quality prescribing (NPC, 2011b). Whether clinical guidelines originate from independent Medical Royal Colleges or from the National Institute of Health and Clinical Excellence (NICE) – an arms-length body of the Government – evidence-based medicine invariably informs these guidelines and provides a rationale for decision-making. The prescriber’s ‘choice’ to prescribe a particular medicine is – as a result of this relatively new evidence-based medicine ‘movement’ – now subject to being “judged against evidence accumulated in the world’s literature” (Maxwell, 2005, page 331).

At the point of prescribing however, the arduous tasks of first ‘familiarising one’s self with’, and second ‘summoning’ the required evidence-based decision-making, has been discussed before (Allen and Harkins, 2005). Excessive guidance especially in the form of unfiltered and non-localised information only complicates matters further (Maxwell, 2005). As a partial solution, local decision-making concerning prescribing and the rationing of drugs and the drug budget is more and more supported by the concept of ‘medicines management’, a process by which a wide range of medicines-related activities are co-ordinated throughout the NHS.

1.4 The medicines management strategy

Ninety-seven percent of hospitalised patients are prescribed medicines and 82% are prescribed four or more different preparations (Healthcare Commission, 2007). Clearly there is a need to ensure the appropriate, effective prescription, administration and ongoing management of medicines. The Audit

1 The National Institute of Health and Clinical Excellence (NICE) is one of the Department of Health’s arms length bodies. NICE provides guidance and makes recommendations to the NHS on new and existing medicines, treatments and procedures. It also sets quality standards of healthcare that people can expect to receive.
Commission (2001, page 5), in their original review a decade ago, defined medicines management as:

“the entire way in which medicines are selected, procured, delivered, prescribed, administered and reviewed to optimise the contribution that medicines make to producing informed and desired outcomes of patient care.”

The previous Government released, in two phases, the Medicines Management Framework which enabled trusts in England to conduct self-assessments establishing current practices and highlighting where improvements were necessary. In addition, the initiative looked to clarify to Trust Chief Executives and Chief Pharmacists, their responsibilities regarding the use of medicines within their trusts and the related health economy (DH, 2003). One such responsibility and focus is on the rigorous application of a local ‘hospital drug formulary’ – widely recognised as “the cornerstone of effective medicines management” (Khan, 2002; Audit Commission, 2001, page 16).

1.5 Formularies as key medicines management tools

The Medicines Management Framework emphasised that “formularies should not be lists of drugs stocked but working documents incorporating national and locally agreed prescribing policies and guidelines” (DH, 2003, page 8).

To implement formularies and to “maximise the health and economic outcomes achieved via drug use”, it is considered “pivotal” by the World Health Organisation (WHO), for hospitals to operate under a specific model (Tan et al, 2005, page 527). This model manifests in practice as local, multi-disciplinary Drug and Therapeutics Committees (DTC), responsible for promoting rational use of medicines including the control of the introduction of new medicines within a specific prescribing locality (Williams and Bryan, 2007).

The previous Government had established a specific objective for formularies and medicines management initiatives: “to promote therapeutic consistency across the local health economy” (DH, 2003, page 8). The significance of the
‘local health economy’ can be understood through the following statistics: in 1994 the Audit Commission estimated that one prescription issued from secondary care directly resulted in seven or eight in primary care (Prosser and Walley, 2005). More recently, secondary care is reported to influence up to 40% of the drugs prescribed in primary care (Hill, 2005). In light of this, to provide seamless care at the primary / secondary care interface, establishing ‘joint formularies’ is conceptually ideal. However, in the numerous cases where this is not a feasible reality, inclusion of Primary Care Trust (PCT) representation on secondary care DTCs is vital in order to develop comprehensive and representative formularies. Along with other measures such as effective discharge planning, these services can all lead to appropriate use of finances, less wastage of medicines and improving patient care (NPC, 2002).

As Hill (2005, page 441) states, through primary and secondary care collaboration, the aim of the local formulary is to produce a “greater familiarity with a limited range of drugs” which itself facilitates safe, effective and economic prescribing. This collaboration involves multidisciplinary engagement, that is, a bringing together of the specific skill sets of different professional practitioners not only across the care sectors but particularly in secondary care, where new drug therapies are often initiated.

1.6 The relationship between formularies and healthcare professions

In the secondary care setting, doctors, pharmacists and nurses, through various roles each contribute to the medicines management strategy. Doctors with full registration who hold a licence to practice may prescribe all medicines. While interprofessional collaboration is widely sought and encouraged, doctors often work from their own limited lists of medicines, referred to as ‘personal formularies’ or ‘evoked sets’ (Robertson et al, 2001; Denig and Haaijer-Ruskamp, 1983). Such personal preferences will at times inevitably be at odds with locally developed hospital formularies. Groves et al (2002) advise formulary

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2 A joint formulary is developed for users in both and primary and secondary care. It typically involves clinicians forming specific ‘working groups’ in order to systematically develop individual sections of the formulary. A key aim is to develop greater consistency in prescribing across the primary / secondary care interface and minimising errors associated with the transition of patients from one sector to the other.
managers to pursue strategies to influence ‘adoption’ of locally approved medicines to these evoked sets and similarly the ‘relinquishment’ of non-preferred medicines.

Turning now, from prescribers to “recognised” drug experts (DH, 2008, page 27), ‘clinical pharmacists’ were first identified, by the Nuffield Report in 1986 and then in a 1988 Health Circular, as being able to provide important pharmaceutical advice and promote cost-effective prescribing (Fitzpatrick et al, 2001). Formularies soon became a practical medium to capture this advice as a way of improving prescribing practice (Khan, 2002). Pharmacists' participation on ward rounds has been shown to reduce medication errors and prescribing costs (Fertleman et al, 2005). In the 2008 White Paper, ‘Pharmacy in England’, the Government stated that already highly trained pharmacists had greatly expanded their clinical knowledge and expertise (DH, 2008). The introduction of the ‘Consultant Pharmacist’ post symbolises the specialist aspirations that clinical pharmacists are developing in both clinical and managed service roles (DH, 2005).

Armed with such expertise on medicines, pharmacists' primary role is to optimise drug therapy either at the point of prescribing, or by liaising with prescribers at a later opportunity or through developing medicines management services such as the formulary. Schumock et al (2004, page 557) explain, “the effectiveness of strategies to control the quality and cost of medication use is largely dependent on the ability to alter the selection of medications”. The authors go on to discuss how clinical pharmacists, doctors and formulary committee members are each themselves influenced by a range of factors that affect their individual, independent decision-making processes (Schumock et al, 2004).

In summary, although these healthcare professionals are involved in delivering various aspects of the same overarching medicines management agenda, each profession is also engaged in some manner of perpetual adaptation and development resulting from furthering professional aspirations or due to various other factors including socio-economic, cultural developments and technological innovations (McDonald et al, 2010).
1.7 The overlooked role of attitudes in formulary development

In the current literature, there are only a few reports of multidisciplinary engagement in preparing and operating hospital drug formularies (Sutters, 1990; Tugwell et al, 1984). The literature is replete with often opposing and disgruntled sentiments arising from within the medical professional community (Kwan, 2005; Goodwin, 2003; Rucker and Schiff, 1990; ISMP, 2005). While there are reports of potential “misconceptions” associated with formularies (Rucker and Schiff, 1990, page 59; ISMP, 2005), there are no ‘in depth’ critiques of the potential origins of such attitudes towards formularies or where perspectives are divergent. Instead only rudimentary descriptions, often framed as complaints about an allegedly ‘restrictive’ nature of formulary operation are aired. Any studies in the field that ‘do’ aim to investigate the impact of formularies have focused exclusively on the ability of formularies to reduce drug expenditure (Pearce and Begg, 1992; Petrie and Scott, 1987). Furthermore, the historical overview of formulary evolution, presented in Chapter 3, demonstrates that thus far the attitudes and perceptions of key stakeholders have not been incorporated into the design, implementation and operation of formularies.

Chapters 2 and 3 will use practice-based examples to illustrate how such attitudes and perceptions of key stakeholders manifest in local prescribing practice – often with specific reference to the local formulary. Critically, alongside these examples, established change management principles and broader sociological understandings will assist in the analysis of key cases.

1.8 Summary of Chapter 1

This chapter introduces some of the fundamental, more readily discernible aspects connected with drug therapy in the UK. For instance, the significant cost pressure that prescribing brings to the overall NHS expenditure was illustrated. The 'movement' known as evidence-based medicine was defined and understood as a means to effectively control the quality of prescribing based on the application of scientific rationality.
The notion of medicines management, a largely government-driven initiative, was also introduced. Seamless care at the primary / secondary care interface can be facilitated through the rigorous application of a hospital drug formulary, which is widely recognised in both government and non-government publications, as the ‘cornerstone’ of effective medicines management.

This chapter briefly introduces the rationale for the current practice-based study which is further explored using practice-based examples in Chapters 2 and 3. Essentially attitudes and perceptions towards formularies have thus far been neglected and overlooked. Although relatively simplistic and anecdotal reports are present in the current literature, no in depth studies have been designed to investigate the origins and impact of such attitudes on formulary operation.
Chapter 2
The Professional Arena

2.1 Introduction

This chapter will begin with a detached exploration of the relevant principles of sociology with an increasing focus on ‘professionalism’ in the healthcare arena. Practice-based examples are then presented to illustrate how such principles can be drawn upon to understand the interactions between healthcare professionals involved in drug therapy.

Secondary care prescribing typically takes place within highly complicated, resource-constrained and localised settings. Central to this complexity are the ways in which professional predispositions and attitudes impact on specific aspects of the prescribing process. In many cases markedly different approaches to patient care taken by doctors and pharmacists often fuel considerable debate. The nature of debate often varies from a highly inclusive, skill-mixing and collaborative approach to one of damaging disagreement, conflict and on occasion, outright rejection of recommendations made by those perceived to be the ‘other’. The sociological framework facilitates an initial understanding of how doctors and pharmacists interact around issues concerning prescribing practice.

2.2 Sociology of professionalism

Sociology is an academic discipline involving the scientific study of the human world, whole societies and social groups (Taylor et al, 2003; Giddens, 2009). One area of sociological enquiry – the ‘academic’ study (distinguishing from more ‘colloquial’ use) of the ‘professions’ – has drawn considerable debate over many decades. For the purposes of the present research, the definition outlined by Macdonald (1995, page 1) will be adopted, that is, professions as: “occupations based on advanced, or complex, or esoteric, or arcane knowledge”.

Sandeep Bagga | Doctor of Pharmacy Practice 2012
Since the early nineteenth century, a number of perspectives in sociology have been formulated that – despite advocating distinctly unique tenets – display varying degrees of overlap and have sought to understand the interactions between social structures and individual behaviours.

2.2.1 Sociological perspectives used to understand the professions

In the mid-twentieth century, ‘functionalism’ provided an early model to conceptualise the division of labour and occupational groups in modern society. This perspective endorses the view that society operates through a degree of interdependence on groups of individuals performing different tasks much like a living organism is dependent upon the functioning of various physiological systems (Taylor et al, 2003; Giddens, 2009). Functionalism supported the ‘attribute’ or ‘trait’ approach to defining professions, listing features of an occupation that would raise its status to that of a profession (Table 1).

A 1960s variation of functionalist theory, ‘structural-functionalism’, stressed in particular how socially functional traits ultimately led to ‘social cohesion’ (Giddens, 2009). Structural-functionalists attributed the stability of the “most important features of our society to...the smooth functioning of the professions” (Parsons, 1939, page 457). In fact, Macdonald (1995, page 2) describes ‘praise’ for the professions, at the time, as reaching a level of “uncriticality that is hard to credit”.

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<tr>
<td>1.</td>
<td>A profession determines its own standards of education and training</td>
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<tr>
<td>2.</td>
<td>The student professional undergoes an extensive training and socialisation process</td>
</tr>
<tr>
<td>3.</td>
<td>Professional practice is legally recognised by some form of licensure</td>
</tr>
<tr>
<td>4.</td>
<td>Licensing and admission is regulated by members of the profession</td>
</tr>
<tr>
<td>5.</td>
<td>Most legislation which affects a profession is shaped by that profession</td>
</tr>
<tr>
<td>6.</td>
<td>A profession has high income, power and status, and can demand higher calibre entrants</td>
</tr>
<tr>
<td>7.</td>
<td>The professional is relatively free from lay evaluation</td>
</tr>
<tr>
<td>8.</td>
<td>The norms of practice enforced by the profession are often more stringent than legal controls</td>
</tr>
<tr>
<td>9.</td>
<td>Members of a profession have a powerful sense of identification and affiliation with their occupational group</td>
</tr>
<tr>
<td>10.</td>
<td>A profession is likely to be a lifetime occupation</td>
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**Table 1.** Attributes of an ‘ideal’ profession (Taylor et al, 2003)
An alternative sociological perspective known as ‘symbolic interactionism’ has also been employed in the understanding of the professions (Macdonald, 1995; Giddens, 2009). Typically studies focus on individual and group interactions, language and meaning (Giddens, 2009). Research revealed that qualities once thought to be purely professional in nature, such as altruism, service and high ethical standards were now being described as present in all members of society. The ‘traits’, originally used to define professions, were deemed ideological in nature and even ‘mythological’ as Macdonald (1995, page 4) writes:

“Trainee physicians were portrayed as developing cynicism rather than altruism, doctors appeared as wielders of power, not servants of the social good...”

It was this school of thought that gave birth to the ‘power’ approach to study the professions. Freidson describes the process by which the State grants professions the license and mandate to control their work ultimately manifesting as ‘dominance’ over kindred occupations and thereby preventing interference or supervision (Macdonald, 1995).

At this juncture, an important division in sociological thought ought to be clarified. Particularly with functionalism, there was an emphasis on ‘consensus’ within society. For instance, Durkheim posited that in order for society to have a continued existence, the significant institutions – for example, the political system, educational system, and the professions – must work in harmony with one another and thus implies a general consensus (Giddens, 2009). The ‘conflict theorists’ criticise and reject this assumption. The alternative perspective they express focuses on the ‘divisions’ in society and as a result, demonstrate the existence of issues around power inequality and struggle. Therefore, different groups of individuals essentially pursue interests relevant to themselves and thus the potential for conflict with other groups is always present (Giddens, 2009).

Marxism, a notable conflict theory, is concerned with the relationship between producer and consumer of professional services (Harrison and McDonald, 2008). The extent to which the producer can control this relationship and
subsequently benefit from it are of interest. With reference to the medical profession’s autonomy, Marxian thought has, for instance, led to theories of medicine being subordinated to demands and requirements of ‘production’ in order to maximise capitalists’ profits (Harrison and McDonald, 2008). Critics of this view argue that the medical profession:

“cannot be equated with... proletarianisation... since proletarians do not have supervision over others, do not have some space for decision making, do not realise mental rather than manual work, and do not have skills that need to be credentialed by the state” (Navarro in Harrison and McDonald, 2008, page 48).

The thesis of ‘proletarianisation’ of the medical profession has also been dismissed by others (Freidson, 1985; Elston, 1991). In particular, Britten (2001), through her analysis of ‘prescribing autonomy’, concludes that while government intervention ‘has’ eroded doctors’ clinical freedom, the medical profession – nevertheless – “continues to dominate the clinical agenda and the responsibilities of other healthcare workers”.

In the late 1960s, part of the sociological community, again, shifted focus from trying to ‘define’ professions to understanding the ‘circumstances’ in which people in an occupation attempt to turn it into a profession (Taylor et al, 2003). In 1977, Magalí Larson conceptualised the ‘professional project’ (Macdonald, 1995).

2.2.2 The ‘professional project’

Larson’s model – formulated on the basis of preceding works illustrating ‘professional prestige’ and the involvement of the State – depicts how the interplay of a range of key factors leads to an occupation rising to the status of profession (Figure 1). The ‘professional project’ states that the ultimate goal for an occupation seeking professional status is ‘social closure’. Max Weber described this as an endeavour to become “a legally privileged group” where

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3 Proletarian – “connected with ordinary people who earn money by working, especially those who do not own any property” (Oxford University Press, 2011).
the occupation aims for a closed monopoly with “closure of social and economic opportunities to outsiders” (Macdonald, 1995, page 28).

Therefore, according to Larson’s interpretation, professions are essentially monopolies of ‘specialist knowledge’ and thus of the professional status which it brings. If those who possess relatively ‘abstract’ knowledge are able to form a group and begin to standardise the dissemination of this knowledge, they will then be able to enter a ‘regulative bargain’ with the state (Macdonald, 1995). The state endorses the creation of a monopoly by allowing this group of individuals the ability to restrict access to their knowledge and thus control their market, all resulting in upward social mobility⁴.

** Content removed for copyright reasons **

Reference:

Figure 1. Larson’s conceptualisation of the ‘professional project’ (adapted from Macdonald, 1995 p32).

⁴ Social mobility – in studying social stratification, social mobility refers to the movement of individuals and groups between different socio-economic positions. Those who gain in income or (professional) status are said to be upwardly mobile (Giddens, 2009).
2.2.3 Specialist knowledge as the essence of professionalism

Taylor et al (2003) describe how occupations that aspire to attain a privileged status tend to present their knowledge-based services as esoteric and thus establish a ‘social distance’ from those served by them creating ‘mystification’ with their work.

An important element of specialist knowledge, in terms of its application in practice, is ‘abstraction’. Abbott concluded that professional service routinely entails diagnosing, inferring and treating the problem presented – “the purely professional act” being inference (Macdonald, 1995, page 164). Therefore, the professional “believes what he is doing”, as Freidson describes it, even with uncertain chances of success (Taylor et al, 2003, page 117). However to exercise effective professional judgment, an equilibrium needs to be reached, between extreme abstraction and extreme concreteness.

In 1970, Jamous and Peloille famously proposed the I/T ratio to express the ‘degree’ of professionalism that an occupation possesses (Harrison and McDonald, 2008). A ‘true’ profession will score highly for indetermination (I), which represents personal judgement. Technicality (T) – knowledge that is codified, would be minimal. In order for a profession to remain at its privileged position in society, its work must not become rationalised and routinised, thus maintaining a high I/T ratio (Taylor et al, 2003). Freidson describes the “zone of discretion” as a key feature of medical practice explaining that even rank-and-file doctors exercise more discretion over their work compared to other healthcare professionals (Crinson, 2007). In today’s world, however, knowledge is increasingly becoming codified and thus more accessible to the laity – this is widely recognised as a significant threat to the professions (Macdonald, 1995; Crinson, 2007).

2.2.4 The Iron Cage of bureaucracy and its implications for professionalism

Freidson (1994) states society involves the interaction of two radically different modes of organisation: ‘bureaucratisation’ and ‘professionalisation’. Robert Merton famously described the “dysfunctions of bureaucracy” noting that
bureaucrats are typically trained to adhere to predefined rules and procedures, essentially practicing ‘rigidity’, and lack any encouragement to use their own judgement (Giddens, 2009, page 787). What is of interest, as Macdonald (1995) explains, is that bureaucratisation may in fact be antithetical to professionalism insofar as it is fast becoming a dominant force in modern society and increasingly subsuming professionals into mere managerial roles. Weber notably stated, almost as an epilogue, that bureaucracy constituted an ‘Iron Cage’ from which we (society) cannot escape (Taylor et al, 2003). He was the first to document society’s tendency to move away from traditional beliefs such as religious customs and superstitions, instead embracing rational, instrumental calculations in an attempt to increase efficiency and to account for future consequences of their actions (Giddens, 2009). The advancement of science along with bureaucracy, Weber collectively termed ‘rationalisation’. Some now identify rationalisation – in its effort to systematically measure and control medical work – as a challenge to the continuing dominance and clinical freedom of the medical profession with healthcare systems (Crinson, 2007).

2.3 Professionalism in healthcare

In a typical NHS hospital a number of different occupations fulfil specific duties, without which, overall functioning would not be met, exemplifying the original tenets of functionalism. Table 2 shows some occupational definitions as they appear on the ‘NHS Choices’ website.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Definition as appearing on ‘NHS Careers’ (2010)</th>
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<tbody>
<tr>
<td>Doctors</td>
<td>diagnose symptoms and recommend treatment in patients</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>are experts in drugs and medicine and can be involved in all aspects of their use, preparation, discovery and development and the monitoring of effects</td>
</tr>
<tr>
<td>Pharmacy technicians</td>
<td>prepare and deliver drugs, store incoming drugs and make up sterile preparations</td>
</tr>
<tr>
<td>Nurses</td>
<td>works in a variety of settings to directly provide and manage the care directly of individual patients</td>
</tr>
<tr>
<td>Physiotherapists</td>
<td>treat the physical problems caused by accidents, illness and ageing, particularly those that affect the muscles, bones, heart, circulation and lungs</td>
</tr>
<tr>
<td>Porter</td>
<td>move patients between different departments and wards in safety and comfort and transport complex and valuable equipment that may need expert handling</td>
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Table 2. Some occupations commonly found in hospitals (NHS Careers, 2010).
Albeit a short description, the medical profession appears to completely engage in ‘inferential’ activity, that is, the “purely professional act” described by Abbott (Macdonald, 1995, page 164). For pharmacists, there is reference to the ‘expertise’ they possess for “drugs and medicine”, thus a monopoly is implied however use of the word “preparation” alludes to somewhat technical activities. Pharmacy technicians are entirely defined in terms of their technical duties: “delivery”; “make up”. In Practice-based example 1, the role of doctors and non-medical prescribers in prescribing practice is contrasted against the input of pharmacists.

### Practice-based example 1

During a routine ward visit I was approached by a specialist Pain Nurse and requested to order the non-formulary drug, ‘Versatis (lidocaine) plasters’ for an elderly patient suffering from severe postherpetic neuralgia (PHN). The Elderly Care Consultant, under whose care the patient had been managed, had referred this aspect of the patient’s care to the Pain Team that consisted of an anaesthetist and two specialist Pain Nurses (non-medical prescribers). On reviewing the patient’s drug chart I noted that the patient had also been prescribed amitriptyline, gabapentin and opioid analgesics (morphine-based pain killers). I was aware that in many past cases of a similar nature, the established NICE guidelines for diabetic neuropathy are usually adopted for the pharmacological management of PHN. Therefore, other treatment options available were carbamazepine, duloxetine and capsaicin cream (all formulary-approved items). An alternative to the requested, high-cost and non-formulary Versatis plaster was EMLA cream (another lidocaine-based product). On discussing these options with the Pain Nurse, the matter was escalated to the Elderly Care Consultant and the Anaesthetist. My Line Manager (Directorate Pharmacist for Formulary and Medicines Management) was contacted by the Anaesthetist and I was approached by the Elderly Care Consultant and the Pain Nurses during the subsequent ward visit (‘witnessed’ by the consultant’s team of doctors). Both consultants and Pain Nurses took notably resistive stances against the two pharmacists. They argued that they had in fact taken “all aspects of the patient’s care into account” and thus were able to make an “informed decision” and criticised pharmacists for being “all about cost” and unable to think about “the patient’s quality of life”. The Pain Nurses argued that
EMLA cream would not be pragmatic for ward nurses to apply and would be inconvenient for the patient since it would need to be applied far more frequently than the Versatis Plaster. Eventually EMLA cream was ‘reluctantly’ prescribed and supplied (with damaging consequences for the relationship between the formulary pharmacists and the Pain Team).

In this incident the diagnostic expertise and inferential activity of prescribers (both consultants and non-medical prescribers) is illustrated. In addition, a strong defensive stance is also seen to be taken against forces that – counter to this ‘inferential activity’ – supported the adherence of established guidelines and local policy. Although such local protocols were ultimately enforced, pharmacists in this example appear to be greatly out-numbered and their advocacy of ‘cheaper’ formulary-approved alternatives roundly condemned.

Both nursing and the medical profession are, through such ‘strength in numbers’, in a position to both defend their professional territory as well as expand their influence over new areas. In 2009, the estimated number of registered doctors was approximately 230,000; the number of nurses was estimated to be at least 400,000; and the estimated number of pharmacists approximately 45,000 (Chemist and Druggist, 2009).

2.3.1 The medical profession

Medicine has achieved a particularly prestigious status within society. Previous authors have gone as far as to state that the very interest in professionalism is an indication of how medicine is perceived by society (Jotkowitz and Glick, 2009). Practice-based examples 2 and 3 embody aspects of such prestige for the medical community particularly where ‘expertise’ and ‘seniority’ are perceivable attributes. In example 2 the pharmacist appears to have a greater regard for the consultant’s decision to prescribe a non-formulary drug than she has for the decisions represented in the local formulary. Similarly example 3 shows junior members of the medical team displaying a greater ‘allegiance’ for the ‘expertise’ of the consultant than for the Trust formulary. From both practice
cases, it appears that the concept of ‘social distance’ – as outlined by Taylor et al (2003) – may exist between consultants and those of kindred occupations or those subordinate to them in other ways (junior doctors).

**Practice-based example 2**

In the out-patients section of the Pharmacy department, an allocated pharmacist ‘clinically screens’ each out-patient prescription ensuring each drug is prescribed appropriately in terms of clinical accuracy (dose, frequency, duration of treatment etc.), safety (side effects, contra-indications) and locally acceptable (formulary-approved, most cost-effective option etc.). On this occasion, a junior pharmacist had clinically screened an out-patient prescription written by a consultant. The drug prescribed was Movicol – officially a ‘non-formulary’ drug however stocks were routinely maintained in the Pharmacy department for restricted use in palliative care patients (an approved use). Once the prescription had been dispensed, I was ‘final checking’ before handing out to the patient and questioned the junior pharmacist as to its appropriateness. The junior replied, “I know this consultant, he always gets what he wants...I’m sure he knows more than me”. I encouraged the junior pharmacist to challenge the prescription and recommend a formulary-approved alternative provided the patient was not receiving palliative care.

**Practice-based example 3**

During a routine ward visit, I approached a Senior House Officer (SHO, now called FY2) regarding a drug that she had just prescribed. The drug was esomeprazole – the Trust’s third-line proton pump inhibitor (PPI), used for duodenal / gastric ulcers or gastro-oesophageal reflux disease (GORD). The doctor was immediately dismissive and very reluctant to continue the conversation. I explained there are other options that should be considered in the first instance and later also explained my position at the Trust (Senior Formulary Pharmacist). The SHO maintained her stance and asserted that in fact “my consultant told me to prescribe this so you can’t go higher than that”. I eventually offered to speak to the consultant and enforced a switch to omeprazole (the Trust’s formulary-approved first-line PPI).
It is widely cited that the medical profession has always maintained a close relationship with the State (Freidson, 1994; Macdonald, 1995; Elston, 1991). According to Weber’s notion of ‘social closure’ and certainly Larson’s conceptualisation of professional status, it is because of this relatively unique relationship that medicine has enjoyed a significant degree of autonomy to practice without interference and supervision. In fact the distinct feature of professionalism in modern western society is that members of a specialised occupation are able to control their ‘own’ work (Freidson, 1994). However, medicine has, rather anomalously, been able to extend this form of control beyond their own profession. Operating through the General Medical Council (GMC) and the British Medical Association (BMA) it was able to convince the government of the day to delay licensure to other occupations (Harrison and McDonald, 2008). The medical profession’s relationship with the state, described by Klein (1990, page 700) as a “mutual dependency”, evidently manifested as dominance over kindred occupations reflecting the core element of the aforementioned ‘power approach’ to understanding the professions.

Practice-based example 4 reveals the apparent ‘discomfort’ experienced by doctors when attempts are instead made to control ‘their’ work for example, prescribing. Most notably the consultant displays an apparent rejection of the ‘formulary concept’ altogether, uncovering tensions that are directed at the pharmacy profession.

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<th>Practice-based example 4</th>
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<td>As an initial step in the development of the local hospital drug formulary, I sent out individualised lists of formulary-approved drugs to all consultants at the Trust. Drug lists displayed traffic lights for each drug depicting whether the drug is first-line (green), second-line (amber) or third-line (red) at the Trust (for example omeprazole, lansoprazole and esomeprazole, respectively). In response I received a telephone call from the Trust’s Lead Gastroenterologist who angrily objected to the development of a “standardised list to put on the computers”. He claimed that a “pharmacist-led formulary” will be “restrictive to practice” and that “clinical decisions made in front of individual patients cannot possibly be put into formularies”. I realised that one of my underlying...</td>
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assumptions concerning the development of the local formulary was partially flawed. I had assumed that although consultants may not agree with a perceived ‘restrictive’ theme of formularies, they would at least support the underlying ‘purpose’ and ‘rationale’ for formularies. The consultant made clear that many of the ‘current’ traffic lights would need to change because he was “not prepared” to prescribe some drugs second-line or third-line but instead as and when he saw fit.

Similarly Klein (1990, page 700) exposes the “tensions” and the “repetitive cycle of confrontation” between the medical profession and the State representing a somewhat distinct interpretation of this relationship in the literature. In particular, he cites two key areas that have caused “frustrations and resentment” between the two (Klein, 1990, page 700). Firstly, finance: doctors are concerned with their own pay as well as the availability of funds for more resources. Secondly, autonomy: government ministers can only achieve their priorities if they develop ways to influence clinical decision-making particularly concerning issues such as lengths of patient stay and drug expenditure (Klein, 1990).

It was due to government recognition that GP numbers were starting to decline as fewer newly qualified doctors wished to pursue general practice as a career, that the GP contract was renegotiated in 2003 and came into full effect in April 2004 (Kmietowicz, 2006; Batty, 2003). The negotiations involving the BMA and the government’s NHS Confederation led to ‘out-of-hours’ care for patients being removed from the contract for a 6% cut in pay and through a new system to incentivise GPs and improve quality, the Quality and Outcomes Framework (QOF), GPs saw their earnings increase by approximately 30% (BBC, 2007; Kmietowicz, 2006). A BMA ballot at the time revealed that 80% of GPs supported the deal (Batty, 2003).

However, the ‘repetitive cycle of confrontation’ between the profession and government ‘does’ appear to continue in more recent times as well. The NHS Confederation Chief Executive has recently alluded to the fact that the aforementioned removal of ‘out-of-hours’ care from the GP contract may have contributed to rising pressures on A&E departments (Lind, 2013). In fact the Health Secretary, Jeremy Hunt, has indicated that the contract needs to be
rewritten in order to once again include GP responsibility for “signing off” patients’ care out-of-hours. In response, the BMA has recently declared it has no confidence in the Health Secretary (Lind, 2013b).

Britten (2001) outlined the three key challenges to the medical profession’s clinical autonomy. Referring specifically to ‘prescribing’, she discusses the impact of state interventions; the rise of a well-informed and educated patient population; and the challenge represented by other healthcare professionals. Pharmacists and nurses are either encroaching on the medical profession’s “exclusive right” to prescribe or, as in the case of pharmacists, are gradually being given more responsibilities with respect to the oversight of medication supply (in community pharmacy) as well as monitoring GPs’ prescribing through the work of ‘primary care pharmacists’. Britten in particular focuses on the theses of (a) ‘proletarianisation’ of the medical profession (mentioned in Section 2.2.1) that is, subordination to the state or (b) the ‘deprofessionalisation’ of the medical profession arising from patient demand. Although acknowledging the impact of such influences on the autonomy of doctors, Britten notably concludes that while the prescribing arena is a “battleground on which the cause of clinical autonomy is defended”, the medical profession ultimately dominates the clinical agenda and neither of these theses can be applied in absolute terms to the medical profession. She does, however, allude to the notion that given the ever changing NHS, the advancing of prescribing rights and, critically, the continued involvement of the state, that doctors’ “clinical freedom will continue to be eroded” echoing Weber’s prediction of increasing rationalisation in society.

2.3.2 The pharmacy profession

The founding aims of the Pharmaceutical Society in 1841 were to:

“unite the profession into one body, to protect its members’ interests and to advance scientific knowledge.”

Pharmacy obtained State licensure and then set up a register in 1852, restricting the practice of pharmacy to examined and registered people
(Harrison and McDonald, 2008; RPS, 2011). However since this time, notable 'threats' to the profession have emerged.

Building on the idea of rationalisation introduced by Max Weber, George Ritzer, an American sociologist, coined the term ‘McDonaldisation’ (Taylor et al, 2003). He believed that the policies and practices of fast-food restaurants (such as ‘McDonald’s’), including highly efficient, routinised production and delivery, were now observable in other sectors of society including healthcare. This is evident in frustrations expressed by hospital pharmacists who seem to allude to a divide between their professional work and the demands of “bureaucrats” (PJ, 2009, page 586). One hospital pharmacist stated:

“We are probably at the stage where the governance aspect of our role is so great that we spend too much time doing paperwork...we just want to get on and do our job.” (PJ, 2009, page 586).

Similar sentiments are illustrated in Practice-based example 5. Activities that contribute to ‘highly efficient, routinised production’ that characterises ‘McDonaldisation’ are prioritised in the Directorate Pharmacist’s working agenda. The pharmacist expresses frustrations about not being able to practice as a “proper pharmacist” and the “limited clinical input” he routinely has for patients.

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<th>Practice-based example 5</th>
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<tr>
<td><strong>During the early stages in the development of the new hospital drug formulary, I tried to arrange meetings with: consultants; specialist pharmacists (Directorate Pharmacists); and myself (Senior Formulary Pharmacist).</strong></td>
</tr>
<tr>
<td>For the gastroenterology chapter, after repeated attempts, such a meeting never transpired. In this case, it soon became apparent that there was in fact a breakdown in the relationship between the Directorate Pharmacist and the gastroenterologists. For the routine, bimonthly directorate meetings the consultants demanded an array of drug data to be extracted from the pharmacy computers – this was an established role within the remit of the Directorate Pharmacist who consistently failed to produce the data. On enquiring, the Directorate Pharmacist informed me that he was consistently “swamped” by</td>
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</table>
excessive paperwork (such as that required for directorate meetings) and extra ward rounds which meant that he had very little time “to be a proper pharmacist” for his patients and therefore carried out the bare minimum of ward-based duties, often hastily, and with “limited attention to detail” and “limited clinical input”.

Hospital administrators typically support initiatives that seek to improve labour efficiency and reduce costs and do not necessarily support individual professional aspirations (Novek, 2000). The contribution to directorate meetings expected of the Directorate Pharmacist (Practice-based example 5) was the provision of drug data – any ‘expertise’ that pharmacists may possess was not sought by consultants.

It would appear that the notion of ‘mutual dependency’ stated to exist between the medical profession and the state does ‘not’ exist – at least not to the same extent – between the pharmacy profession and the state. Instead, some hospital initiatives such as automation of dispensing have been commended by the Department of Health since it has been shown to “improve productivity, improve waiting times and reduce errors” while also advising “there is much that can be done to increase efficiency in the supply of medicines” (DH, 2008, page 80).

**Practice-based example 6**

I had secured the support of Directorate Pharmacists for the compilation of clinical content for individual sections of the new hospital drug formulary. However, many Directorate Pharmacists consistently failed to provide me with the required information by mutually agreed deadline dates. I approached the Directorate Pharmacist for ‘Chapter 12: Ear, nose, and oropharynx’. She explained that her only problem was a severe lack of time to focus on clinical activities. She viewed contributing to the development of the hospital formulary as a ‘clinical’ role and expressed an enthusiastic desire to be involved by applying her critical appraisal skills to drug evaluation and by liaising with Ear, Nose and Throat (ENT) consultants in order to develop consensus-driven algorithms for common conditions claiming to have developed a good rapport with her medical counterparts. However, she was frustrated by the amount of
time she was required to spend around the “repetitive supply function” both on the wards and in the Pharmacy dispensary. She expressed concerns about being regarded by other professions as a “glorified technician” and about “losing professional credibility”.

As with Practice-based example 5, example 6 also depicts a somewhat passive discontent with the status quo and with established ‘professional’ arrangements. Jamous and Peloille’s notion of the I/T ratio can be used to explain some aspects of this scenario. Professions tend to lose credibility at either extremes of abstractness or concreteness (Macdonald, 1995). The Directorate Pharmacist from the above example may regard the application of “her critical appraisal skills to drug evaluation” and development of “algorithms for common conditions” as activities that involve the exercise of judgement and ‘indeterminacy’. However, it is clear that the pharmacist characterises her actual role as highly ‘technical’ in nature and resented the professions’ subsequent portrayal to other healthcare professionals.

The ‘technical’ duties or over-rationalisation of pharmacy work depicted in example 6 is concerned with the ‘supply’ side of medicines management. Practice-based example 7 now illustrates an apparent divide in the approach to the ‘prescribing’ side of medicines management. Here, while pharmacists, in particular those in senior management, adopt a far more rationalised and codified approach to compiling prescribing advice for the new hospital drug formulary, many doctors instead appeared to support an opinion-oriented approach. Taylor et al (2003, page 117) summarise: “in order to remain exclusive to the members of the profession itself, its work must not become routinised or rationalised”. In example 7, the work of pharmacists – through the need to strictly adhere to guidelines and protocols – may be regarded as becoming routinised and rationalised.

**Practice-based example 7**

Novel features of the new ‘online’ hospital drug formulary were ‘Consultant buttons’ and ‘Pharmacist buttons’. It was originally hoped that consultants and Directorate Pharmacists would submit prescribing advice statements that would be accessible via these ‘buttons’ online. Such advice was expected to help
users in selecting the most appropriate treatment options for their patients since local 'experts' were providing their rationales for drug therapy.

During meetings set up with consultants, in a large number of cases they frequently declined to provide such statements citing the sheer complexity of patient diagnosis and treatment. In other cases consultants often provided short paragraphs that clarified exactly how they chose one drug over the other. This sort of advice was invariably provided without references to any specific clinical studies or trials and nor did it refer to established guidelines such as NICE or Royal Colleges.

At a routine meeting with the Chief Pharmacist and the Directorate Pharmacist for Formulary / Medicines Information, the comments submitted by consultants were criticised for being “isolated opinions” and lacking justification based on “established evidence” or “guidelines and protocols”.

A sharp contrast in the approach to drug therapy and medicines management between the two groups of professionals was visible. Subsequent attempts to obtain ‘evidence-based’ statements from consultants failed as they were reluctant to spend time collating literature.

As a result ‘Consultant buttons’ do not appear in the final version of the formulary. Instead, ‘Pharmacy buttons’ have been developed consisting of references to corresponding evidence-base.

Pharmacists’ desires to relinquish responsibilities concerning technical duties and thus transitioning to more clinical roles have been expressed before (Plumridge, 1981; Novek, 2000). One significant development in recent times has been pharmacist (and nurse) supplementary and independent prescribing. It was the Department of Health’s commitment to improving access to medicines – outlined in ‘A Vision for Pharmacy in the new NHS’ in 2003 – that was the principal driving force behind the apparent fragmenting and dilution of the prescribing monopoly into the hands of ‘allied’ healthcare professionals. The medical profession took a particularly reactionary stance frequently voicing disapproval (BBC, 2005; Guardian, 2007; Martin, 2007). Doctors had deemed the recent development as “irresponsible and dangerous” and claimed that “patients will suffer” (BBC, 2005). Concerns about inadequate pharmacist and nurse training were often compared, publicly, to the “five or six years of training
every doctor has undertaken” and which results in the “highest level of care and prescribing...provided by a fully trained doctor” (Hall, 2011).

<table>
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<tr>
<th>Practice-based example 8</th>
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<tr>
<td>A number of meetings I had arranged with consultants (in order to develop the clinical content for the hospital drug formulary) were particularly noteworthy. For example, on asking one of the Trust’s Cardiologists about developing an algorithm for the pharmacological management of arrhythmias (abnormal heart rhythms), she responded with, “I don’t think a pharmacist should be doing that at all, it should be a doctor.” She also questioned the need for such an algorithm and emphasised that, “that’s what we’re [Cardiologists] here for.” Similar opposition to the idea of developing such guidance was witnessed from the ENT consultant asked to help in developing a flow chart for the steroid preparations for nasal conditions. The Trust Ophthalmologist expressed his opposition to the development of a glaucoma algorithm. The Trust Dermatologist reacted particularly defensively to suggestions of rationalising the drug options or basal cell carcinoma (BCC). He further added, “who are we doing this for?...I don’t need to be policed by members of the formulary group [DTC].”</td>
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From the perspective of the conflict theories, issues of ‘jurisdiction’ and monopoly over knowledge and practice help to explain both doctors’ reactions to non Medical prescribing and the seemingly defensive stance taken by doctors in Practice-based example 8. Macdonald (1995, page 15) states:

“It is the content of work and the control of work and the differentiation of work, which give rise to internal occupational divisions and to conflict with other occupations, conflict over jurisdiction.”

In example 8, consultants may perceive pharmacists and the local DTC as encroaching on their professional territory with added attempts to rationalise their work.

Pharmacists have also displayed similar protective dispositions over the control of their work. Novek (2000), for instance, examined the impact of automation on
professional demarcations in three Canadian healthcare facilities. The study revealed that automation, in fact, reinforced professional demarcations with pharmacists attempting to maintain control over at least the ‘ordering’ aspect of the dispensing process, resisting doctors, nurses and even pharmacy technicians. The author concludes that pharmacists, in reality, perceived automation as a threat to their jobs and control of their drug expertise (Novek, 2000).

The government wishes to empower pharmacy technicians in order to facilitate more efficient healthcare delivery (DH, 2002). New legislation means regulation of pharmacists and pharmacy technicians is now under the same system as the demarcations between the two occupations blur, allowing pharmacy technicians the opportunity to expand into roles such as: taking medication histories; checking patients’ own medication; checking discharge medication (Nathan, 2009; DH, 2002).

Much of the literature discussing the professionalism of pharmacy relates to pharmacy’s more traditional place, that is, in community pharmacy. As Bush et al (2009) state, community pharmacies, due to their retail environment, will operate successfully only so long as they remain profitable. This inevitably causes internal unease within the professional between, on the one hand, the desire to provide a health service, and thus functioning as a ‘true’ profession, and on the other hand, the fundamental requirement to produce higher profit margins (Bush et al, 2009). Community pharmacists have been unable to capitalise on even state-sponsored professional reform, such as Medicine Use Reviews (MUR)5, partly due to the relative importance given to income targets over and above engaging with new services (McDonald et al, 2010). The Marxist perspective is applicable here with the pharmacist assuming the role of the producer and the patient as the consumer. Striving to achieve maximum profits, the community pharmacist runs the risk of being viewed as a ‘capitalist' first, rather than a member of a profession whose sole focus is the patient’s welfare.

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5 Medicine Use Reviews (MUR) - is an Advanced service and is part of the NHS Community Pharmacy Contract. Undertaken by a pharmacist, it is a structured review that helps patients to better manage their own medication. It specifically targets the ‘use’ of patients’ medication and helps to identify any potential issues e.g. side effects and provides feedback to the prescriber when necessary (PSNC, 2012).
Further studies in community pharmacy have shown that GPs’ attitudes towards pharmacists could also have mitigating effects on the professional status of pharmacy (Edmunds and Calnan, 2001; Hughes and McCann, 2003). Any accommodating attitudes expressed by GPs towards expanding community pharmacists’ roles are often tempered by GPs also displaying dominating dispositions attempting to ‘limit’ and ‘exclude’ pharmacists from clinical activities (Edmunds and Calnan, 2001). One study that attempted to capture the dynamics of collaboration between community pharmacy and general medicines found those GPs who appear to be disinterested in collaboration with community pharmacists express concerns about the perceived lack of training of pharmacists suggesting limited confidence in their ability (Bradley et al, 2012). The study also shows the commercial aspect of community pharmacy was viewed “negatively and with suspicion” by some GPs.

Specifically, Wilcock and Harding (2007) found GPs in general expressed “negative views” about community pharmacy-conducted MURs. Although 60% of GPs stated they ‘generally’ found pharmacists’ recommendations useful, only one-fifth considered the recommendations to be a priority. Similarly, the New Medicine Service (NMS), introduced to community pharmacies in England in 2011, was set up to improve adherence to new medicines in patients with long term conditions. A study recently revealed that barriers to implementation of the NMS included a perceived lack of interest and awareness by GPs despite briefings from local PCTs (Wells et al, 2013). Exploring pharmacists’ views and experiences, the study showed participants were concerned by the “lack of GP enthusiasm for pharmacy services”.

Practice-based example 9 describes a consultant’s continued attempts to resist pharmacist interference with his drug decision, analogous to Edmunds and Calnan’s (2001) observations in primary care. Once the decision is enforced the consultant displays further frustrations towards the established bureaucratic procedure to prescribing non-formulary drugs.

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<tr>
<th>Practice-based example 9</th>
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<tr>
<td>In the out-patients section of the Pharmacy department, a junior pharmacist clinically screened an out-patient prescription for azithromycin (an antibiotic) for</td>
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a patient suffering from bronchiectasis (a respiratory condition). The use of azithromycin in this way was considered non-formulary use and therefore not permitted at the Trust. The junior pharmacist had initially contacted the consultant to challenge the prescription however quickly succumbed to the demands of the consultant and thus (against established protocol) permitted the supply of a non-formulary drug. At the checking stage of the dispensing process, a second pharmacist (senior) brought the prescription to my attention. A brief review of the literature demonstrated weak evidence for the rationale and place in therapy for azithromycin in bronchiectasis with only case reports to support its use. After discussing the case with the original junior pharmacist, I then contacted the consultant to recommend an alternative or suggest reviewing the patient again. The consultant explained that this ought to be a decision made by an “expert”, that is, a professional who understands the patient’s individual circumstances. The patient had previously been tried on standard therapy for bronchiectasis and is only now responding to azithromycin (reduction sputum volume). In this case, after discussing with the Chief Pharmacist, it was agreed that as per formulary protocol, the consultant complete the necessary paperwork (‘fast-track’ application) for ‘one-off’ use and provide supporting material that justifies its use in practice. The reaction from the consultant was now more disapproving. He felt that his expertise was being questioned and that such a decision should not include the Pharmacy department or necessitate “bureaucratic” procedures. It appeared as if the consultant viewed the role of the pharmacist to comprise of no more than ‘supply’ and in particular ‘without’ the need to critique his decision.

While the medical profession is considered to have achieved a particularly elevated status in society, cases such as those described in Practice-based example 1 and 9 in fact demonstrate an awkward and uneasy dominance of ‘rigid’ protocols and procedures that appear to be enforced by pharmacists. Since – as Macdonald (1995) states – bureaucratisation may be antithetical to professionalism, pharmacy’s status as a ‘true’ profession is at risk.

Morgall and Almarsdóttir (1999) assert that pharmacy in Iceland has ‘lost’ its monopoly and outline three reasons for this: political encouragement to increase competition between the community pharmacies; political desire to cut
the total health budget; and internal divisions within the pharmacy profession itself. Certain elements discussed in the literature above appear to share some of the fundamental features of Morgall and Almarsdóttir's (1999) findings. Perhaps there are lessons to be learnt from such studies if the professional status is, at the very least, to remain protected, if not enhanced.

2.3.3 Established models to understand the doctor-pharmacist interaction

A number of investigations have previously sought to explain, in particular, the factors affecting prescribing decisions (Brown et al, 1999; Groves et al, 2002; Greenfield et al, 2005; Plumridge, 1983; Armstrong et al, 1996). Although a professional agenda has not been openly explored in this field of prescribing research, there are, nevertheless, nuanced allusions to occupation-oriented thought processes involved in selecting one drug over another. Some of these investigations have focused on the interactions between doctors and pharmacists proposing models to understand their outcomes and interpret how they ultimately impact on drug selection. This section introduces the ‘collaborative working relationship’ model, the ‘challenge model of change’ and ‘Game Theory’.

Doucette et al (2005) used the ‘Collaborative Working Relationships’ (CWR) model to guide an investigation of the influences on collaborative care between doctors and pharmacists. The model states that a number of variables affect the development of collaborative working and can be categorised into either: ‘individual’, ‘context’ and ‘exchange’ characteristics. Using the CWR model, and data collected through a survey, the investigation revealed three variables were significantly associated with collaborative care between doctors and pharmacists: the context variable, ‘professional interaction’; and the exchange variables, ‘trustworthiness’ and ‘role specification’.

The interaction between the consultant and various members of the Pharmacy department in Practice-based example 8 and 9 may have benefited if the findings from Doucette et al's (2005) investigation were adopted. ‘Role specification’, for example, refers to the expectations each practitioner may hold about the other “based on past experiences, stereotypes and educational
The authors state that when pharmacists and doctors “jointly determine specific roles, the relationship is more likely to be collaborative.” It appears, according to this model, that consultants are unaware of the nature and quality of contribution that pharmacists are capable of making.

Practice-based examples have so far demonstrated that individual healthcare professions will inevitably offer contrasting approaches to drug therapy. Given such differences, ‘collaboration’ can still yield clinically desirable outcomes. Armstrong et al (1996) explored GPs’ reasons for changes in their prescribing behaviour theorising the ‘challenge model for change’ to explain behaviour change that followed a conflictual clinical event. The authors state that while some changes in prescribing habits occur through “a gradual accumulation of cues” (medical literature, conferences, and consultants’ letters), this model highlights change that results from “immediate challenge” typically as a consequence of pharmacist intervention. The model emphasises the “very lack of preparedness that caused the rapid reassessment of prescribing policy” in GPs, thus averting potential “clinical disasters” (a dangerous drug interaction and a dangerously large dose of drug) (Armstrong et al, 1996). Practice-based example 10 describes a case to which this model can be applied to interpret the interaction. Upon the pharmacist’s intervention, the Specialist Registrar is subjected to a scenario where there is ‘immediate challenge’, he is arguably lacking ‘preparedness’ (unfamiliar with established Trust ‘Tramadol Guidelines’) and thus forced to engage in ‘rapid reassessment’ of his prescribing choice. Through ‘collaboration’, an alternative way forward is agreed upon. According to this model however, had the doctor been familiar with all aspects of the prescribing scenario, he may not have conceded to such a reassessment of his drug selection.

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<tr>
<th>Practice-based example 10</th>
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<tr>
<td>While covering a colleague’s ward, I noticed the drug ‘tramadol’ newly prescribed on a patient’s drug chart. Tramadol is an opioid analgesic (pain killer) restricted at the Trust owing to its potential for dependence, side effects and interactions with various other drugs and higher cost. The established ‘Tramadol Guidelines’ at the Trust recommend ‘codeine’ is used in the first...</td>
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instance and to try laxatives if codeine causes constipation – if this combination fails, then tramadol is a suitable alternative.

Since the Specialist Registrar (senior doctor under whose care the patient was managed), was present on the ward, I decided to approach him and discuss the potential switch to codeine. After making him aware of the current guidelines, the Registrar maintained his determination to use tramadol since he had experience of prescribing it successfully in previous patients. In addition the doctor reminded me of the patient’s presenting complaint (reason for admission to hospital) and co-morbidities so did not want to further complicate the patient’s care by having to manage constipation as well.

Wanting to enforce the guidelines while also appreciating the patient’s clinical condition, I proposed switching to codeine for the time being and if the pain is not reduced within a 24 hours period, to switch to tramadol (thus minimising the risk of developing constipation and subsequent management). The Registrar readily agreed with this and was grateful for the understanding and flexibility shown.

Another model to study the interaction between individuals is known as ‘Game Theory’. Myerson (1997, page 1) defines it as the study of “conflict and cooperation between intelligent rational decision-makers”. One version of Game Theory supports the belief that ‘cooperation’ is, in fact, never a rational strategy. This idea is best explained through the famous ‘Prisoner’s Dilemma’ game outlined in Appendix 17. Central to Game Theory is the notion of the ‘Nash equilibrium’ (Appendix 17) achieved when the interacting parties strategise ‘against’ each other instead of cooperating.

In the present context of professionalism we shall attempt to apply Game Theory to understand the professional scenario depicted in Practice-based example 10 in which a pharmacist challenges a doctor’s drug choice. The scenario’s potential outcomes are illustrated in Figure 2. Once the pharmacist has outlined the identified issue to the doctor, the pharmacist can opt to 'cooperate' (C) by only mentioning the issue but too easily willing to acquiesce upon the doctor’s insistence. This option represents a lack of professional assertiveness, perhaps of the nature seen in the junior pharmacist depicted in Practice-based example 2.
The second option available to the pharmacist is to ‘defect’ (D), that is, to insist on having their recommendation enforced. As a contrast to the first option, here the pharmacist pursues a 'self-interested' professional engagement. Since the pharmacist in example 10 displays an intention to both enforce established guidelines as well as incorporate the patient’s specific situation into the clinical decision, the pharmacist could be argued as displaying ‘indeterminacy’ and exercising ‘inferential’ activity. Additionally, rather than be subordinate to the doctor, the pharmacist asserts a professional dominance through the exercise of clinical judgement based on his specialist knowledge.

A similar pair of options can be outlined for the Specialist Registrar who can 'cooperate' (C) in much the same way as the pharmacist by avoiding conflict and yielding to the expertise of the pharmacist. Conversely, the doctor could vigorously insist on maintaining his original drug selection (D). In example 10, this insistence is a result of having acquired previous successful experience with the drug (tramadol).

As with the Prisoner's Dilemma (Appendix 17), the Nash equilibrium occurs when both parties choose to defect (D, D), in other words when both doctor and pharmacist wish to engage in professional 'non-cooperation', each attempting to assert professional dominance. The reason for this is because if either healthcare professional chooses to 'cooperate' they immediately run the risk of the other choosing to 'defect' thereby asserting their professional dominance over them. In Practice-based example 10, it can be argued that both professionals opted to ‘defect’ and engage in professional activity. While the doctor determinedly argued the case to maintain the initial drug choice, tramadol, the pharmacist enforced a switch to codeine albeit temporarily and with a view to switch (back to tramadol) if it failed as a first-choice option.
Summary of Chapter 2

A broad understanding of some established sociological perspectives were discussed in this chapter. Using this understanding, both the medical and pharmacy professions were subjected to broad historical and sociological critiques. The medical profession has been shown to have maintained a unique relationship with the state, which has enabled it to have delayed the social mobility of a number of other occupations. This dominance over kindred occupations, as well as a state-backed monopoly over a specified domain of knowledge has been defined as key characteristics of the professions, of which medicine has often been stated to be the highest manifestation.

Although one can point to various articles in the literature reporting successful collaboration between the medical and pharmacy professions, pharmacists...
continue to pursue their own professional agenda, and wish to embrace more clinical roles. The wider recognition of the pharmacist as the ‘drug expert’ has opened doors for the profession to independently prescribe in all sectors of healthcare as well as engage in more clinically-oriented services in community practice.

The hospital drug formulary is another commonly developed tool designed to influence drug prescribing and impacts on all healthcare professionals involved in drug therapy. Chapter 3 will now explore the origins of formularies, their contemporary manifestations as well as ideal implementation strategies and techniques.
Chapter 3
Formularies and Change Management

3.1 Introduction

This chapter will now turn to a closer exploration of the ‘hospital drug formulary’, introduced in Chapter 1. Described as the “cornerstone of effective medicines management" (Audit Commission, 2001, page 16), formularies are seen by many as a solution, but by others as ‘solely’ cost-motivated and are sceptical as to its true benefits to patient care. This chapter explores the evolution of formularies in order to shed light on how its purpose and remit have evolved over time.

The methods used to develop and implement formularies are said to be pivotal to their successful uptake. Since the introduction of a formulary into established prescribing practice represents ‘change’, an understanding of the relevant change management strategies and tactics will be examined. Such strategies help to uncover a variety of factors that can either facilitate the change process or serve as resistance. Often ‘attitudes’ of key stakeholders, whether for or against formularies, can serve as formidable influences, particularly in the domain of drug therapy. The last section of this chapter will discuss what is known of these attitudes as they appear in contemporary literature.

As with Chapter 2, practice-based examples will be used to illustrate key concepts discussed, and reflect on their existence in practice.

3.2 Hospital drug formularies

3.2.1 Historical overview of formularies

In the UK, the closest ancestor to present-day formularies is the National War Formulary (Figure 3). It was compiled in 1939, at the start of the Second World War, by the British Medical Association (BMA) and the Pharmaceutical Society of Great Britain at the request of the Minister of Health – indicating early
government influence (FAME, 2005). Up to this point, formularies had always been more about production than prescribing. From this point on, however, an additional intent was for formularies to provide for “the strictest economy in prescribing” (Swansea Museum, 1995).

Following the end of the war and the formation of the NHS, in 1949 the British National Formulary (BNF) came into being and was updated every three years until 1976. The pharmaceutical industry penetrated prescribing practices far more than the BNF due to intensive marketing and regular publications. The split in influence was estimated at 80% versus 20%, respectively (FAME, 2005). In an attempt to counter this influence, the BNF was redesigned in 1981 as a comprehensive prescribing tool, no longer selective about medication, but giving information about all medicines available in the country. Additionally, more information was included on the prices of medicines, and was designed as a handbook to fit into a coat pocket for ward use (FAME, 2005). Perhaps for the first time, for the pharmaceutical industry, the formulary concept became a threat to profitability. While the BNF now provided national drug guidance there was, however, a parallel development of local hospital initiatives.

Hospitals have long since operated within their own set of priorities and budgetary constraints. The awareness of increasing costs of drug therapy in addition to governmental control, led to the development of hospital policies in the 1950s. DTCs were formed in the early 1970s due to the increasing number and diversity of medicines and eventually led to the development of specific drug policies (FAME, 2005). Now DTCs are considered by the WHO as “one of the pivotal models to promote rational use of medicines” (Tan et al, 2005, Page 527).

As we have seen in Chapter 2, the rise of ‘specialist knowledge’ – particularly that associated with the pharmacy profession – has had implications for the way medicines-related healthcare is delivered. It was the Nuffield Report in 1986 that first brought to prominence the importance of pharmaceutical advice. Formularies soon became a practical medium to capture this advice as a way of improving prescribing practice (Khan, 2002).
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>3000 BC</td>
<td><em>3000 BC – Sumerian clay tablet discovered in Nippur, Iraq (oldest known example of a formulary)</em></td>
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<tr>
<td>1400</td>
<td><em>1498 – European pharmacopoeias</em></td>
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<tr>
<td>1700</td>
<td><em>1700s – Hospital pharmacopoeias</em></td>
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<tr>
<td>1800</td>
<td><em>Late 1800s – new understanding of pharmacology and standardisation of potency of active ingredients</em></td>
</tr>
<tr>
<td>1930</td>
<td><em>1939 – National War Formulary produced at request of Minister of Health by British Medical Association and Pharmaceutical Society of Great Britain</em></td>
</tr>
<tr>
<td>1940</td>
<td><em>1949 – British National Formulary (BNF) born and updated every three years</em></td>
</tr>
<tr>
<td>1950</td>
<td><em>1950s – greater awareness of increasing drug costs and more government control</em></td>
</tr>
<tr>
<td>1960</td>
<td><em>Pharmaceutical industry maintains a far greater influence on prescribing than BNF (80% Vs 20%)</em></td>
</tr>
<tr>
<td>1970</td>
<td><em>Early 1970s – Drug and Therapeutic Committees (DTC) formed, specific drug policies produced</em></td>
</tr>
<tr>
<td>1980</td>
<td><em>1981 – BNF reborn as a comprehensive prescribing tool, includes prices, designed as a handbook</em></td>
</tr>
<tr>
<td>1985</td>
<td><em>1986 – Nuffield Report recognises importance of pharmaceutical advice and is soon incorporated into local hospital formularies</em></td>
</tr>
<tr>
<td>1990</td>
<td><em>1993 – advent of Internet and World Wide Web (WWW)</em></td>
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</tbody>
</table>
*1999 – National Institute of Health and Clinical Excellence (NICE) set up* |
| 2000s | *2001-2003 – Medicines Management Framework launched by government – Chief Executives and Chief Pharmacists now allocated responsibility of enhancing local hospital formularies and meeting newly defined standards* |
*2007 - Healthcare Commission reviews 173 trusts – electronic and web-based formularies with hyperlinks to clinical guidelines promoted* |
*2008 – government publishes its review of the NHS promising greater control and choices for patients – new implications for prescribers* |
| 2010 | *2010 – NHS Constitution becomes law giving a legal right to all patients in England to drugs and treatments recommended by NICE* |

**Figure 3.** Key milestones in formulary evolution.

While such professional involvement has influenced the evolution of the formulary, it has also been subject to varying degrees of government control.
In 2001, the Department of Health launched the Medicines Management Framework offering trusts an opportunity to review their medicines management systems (DH, 2003). The ‘weakest area’ was identified as lack of senior management involvement and awareness of medicines management issues. As a result, the second wave of the Medicines Management Framework outlined specific good practice standards increasing the responsibility of managers. With this came a clear notion of the government’s minimum standards for medicines management strategies and expectations for a working formulary (discussed in Section 3.2.2).

Many formularies now include detailed prescribing information and treatment guidelines that individual hospitals use as a mechanism for advising restrictions agreed by DTCs. They provide prescribing direction from a remote source that claims validity and authority, many accessible at the point of care (Healthcare Commission, 2007). Practice-based example 11 illustrates how such compilations are encouraged by senior management.

**Practice-based example 11**

After discussions with the Chief Pharmacist, in order to represent local prescribing policies more accurately, I was tasked with extracting and summarising decisions made about individual drugs from DTC meetings and incorporating them into the formulary.

During the lengthy process of reviewing the previous ten years worth of DTC decisions I realised that, in fact, the formulary is essentially a ‘vehicle’ by which the DTC’s decisions are conveyed and are made accessible to users at the Trust. It is also, in effect, a ‘repository’ of a wide range of information.

The Chief Pharmacist and my Line Manager (Directorate Pharmacist for the Formulary and Medicines Management) were notably supportive of the initiative to incorporate ‘all’ DTC decisions in this way.

Today, formularies are still evolving, now expanding across care sectors. It is estimated, for instance, that up to 40% of primary care prescribing may be influenced by secondary care (Furniss, 2000). Patients can often be discharged on medicines from a hospital formulary that are not necessarily on individual general practice formularies (in primary care), leading to undue changes in...
medication (Crowe, 2002). In 2002, the emergence of Strategic Health Authorities (SHA) had reinforced attempts to merge prescribing practices across the two sectors (FAME, 2005). In their efforts to tackle cost pressures and encourage more consistent prescribing across this interface, chief executives from PCTs and hospitals often turn to the development of ‘joint formularies’ as a viable solution (Duerden and Walley, 1999; Furniss, 2000). Setting up a forum with representation from both local hospital trusts and PCTs have been critical to the success of many formulary projects (Crowe, 2002).

Prior to any collaborative endeavours to establish a formulary, it seems sensible to first establish a consensus on the philosophy behind the formulary, a broad clarification outlining the purpose, in short, a ‘working definition’.

### 3.2.2 Working definition for a formulary

Plumridge et al (1984) and Sutters (1990) both define the hospital formulary in terms of two major objectives. First, the intention to improve the quality of drug therapy through rational prescribing, achieved by restriction of inferior drugs and indirectly through the educational content in formularies. Second, cost control, which can be enhanced by the use of cheaper alternative agents as displayed in the formulary. Other definitions follow a similar pattern, an initial focus on quality or evidence-based prescribing then turning to minimising the unjustifiable prescribing of expensive drugs, and cost containment (Khan, 2002; Petrie and Scott, 1987).

The aforementioned, Medicines Management Framework in 2003 mandated a particular standard that formularies should achieve and outlined, in effect, the government’s view on a ‘definition’ for formularies:

“Formularies should not be lists of drugs stocked but working documents incorporating national and locally agreed prescribing policies and guidelines. Where possible, formulary systems should be developed to promote therapeutic consistency across the local health economy.” (DH, 2003, page 8)
In the United States (US), where an insurance-based health service currently operates, the American Society of Hospital Pharmacists (ASHP) share a somewhat similar perspective and introduced guidelines for hospital formularies more than thirty years ago (ASHP, 1978). Their recently revised US definition of a drug formulary also mentioned that it represents the “clinical judgement of physicians, pharmacists, and other experts” (ASHP, 2000). Others have also incorporated a multidisciplinary theme to their wording, often emphasising the “peer-controlled process” involved in production (Rucker, 1982, page 465), which may encourage a more collaborative approach to formulary management and compliance.

Some definitions, however, are less ‘diplomatic’ in their wording. Pearce and Begg (1992, page 191) begin their review of formularies with the words “The limited list or formulary concept…”, implying that the term ‘limited list’ and ‘formulary’ are synonymous, hence the implication that the formulary ‘is’ a limited list. Many prescribers are suspicious of the purpose of a formulary anyway, they are often not convinced that the choice of drug is determined by evidence-base rather than cost (Kwan, 2005). Use of the words “restricted lists” and “required to adhere” have often been used to describe formularies (Duerden and Walley, 1999, page 435).

Similar interpretations of formularies and their perceived mode of operation are described in Practice-based example 12. Pharmacists with attitudes from both sides of the spectrum are seen. On the one hand pharmacists support formularies being used to ‘guide’ drug selection while other pharmacists favour formularies being designed and utilised to ‘enforce’ drug decisions made by the local DTC.

**Practice-based example 12**

Prior to the development of the new hospital drug formulary at East and North Hertfordshire NHS Trust, I gave an initial presentation to the entire Pharmacy department that addressed the underlying principles behind establishing a new local formulary.

I discussed, at length, the emphasis on guidance and not policing prescribing. A number of interesting responses were observed. There were some pharmacists...
who clearly agreed that as pharmacists we should convince prescribers of appropriate prescribing through a ‘discussion’ of the evidence-base and the knowledge of the pharmacology of drugs. There were others who, while supporting the underlying approach of presenting evidence, also maintained that the formulary should be used to “enforce” the decisions made by the local DTC. Words used included “hammer home”, “not allowed” etc.

Towards the end of the presentation, I discussed the possibility of the new hospital formulary being called the ‘Prescribing Guide’, as a way of distancing the new service from the ‘restrictive’ connotations of the past. Once again, while there was an overall favourable consensus for the potential moniker, there were voices that expressed concerns about a ‘Prescribing Guide’ being consulted but ultimately ignored since it will be perceived to be “only guidance”.

However, contrasts also seem to exist in just how strictly formularies are intended to govern prescribing. In the US, the idea of ‘open’ and ‘closed’ formularies has been discussed:

“Open formularies allow physicians to prescribe most medications without penalty and... are viewed as guides to prescription practices. Closed, or restrictive, formularies limit the number of drugs that are stocked...they are usually more costly.” (Lanser, 2002, page 52)

Lanser’s (2002) conclusion is that by incorporating elements of both models and operating along a continuum between the two, patients and healthcare organisations are most likely to benefit. Although in the US a different funding system for medicines and healthcare operates, Lanser’s reasoning in advocating a balance between ‘flexibility’ and ‘constraint’, is certainly noteworthy and relevant to the UK’s NHS model.

3.2.3 Formulary formats

Formularies have also evolved considerably in format and content over recent years. Early American and Australian studies revealed a high proportion of formularies rated poorly in terms of content, compilation, size and binding, for
example, a high percentage were larger than pocket-size (Rucker and Visconti, 1976; Plumridge et al, 1984). Although the nationwide BNF was ergonomically designed, local formularies were not designed with the user’s convenience in mind.

Over the decades, with the advancement of technology, formats and content have transformed. In 1993, a review of various aspects of formulary management at major acute and general UK hospitals revealed that 95% of formularies were now pocket-sized and, in fact, the number of hospitals operating a formulary had increased to 90% over three decades (Joshi et al, 1994). Recently a more comprehensive review of medicines management at 173 acute and specialist NHS trusts in England revealed that of the 152 trusts that had a formulary (again approximately 90%), 86 were paper-based, 111 were stored in an electronic format and 56 had a web-based design (Healthcare Commission, 2007). With the growing interest in web-based versions of formularies, recent developments involve the introduction of diagnosis-based guidance that supports the selection of medicines. It is hoped clinical guidelines conveniently linking to and from the formulary will drive best practice in prescribing.

3.2.4 Formulary compliance

Compliance may be described as “the practice of obeying rules or requests made by people in authority” (Oxford University Press, 2009). With respect to hospital formularies, the ‘authority’ is the local DTC, and the ‘rules and requests’ are the drug decisions which are ultimately represented in the local formulary. Superficial reasons for limited use and therefore compliance include poor design, presentation, and structure. Furthermore, the underlying ‘performance’ of a formulary is said to depend as much on the approach to implementation as the design and content (Tugwell et al, 1984).

However, data specifically on formulary compliance is either lacking or outdated. There are only vague indicators of compliance, most notably the extent of non-formulary drug usage (Sutters, 1990; Tugwell, 1984; Khan, 2002) as well as the volume of generic drug prescribing compared to brand-based
prescribing (Feely et al, 1990). The early reports on hospital formularies focussed more heavily on the financial benefits that they can bring than anything else (Pearce and Begg, 1992; Petrie and Scott, 1987).

There is, nevertheless, published work on hospital guidelines (rather than formularies per se) that do reveal interesting findings. For instance, the prevalence of inappropriate prescribing has been consistently highlighted concluding that ‘education’ is key to optimising the prescribing carried out by, in particular, junior doctors (Shetty et al, 1999; Humphries et al, 1997). As one might expect a direct relationship exists between appropriateness of drug therapy and improved patient outcomes (DeVito and John, 1985).

Since the early formularies were simple lists and historically DTCs and Pharmacy and Therapeutics committees (the US equivalent of DTCs) were primarily concerned with cost minimisation, any form of restriction presented to prescribers in today’s world, by way of a formulary, is often met with varying degrees of hostility (Goodwin, 2003; Kwan, 2005; Gosalakkal, 2005). Practice-based example 13 illustrates such hostility towards formularies and, in particular, the antipathy towards their role in cost-minimisation.

<table>
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<th>Practice-based example 13</th>
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| While developing ‘Chapter 7: Obstetrics, gynaecology and urinary tract disorders’ for the new hospital drug formulary, I arranged a meeting with a Trust urologist. I had stipulated prior to the meeting that it will be an opportunity to discuss the allocated traffic lights to formulary-approved drugs and develop algorithms to aid potential users. However, after the first ten minutes, it quickly became clear that the urologist, although actively participating, was instead far more interested in listing ‘new’ drugs that he would like to have stocked in the Pharmacy department, in effect attempting to bypass the established review process that usually takes place when new drugs are requested. In addition, he appeared to list the desired drugs without any regard for my opinions as to their merits.

I reaffirmed the intentions laid out for the meeting. We began by discussing drugs approved for urinary incontinence. A new drug, solifenacin, had recently been approved at the Trust for this indication but it had been agreed that it
would, effectively, be a fourth-line option. Far more defensive now, the urologist asserted that he would “always” prescribe solifenacin as a first-line agent for his patients because in his “experience” and “in practice” patients do not tolerate the first-line agents well so rather than “waste their time and mine” he would prefer to prescribe a drug that he “knows” will be effective and tolerated. I decided to discuss the trial evidence with the consultant, some of which I was familiar with. The consultant, nevertheless, maintained his defiant stance, reinforcing his reasons for preferring solifenacin over other options. At this point, I decided to discuss the cost implications of solifenacin against those of its alternatives. From previous experience I was conscious of expecting some potential retaliation however, on this occasion the consultant did not react aggressively. Instead there was a clear sense of withdrawal from further discussions. The consultant asserted solifenacin as his preference once again, but quite visibly refrained from further active participation in discussions. The remainder of the meeting was rather more subdued and largely unproductive owing to the consultant’s lack of participation.

Sutters (1990, page 59) talks of the need to develop “voluntary compliance” but adds that this can only be achieved if prescribers develop a sense of ownership and sympathise with the objectives of the local formulary.

Collaborative workings across PCTs and within acute hospitals have been documented by the National Prescribing Centre (NPC). Various cross-sector, medicines management initiatives are described with some highlighting the relative successes of formulary implementation (NPC, 2007). Focus has explicitly been on minimising the use of non-formulary drugs or drugs restricted to designated departments and specialists. However, once again, there are only vague and discreet references to either formulary ‘compliance’ or ‘adherence’.

3.2.5 Personal formularies

Doctors are said to often prescribe from ‘personal formularies’ which often remain in constant conflict with local hospital formularies. Robertson et al (2001, page 333) describe the concept of the personal formulary as:
“...generally not written down, has developed as a matter of habit rather than rational thought, and has been shaped by colleagues, patients and experience.”

Denig and Haaijer-Ruskamp (1992), present a similar depiction of what they call the ‘evoked set’ – a small set of possible treatments that a doctor might consider for a specific condition. They state the “drug choice process” that the doctor engages in is thus reduced to a single step, that is, the selection of a drug from their “limited set” and can be taken “without further active thinking” (Denig and Haaijer-Ruskamp, 1992, page 9).

Hence, the idea of the evoked set suggests that a therapy that is unfamiliar to the prescriber will not be prescribed. As Groves et al (2002) advise, for formulary managers it is critical to be able to influence the adoption and relinquishment of drugs to and from the evoked set and the subsequent maintenance of the status quo. Miller (1973) classifies the process through which an individual passes from first hearing about an innovation (a new drug) to actually using it as the ‘adoption process’. New drug adoption, in particular, is said to be influenced by ‘attitudinal’ changes of individuals and organisations (Groves et al, 2002). Documented influences to adoption are: perceived attributes of the drug, communication channels, nature of the social system and the extent of promotional efforts by ‘change agents’, that is, those who seek to influence the drug decisions of prescribers, typically pharmacists in a hospital setting and the pharmaceutical industry (Groves et al, 2002; Miller, 1973). Practice-based example 14 describes an interaction between a doctor prescribing from within his ‘evoked set’ and a pharmacist advising on a formulary-approved drug.

Sophisticated interventions made by the pharmaceutical industry to influence prescribers are also recognised (Stone, 2006). A technique known as ‘academic detailing’ uses the principles of social marketing to achieve behavioural change, particularly prescribing behaviour (Cutts and LaCaze, 2003). The broader strategy known to be employed by the pharmaceutical industry is to establish the new drug into doctors’ personal formularies as early as possible and “attain top-of-mind physician awareness, and ultimately maintain the product’s first-choice status” (Groves et al, 2002, page 187).
### Practice-based example 14

A new SHO at the Trust newly prescribed ‘diclofenac’ (an anti-inflammatory pain killer) for an elderly patient on my ward. For the purposes of investigation, I questioned him on his rationale for choosing diclofenac over other anti-inflammatories. He explained that since he had qualified as a doctor he has routinely prescribed diclofenac simply because it was the first-line agent at his first work placement. In response to using ibuprofen, he felt uncomfortable to change it since he had greater experience with diclofenac.

In order to provide an adequate ‘learning experience’ I directed him to the Trust’s new Prescribing Guide showing ‘ibuprofen’ as the first-line agent. I also demonstrated that there was in fact an evidence-based rationale (available through the ‘Pharmacist button’) for example the Commission on Health Medicines (CHM) considers ibuprofen to carry the lowest risk of GI adverse effects and trials show ibuprofen is as effective as diclofenac for the management of osteoarthritis and rheumatoid arthritis.

The doctor agreed to prescribe ibuprofen first-line in future.

### 3.3 Change management

#### 3.3.1 The relevance of change management

Change within any organisation is both a necessity and inevitable. Change can result from: the arrival of a new leader; adoption of new technology; or the launch of a new product or service (Harvard Business, 2003). It is this last case that this paper is concerned with, that is, the implementation of a new product – a formulary – and its functioning as a new service within an acute hospital.

Change management is a wide ranging discipline. An appreciation of the key change management concepts can facilitate a better understanding of the environment in which local formularies operate, including the attitudes that have thus far been identified. This section will therefore examine some of the issues...
surrounding formularies using change management theory to understand the origins, positioning and implications of these issues.

3.3.2 The change agent

In instigating an effective change management project, an essential requirement is the appropriate allocation of a ‘change agent’. Paton and McCalman describe three core attributes that this individual must possess. Firstly, emphases on personality – the ability to listen, empathise and display people-oriented skills. Secondly, the change agent requires both ‘analytical and diagnostic skills’. In other words, they can identify and solve problems and effectively facilitate the change process. Thirdly, the change agent would be better equipped if they had previous experience in implementing the change in question. The implication is that having experience informs decision-making since the change agent has a somewhat ‘revealed’ insight of the entire change situation (Paton and McCalman, 2000).

The Formulary Pharmacist has been identified by previous authors as the sole individual involved, in some manner, at every stage of formulary development (Sutters, 1990), from conception, to preparation, to implementation and eventually maintenance and updating (Khan, 2002). While other authors mention, rather vaguely, working groups, formulary teams or the oversight provided by local DTCs, it is invariably the Formulary Pharmacist who ultimately coordinates and steers the process of formulary development, manoeuvring around difficulties thus constituting a significant aspect of their working remit (Bochner et al, 1996; Joshi et al, 1994; Hill, 2005). Practice-based example 15 outlines a case of overcoming such difficulties including those arising as a result of limitations in the Formulary Pharmacist himself. It is the change agent’s responsibility to portray the change as an opportunity rather than a threat or crisis. Paton and McCalman (2000) explain that when those affected by the change feel part of a team and working towards common goals, delegated aspects of change will be viewed as common to all involved.
After meeting with three gastroenterologists for the development of ‘Chapter 1: Gastrointestinal system’, I realised I was in many ways deficient as I was unable to confidently and broadly discuss the use of drugs in this chapter. While I could provide details as to the cost of medication and the volume of use, ‘clinically’ I was certainly lacking.

Directorate Pharmacists had previously expressed an enthusiasm for the project however were unable to commit to helping on chapter development citing lack of time. In my capacity as ‘change agent’ I devised a way of simplifying the process of contributing to chapter development. I constructed ‘chapter development packs’ that required Directorate Pharmacists to fill in minimal information. By portraying their contribution as a useful ‘opportunity’ to re-familiarise with drugs relevant to their own directorate (clinical speciality), this solution was overall a success.

During multidisciplinary approaches to producing drug policies or indeed sections of formularies-in-development, it has been noted that the medical and pharmacy profession often resort to different drug selection philosophies. Doctors often base their opinions on personal experience with drugs while pharmacists make more use of critically evaluated published data (Tugwell et al, 1984). The incident described in Practice-based example 13 is a quintessential example of this. Sutters (1990, page 72) consequently underlines the importance of the Formulary Pharmacist being able to competently “reconcile and influence the prescribing views and needs of clinicians where opinions are divergent.” The first two attributes described above are in play in such circumstances, that is, being able to sense and diagnose problems from the perspective of the audience and motivating people to change are critical roles and have been similarly identified by other authors (Harvard Business, 2003).

3.3.3 Planning the stages of change

Beneficial effects of formularies are notoriously short-lived (Hemeryck et al, 1996). If potential improvements in quality of prescribing are to be sustained, formulary implementation should ideally incorporate a wide range of ‘continuous
interventions’ (Feely et al, 1990; Joshi et al, 1994; Hill, 2005). For instance, NICE advocates the use of educational forums such as training courses to facilitate the implementation of change (NICE, 2007). There is also a lively debate in the literature regarding the value and impact of large-scale didactic meetings (such as lectures) in bringing about behavioural change (Oxman et al, 1995; Charlton, 2006). Various formulary development projects are described in the literature in depth, however there is no ‘one-fits-all’ model that has been recommended.

The Formulary Pharmacist thus requires a ‘global’ strategy. Buchanan and McCalman (1989) established the ‘Perpetual Transition Management’ model that outlines four interlocking processes that must take place in order to implement and sustain organisational changes (Figure 4).

Sutters (1990) and Tugwell et al (1984) both conduct their formulary development work in a stepwise fashion establishing a clear purpose behind each stage. Tugwell et al (1984) describe an early focus on articulating an essential reason – analogous to the ‘Trigger layer’ (Figure 4) – and then progress to a broad vision. The authors outlined the initial problems as: increasing drug expenditure and; a large unchecked number of drugs to choose from which represented an unreasonable burden on medical and pharmacy staff and was deemed unsafe.

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Figure 4. Perpetual Transition Management model (adopted from Buchanan and McCalman, 1989).
The Perpetual Transition Management model encourages the change agent to recognise that they need to carefully articulate the vision for the change being implemented with the purpose of instilling a sense of “shared perception” (Paton and McCalman, 2000, page 28). Tugwell et al (1984) do just this: they clarify their ‘Guide to the Prescribing of Medicines’ is intended for the ‘non-specialist’ while laying out a list of specific planned benefits to be gained from its instigation. The authors claim successful implementation of their hospital formulary with “tentative estimates” of compliance being “well over 90%” (Tugwell et al, 1984, page 318). It may be reasonable to conclude that such a “successful” project is due to an approach that resembles the Perpetual Transition Management model – perhaps a ‘clarity’ brought about by separating the entire change process into manageable layers.

The predicament for the Formulary Pharmacist in Practice-based example 16 is that he is in danger of not achieving the ‘shared perception’ among those crucial to the success of the formulary. The “palpable sense of apathy” suggests attitudes are in play and requires a modified approach to gaining favour from Directorate Pharmacists.

### Practice-based example 16

Once the underlying design of the new online hospital formulary had been agreed with the Chief Pharmacist and my Line Manager, the concept was presented at the next Directorate Pharmacist meeting. There was instant support and enthusiasm for the project. However, once it was made clear each chapter will be allocated to the corresponding Directorate Pharmacist (for example ‘Chapter 1: Gastrointestinal system’ for the specialist pharmacist in gastroenterology), there was a palpable sense of apathy – a noticeable change in attitudes were observed. When Directorate Pharmacists were prompted to voice their opinions, they stated that they were already overwhelmed with other duties under their specialist remit and this would further constrain their times spent on the wards and elsewhere.

I was conscious of not presenting the ‘change’ as a threat, rather an opportunity to optimise future activities particularly streamlining the process of drug therapy and pharmacist interventions on the ward level. These points seemed to resonate with many of the Directorate Pharmacists.
Prior to the end of the meeting, a commitment was made between the Directorate Pharmacists and me to share the workload and to help facilitate the development of the formulary.

3.3.4 Characterising the nature of the change

After having conducted a thorough examination of formularies in Section 3.2, a further analysis can now be made concerning the underlying ‘nature’ of the change that formularies represent. Paton and McCalman (2000) describe the ‘change spectrum’ as a way of categorising the nature of a change into either ‘hard’, ‘soft’ or ‘flexi’ (Figure 5). Using the TROPICS test the change agent can categorise a change situation (Paton and McCalman, 2000). This test focuses specifically, on seven key factors that need to be considered in order to accurately classify the change situation (see Table 3).

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Table 3. The TROPICS test to define the change situation (Paton and McCalman, 2000).

Although the Formulary Pharmacist, in his / her role as change agent, oversees the entire formulary development, they do not act alone. A variety of key personnel are brought together contributing to both clinical and administrative aspects of the formulary (Crowe, 2002; Duerden and Walley, 1999). Mobilising several pharmacists, doctors and managers in order to first take part, and then attempting to manage individual preferences and viewpoints suggests a highly people-oriented and complex change situation for the Formulary Pharmacist to contend with.
Figure 5. Locating change on the change spectrum.

Depending largely on the level of sophistication of the formulary as well as the comprehensiveness of the project, this assessment of the change scenario could vary drastically. If the remit for a formulary development project was similar to the 56 web-based formularies outlined in the Commission for Healthcare and Audit (2007), and comprised diagnosis-based guidance supporting the selection of medicines, the change agent could, quite conceivably, interpret the entire change as leaning towards ‘soft’ complexity. In other words, all the factors outlined in the TROPICS test are subject to being ill-defined, obscure or problematic, requiring various forms of input to make the change more manageable. For example, ‘perceptions’ and ‘interest’ are particularly difficult to categorise since formularies have been deemed “educational” and “a necessity” by some (Petrie and Scott, 1987, page 919), while others openly perceive them as “restrictive” and solely cost-motivated (Kwan, 2005, page 515).

Although involvement of a wide range of stakeholders encourages ownership and enables a formulary to be “much more readily accepted” by eventual users (Tugwell et al, 1984, page 313), a major obstacle to even a partially shared perception are the often conflicting view points of different individuals (Paton and McCalman, 2000). Many of the practice-based examples in Chapters 2 and 3 illustrate such opposing dispositions and confirm the existence of often
powerful attitudes and perspectives. The “solution methodology” – as Paton and McCalman (2000, page 23) put it – for such a scenario requires adequate management of ‘people’ rather than simplistic oversight of technical, mechanical or systems-oriented processes.

3.3.5 Understanding the drivers and resistors to change

Thus far a disoriented array of factors influencing the design and introduction of formularies demonstrably exists. The application of Kurt Lewin’s ‘force field analysis’ – a major contribution to change management theory – can help examine in a basic yet illustrative and useful manner, the forces for and against
the change (Paton and McCalman, 2000). Practice-based example 17 graphically presents some of these forces, demonstrating that if the restraining forces are not minimised, ‘equilibrium’ (at the very least) is likely and change will not successfully come about. The goals, therefore, are to strengthen driving forces while weakening the restraining forces thus propelling the change through. The value behind producing a force-field diagram in this manner is that the change agent is encouraged to consider the position of surrounding power sources and how they affect the change in question (Paton and McCalman, 2000).

The Formulary Pharmacist may not be able to introduce many new driving forces, instead, it may be more feasible to simply focus efforts on ‘strengthening’ existing drivers. Boddy and Buchanan suggest a variety of ways to reduce the uncertainty associated with the change situation, for example, nurturing “coalitions of support” and recognising “power bases” (Paton and McCalman, 2000, page 50). Such measures thus make use of ‘existing’ organisational structures, mobilising them to facilitate and benefit the change process. Sutters (1990, page 60) follows a similar approach:

“A formulary will only be used if it is supported by an authoritative and respected body and if there is wide ownership and sympathy with its objectives.”

Sutters (1990) further clarifies, in particular, the pivotal role of an effective chairman of the local DTC. She concludes that this individual must be respected, have “credibility with other medical staff” and that “it can be of political and practical importance if the chairman also holds a senior office in the [sic.] medical school.” Having the support of such a well-known advocate, championing the formulary to medical doctors – a large proportion of potential users – would constitute a significant driving force.

A vital understanding associated with the application of force-field analysis is that driving forces are likely to be stronger when there is a feeling of ownership combined with the knowledge that one ‘controls’, or at least, has influence over the change environment (Paton and McCalman, 2000). Such a ‘feeling of ownership’ would suggest attitudes and opinions of stakeholders are particularly
relevant and that their appropriate management is a core component of realising ‘people-dependent’ driving forces and minimising restraining forces resulting from resistance.

3.3.6 Attitudes and perceptions resulting in resistance to change

Attitudes are hypothetical constructs and cannot themselves be observed, they can only be inferred from other responses that ‘can’ be observed such as what the individual says about how they feel towards an ‘attitude object’ (Davey, 2004). One of the definitions of an ‘attitude’ provided by Zimbardo and Lieppe (1991, page 378) is as follows:

“...an evaluative disposition toward some object. It is an evaluation of something or someone along a continuum of like-to-dislike or favourable-to-disfavourable.”

We have already seen a similar ‘continuum-based’ approach in the TROPICS test discussed above. It is attitudes that are ‘at work’ behind factors such as ‘perceptions’ and ‘interests’ that contribute to the overall classification of the nature of change into either ‘hard’ and mechanistic or ‘soft’ and therefore complex. The ‘source’ of change, also considered under the TROPICS test, should likewise be understood in terms of its impact on attitudes. Paton and McCalman (2000) identify a number of attitudinal responses that arise from the organisational or individual view of the ‘perceived’ source of change (Table 4). They also state:

“Externally-generated change produces the greatest degree of negative feedback from those affected. A department, section or individual will regard external change as being any development forced upon them from outwith their own environment” (Paton and McCalman, 2000, page 27).

“Passive resistance” often results from such perceptions of the source of change and can be defined as “non-commitment to goals” that does not sabotage the entire program but certainly does not help productive progression (Harvard Business, 2003, page 76). Indeed the Directorate Pharmacists in
Practice-based example 16 initially display such a ‘passive resistance’ and distanced perspective towards the formulary – once again, perhaps evidence of externally generated views. Similarly in Practice-based example 4 the consultant gastroenterologist may also regard the formulary as externally generated change. Devising appropriate methods to manage this form of resistance will, needless to say, be high on the Formulary Pharmacist’s agenda.

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Table 4. Attitudinal responses attributed to perceived source of change (Paton and McCalman, 2000).

3.4 Attitudes impacting on formularies

The Formulary Pharmacist needs to be cautious in attempts to engage a supportive attitude amongst doctors since past attempts have focused on demonstrating the financial benefits that formularies can bring (Goodwin, 2003; Feely et al, 1990; Petrie and Scott, 1987). Such emphasis on cost-effectiveness alone can actually be counterproductive and wider benefits need to be highlighted (Watkins et al, 2004).

Instead, the ‘impartial’ change agent, needs to ensure that views of affected parties are understood, countered or incorporated where appropriate (Paton and McCalman, 2000). Groups of individuals, particularly managers, will inevitably present their “own brand of common-sense”, possibly based on specific perceptions and attitudes, and as such is recognised as a “major obstacle” to the formation of a ‘shared perception’ (Paton and McCalman, 2000, page 28). As Practice-based example 18 shows, faced with such a scenario, the change agent needs to assert their claim to a more complete and accurate understanding of the change environment in order to eliminate detrimental ‘brands of common-sense’.
Practice-based example 18

The Chief Pharmacist maintained a distanced oversight of the entire formulary development process and at various junctures either approached me directly or my Line Manager. During the development of the individual chapters, she again intervened and requested a meeting with me. Mentioning her own supervisor, and clarifying that instigating a Trust formulary was one of her ‘objectives’ for the next year ahead, she began to discuss deadline dates for individual chapter completion. I maintained that all chapters are being worked on simultaneously by individual teams of collaborators and rather than launch each chapter in succession (on to the Trust Intranet), it would be far more productive to employ a large-scale all-embracing implementation of the entire service. After much discussion (over the next few days and weeks) she conceded and the ‘Prescribing Guide’ was launched with a wide ranging implementation strategy.

Perhaps most crippling to the instigation of a new hospital drug formulary, is resistance that manifests as ‘opposition’ to the formulary concept itself. Typically, when stakeholders connected to the change process perceive that their “specialised skills will be rendered less valuable” resistance should be expected (Harvard Business, 2003, page 74). For example, formularies, typically developed by hospital pharmacies, have often been deemed an imposing force with a solely cost-driven motive (Vickers, 1987; Kwan, 2005). In particular, Kwan (2005, page 515), a medical doctor, alleges his drug choices are “determined not by evidence but cost per tablet” and describes his prescribing being “governed by a strict hospital formulary”. Goodwin (2003, page 11) takes issue with “restrictive” formularies which he believes are based on a “naive interpretation” of therapeutic equivalence and, due to their restraining impact on clinical innovation, “may slow the advance of medical science without even achieving the only goal that could possibly justify such restrictions – cost control.” DTCs have been criticised too and charges of being “neither explicit, transparent nor based on scientific rigour”, have not escaped the literature (Walker et al, 2006, page 21). Whether this represents a skewed interpretation of reality or not, the potential for conflict between proponents of the formulary and those who oppose it is evidently high.
In the United States (US), two studies 15 years apart, claim to have identified some of the reasons for the diminished potential of formularies (Rucker and Schiff, 1990; ISMP, 2005). In 1990, Rucker and Schiff (page 930) document specific assertions made by doctors attending US Pharmacy and Therapeutics (P&T) Committees as they discussed the addition of new drugs to the formulary. Examples include: “formulary sacrifices patient care to cost control”; “widespread use equals drug of choice”; “specialist knows best”; and “education requires experience with a multitude of drugs”. Rucker and Schiff (1990, page 928) describe these statements as “misconceptions” and “myths and misinformation”. These results were reproduced in similar formulary deliberations 15 years later (ISMP, 2005). These findings necessitate further exploration of the attitudes of ‘all’ key stakeholders of the formulary.

In the US they have an insurance-based health service, one would think business-like financial imperatives would have mandated considerable investigation into optimum methods of managing conflicting attitudes – perhaps methods that draw upon the interesting disclosures revealed by Rucker and Schiff.

3.5 Summary of Chapter 3

This chapter has shown that the setting within which formulary development and implementation takes place is highly complicated, comprised of political influences, interventions from the pharmaceutical industry as well as doctors’ personal drug preferences. NHS organisations, in the current economic climate, provide unpredictable infrastructures of support and limited available resources. Since the instigation of a convincing formulary to be used by healthcare professionals constitutes the introduction of significant change to established prescribing practices, an adequate management of this change is essential. The Formulary Pharmacist must accept a new role, one of ‘change agent’ and ‘problem owner’. In doing so, they will be wise to embrace the change management concepts and models discussed in this chapter. Such concepts can assist the change agent to better understand both the change as well as
the change environment and thus tailor the process of change to fit the variables that constitute their working environment.

Formularies have been shown to evoke a range of perceptions and attitudes from different groups of people, some of which have been characterised as ‘misconceptions’. There is no evidence that current formularies have been designed with a firm grounding in the concepts discussed in either Chapter 2 or Chapter 3. Although some successes have been reported, a formulary carefully crafted with the application of these concepts in practice needs to be developed and investigated. Chapter 4 will introduce the ‘Prescribing Guide’, a hospital drug formulary developed and implemented at the East and North Hertfordshire NHS Trust in 2009.
SECTION 2
The practice-based project
Chapter 4
Development of the Prescribing Guide

4.1 Introduction

This chapter now turns to the hospital drug formulary currently operating at the East and North Hertfordshire NHS Trust and known locally as the ‘Prescribing Guide’. Working within the confines of available resources, the Prescribing Guide was launched in 2009. A brief overview of the setting in which the development process took place will be described along with the features and benefits that the Prescribing Guide was designed to deliver.

As Chapter 3 illustrated, over recent decades in particular, formularies have come a considerable way with respect to their purpose, remit, content and scope. To further progress formulary evolution, a new direction appears to be related to acquiring a deeper understanding of the attitudes and perceptions of users. What is of particular interest is exactly where these attitudes appear to be divergent and why at times the formulary may represent an apparent source of conflict and embitterment. Therefore, once the Prescribing Guide was fully developed and implemented, it was subjected to a wide ranging service evaluation exploring its impact on prescribing practices including users’ experiences and perceptions. The chapter closes by detailing the aims and objectives for this study setting the scene for Chapter 5 which will then focus on the adopted methodology.

4.2 East and North Hertfordshire NHS Trust

The East and North Hertfordshire NHS Trust consists of two District General Hospitals (DGH): the 480-bed Lister Hospital based in Stevenage; and the 350-bed QEII in Welwyn Garden City (East and North Herts NHS Trust, 2011a, b). Although both sites provide pharmacy services, overall management for the entire pharmacy department is based at the Lister Hospital. A single Principal Pharmacist oversees the management of the Trust's approved list of drugs as well as the Medicines Information service.
In its recent past, the Trust has not operated a formulary, whether in paper format or in any manner of electronic versions that have been available for over a decade. Clinical guidelines, policies and algorithms have been available either as hard copies disseminated across-site to relevant consultants, senior nurse managers and pharmacists, or, more recently, via the Trust’s Intranet. Queries from various healthcare professionals are often resolved by contacting the Medicines Information pharmacists within the pharmacy department. Further details about specific restrictions applying to Trust approved medicines has always been accessible – albeit restricted to pharmacy staff – from the pharmacy computers used for labelling dispensed items to fulfil prescriptions from prescribers and drug chart requests from nurses.

As with most hospitals in the UK, the Trust operates a conventional DTC comprised of consultants, the Chief Pharmacist, senior pharmacists, nurses, PCT pharmacists and GPs. This committee meets bimonthly and discusses the addition of newly requested and reviewed drugs for addition to the Trust’s approved list. The employment of a Senior Formulary Pharmacist in 2006, solely dedicated to the aforementioned ‘approved list of drugs at the Trust’, facilitated the conception, design, compilation and eventual implementation of a new, web-based formulary to be accessible from the Trust Intranet to all healthcare professionals at the Trust. This formulary was locally marketed as the ‘Prescribing Guide’.

4.3 The Prescribing Guide

When developing a hospital formulary, to merely adopt an existing one would lack local perspectives and ownership (Hill-Smith, 1996). Therefore, from the design of individual features now present in the Prescribing Guide to the overarching strategy behind its construction, the Formulary Pharmacist has drawn on a number of established sources and disciplines. For instance, a comprehensive review of contemporary formularies was initially conducted. This involved a thorough literature search of published formulary development projects (Chapter 3), and a paralleled effort to communicate with other Formulary Pharmacists (Appendix 1). These communications culminated in
actual site visits to a large London teaching hospital and a DGH of comparable size to the Lister Hospital. The insights essentially provided the rationale for the development approach and for allegedly ‘successful’ formulary features.

The decision to discard the overt use of the term ‘formulary’ in favour of ‘Prescribing Guide’ was a deliberate attempt to move away from negative connotations associated with the former. The latter may also have an affinity with the notion of ‘abstract’ knowledge since the aim for this service was to ‘guide’ rather than ‘direct’ prescribers to evidence-based and cost-effective options.

Similarly, some effective change management models were also assimilated in the design approach. For example, as we saw earlier, the change agent would be better equipped and perhaps more competent if they had previous experience in implementing the change in question. Since the Formulary Pharmacist was deficient in this area of expertise, the primary reason to carry out a ‘pilot’ was to generate an awareness of the dynamics involved in implementing such a change and to what extent the surrounding infrastructure of support and resources can be called upon. The pilot included the development of a single chapter in its entirety, that is, from design to compilation to eventual launch on to the Trust Intranet. As Paton and McCalman (2000) advise, pilots provide the greatest opportunities to test assumptions, procedures and help to increase future acceptance of the change. Furthermore, a strong change agent – one with previous experience in his / her arsenal of skills – can be regarded as a strong driving force, and a weak change agent, at best, a weak driving force and at worse, in effect, a restraining force.

The pilot chapter, ‘Chapter 1: Gastrointestinal system’ was completed and launched in October 2006. Subsequent improvements to this chapter and work on the remaining 14 chapters were split into two phases. Phase I, finalised in November 2007, saw the development of the entire structure for the website and engaged both senior pharmacists and consultants around agreeing the lists of approved drugs to be visible to the end-user. In January 2009, the final product was launched to the entire Trust completing Phase II. The more substantive Phase II, involved the input of clinical content by orchestrating a network of links to various sources of drug information. The Prescribing Guide
attempts to employ a diagnosis-based guidance that supports the selection of medicines by diagnosis and clinical guidelines. The Healthcare Commission (2007) states that such functions should drive best practice in prescribing.

Table 5 lists some of the key features the Prescribing Guide offers to healthcare professionals involved in medicines management at the Trust. Appendix 2 further includes 'User Guides' developed for all users as well as the presentation slides used in the 'Teaching Sessions' that accompanied the launch of Phase II. Throughout the entire website, the new online formulary provides consistent referencing to the electronic BNF (eBNF). Each drug monograph is hyperlinked to its corresponding page on the eBNF website thus providing basic guidance for each drug such as: licensed dose; frequency; cautions and contra-indications; side effects etc. The Prescribing Guide also incorporates guidance from NICE by providing links to many of the technology appraisals and clinical guidelines at NICE’s website. Other established evidence-based websites are also accessible via hyperlinks integrated within ‘Pharmacist buttons’ and ‘Consultant buttons’. These ‘buttons’ were designed primarily to build ownership as they present specific guidance offered by the participating healthcare professional.

Similar links to the National Patient Safety Agency (NPSA) are also available, thus highlighting common drug safety concerns that have received national or international attention. Through simple and easy-to-update graphical displays, the Prescribing Guide also aims to bring to the attention of prescribers and other users, the cost of medicines.

In the current evidenced-based era superimposed on an environment with limited resources that require careful allocation, the Prescribing Guide aims to facilitate safe, clinically effective and cost-effective use of medicines at East and North Hertfordshire NHS Trust. Nevertheless, as the previous chapter has outlined, introducing a new formulary faces many challenges to its implementation and subsequent compliance. The Prescribing Guide has indeed encountered various degrees of resistance and obstacles. Limited man-power and resources have meant delays and setbacks while difficulty in obtaining consensuses between consultants as well as between members of different
professions (doctors and pharmacists) have invariably complicated individual chapter development.

**Key features of the Prescribing Guide**

- List of all approved drugs stocked by the Pharmacy department
- Information about formulary status\(^6\) (‘traffic light system’)
- Links from each drug to the electronic BNF
- Health Topics section that supports ‘diagnosis-based guidance’
- Quick Index – enables searching by drug name or class
- Graphical representation of drug costs
- Pharmacist button, Consultant button
- Links to NICE and other established evidence-based website (e.g. SIGN, MeReC, electronic medicines compendium, Medical Royal Colleges)
- Links to NPSA
- Drug administration support (e.g. IV Medusa Guide, Policy for swallowing difficulties)
- Internal links: for example, Trust Guidelines, specialist-approved algorithms, DTC decisions (including minutes)
- Internal links to forms for requesting new drugs and guidelines for the review process
- The ‘Pharmacy Bulletin’

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<th>Table 5. Key features of the Prescribing Guide.</th>
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### 4.4 The present study of the Prescribing Guide

The formulary, as a concept, has developed from a recipe for medication to an established mechanism for encouraging the evidence-based prescription of drugs specifically promoted on the grounds of safety, efficacy and economy. In all of this evolution, with formulary development projects, there seems to have been an assumption that prescribers and other users generally adopt advice, follow guidance, and refer- or defer- to the content.

Given the extensive history demonstrated along with the fact that most hospital pharmacies maintain a local formulary, as indicated in the Healthcare Commission’s (2007) review, it seems anomalous that the literature offers remarkably little about the attitudes and perceptions to formularies and how they may impact on prescribing practices and formulary compliance.

Rucker and Schiff’s (1990) ‘alleged misconceptions’ – so far identified only in the US – and the somewhat sporadically documented negative attitudes

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\(^6\) Formulary status – refers to the decision made by the DTC after reviewing a new drug application submitted by either a Trust Consultant or the Pharmacy department. Examples include ‘approved’, ‘not approved’, ‘restricted to specific consultants (specialties)’, ‘restricted to specific conditions’ and ‘unlicensed’. The new Prescribing Guide offers a visual representation of formulary status via ‘traffic lights’: ‘green’, ‘amber’ and ‘red’.

Sandeep Bagga | Doctor of Pharmacy Practice 2012
towards formularies, may constitute formidable restraining forces although not much is known of them. These attitudes may serve to limit the potential influence and support that the Prescribing Guide could provide to all healthcare professionals involved in drug therapy. Tugwell (2000, page 59), on the other hand, expresses a rather more optimistic view. His encouraging claims that pharmacists’ services including formularies on the Intranet can help provide “better and faster services and more comprehensively”, need to be explored.

The next chapter in the formulary’s evolution should centre on an exploration of the briefly documented attitudes that seem to materialise once a new formulary has been implemented, perhaps revealing exactly ‘where’ and ‘why’ the opinions are divergent. The recently introduced Prescribing Guide at East and North Hertfordshire NHS Trust can facilitate this research.

If the experiences and perspectives of users are explored and the Prescribing Guide subsequently modified in order to meet their needs and the needs of the Trust, it could – potentially – serve as a powerful prescribing tool at the Trust with scope for wider dissemination.

4.5 Aims and objectives

The aim of this study is to determine the attitudes and perceptions of users and other key stakeholders about the recent development and implementation of the new Prescribing Guide and ensure that it is developed in a manner that meets the needs of users within the Trust.

The objectives for this study are:

1. To explore the perceptions of stakeholders who use the Prescribing Guide with regard to its purpose and on-going use within the Trust
2. To identify key features of the Prescribing Guide that are working well and where difficulties or issues are occurring
3. To describe the various influences on local prescribing practices and how the Prescribing Guide affects such practices
4. To compare the experiences of using the Prescribing Guide from the perspectives of different healthcare professionals
5. To adapt or modify the Prescribing Guide based on the insights gained through objectives 1-4 and explore subsequent changes in attitudes and perceptions

6. To make final recommendations to ensure that hospital drug formularies continue to evolve in order to meet the needs of the organisation and users
Chapter 5
Research Approach

5.1 Introduction
Within social research, a variety of research instruments can be employed. Without a careful exploration of the strategic advantages and disadvantages of each one, the research is unlikely to yield meaningful results and conclusions. This chapter thus provides a justification for the chosen research design taking into account the resource-constrained environment within which the research will be conducted.

To begin with, a philosophical stance on the acceptability of knowledge will be outlined and its relevance for social research discussed. The chapter then turns to a discussion of the merits of adopting an action research model and a mixed methods design, that is, one that incorporates both quantitative and qualitative research instruments. In particular, the explicit focus on the ‘link’ between different research instruments, namely, the notion of ‘triangulation’ is highlighted.

Qualitative data was obtained using semi-structured interviews while primary quantitative data was generated through widespread deployment of online self-completion questionnaires. The chapter also addresses the ethical issues associated with conducting such research and finishes on a discussion of the attempts made at ensuring rigour within research.

5.2 Epistemological stance
Epistemology is a branch of philosophy concerned with the theory of knowledge (Green and Thorogood, 2004). The claim to have produced knowledge is defined by the researcher’s selection and justification of a particular epistemological tradition. Broadly speaking the epistemologies of ‘positivism’ and ‘interpretivism’ have dominated this area of philosophical discourse.
Proponents of positivism support the view that the methods used to study the natural sciences should be applied to study social reality (Bryman, 2004). Positivism is characterised by a focus on ‘empiricism’. This is the belief that phenomena are observable only through experiment and confirmed by the senses. Quantitative purists maintain that science, and therefore knowledge, ought to be considered separately from society and thus remain neutral, value-free and not ‘contaminated’ by subjective or political viewpoints (Green and Thorogood, 2004).

The doctrine of ‘interpretivism’ surfaced in the early 1960s as the contrasting epistemology, shifting the emphasis to ‘understanding’ rather than ‘experience’. Therefore phenomena that form the subject of study in the natural sciences, for example atoms, plants or planets do not “make sense of their place in the world” – humans beings, clearly, do (Green and Thorogood, 2004, page 12). Interpretivism thus holds that since humans are complex and unpredictable, their behaviour cannot be determined in a ‘law-like’ manner. It instead encourages grasping the ‘social reality’ by basing your own understanding on the understanding and interpretations of others acting within the social world – an “empathic understanding” (Bryman, 2004, page 13; Green and Thorogood, 2004).

Potential users of the Prescribing Guide will each hold their own interpretations of the social world around them, that is, the domain of drug therapy. It is the subjective, empathic understanding of these key stakeholders that is the crux of this study. Taking the interpretivist’s stance and through the deployment of appropriate research instruments, the role of the researcher is to grasp the meanings behind their behaviours and actions in relation to the Prescribing Guide and prescribing practice.

5.3 Literature review

The previous chapters have addressed topics beyond the field of healthcare, such as sociology and change management. However, it is the specific literature search with respect to hospital drug formularies per se that will be outlined here.
The primary area of interest was formulary development and implementation. Concepts closely related to this core area of interest were formulary compliance, adherence and documented attitudes towards formularies which rarely formed the central subject matter of any individual papers identified. In addition, the broader area of medicines management was explored focusing on formularies as the tool used to optimise drug therapy. As the literature revealed a number of references to government policy and frequently implied political influences, related Internet searches were also conducted.

The initial searches were confined to published dates between 1995 and 2011, however an examination of the relevant reference sections of many papers necessitated further literature searches going back to as far as 1978. Although it is highly unlikely that the findings of any studies from such a time period will be transferable to modern day settings, a historical understanding of the evolving purpose and remit began to emerge which was considered useful. Additionally, much of the literature concerning hospital formularies is concerned with initiatives in the US where a private, insurance-based health service is established. American formularies are part of drug benefit plans for which patients themselves are financially responsible. Selected literature from this background was, nevertheless, accepted where it was considered that the focus is on developing, maintaining or implementing safe, clinically effective and economic formularies.

Many of the search terms, if identified as ‘word-stems’, were truncated appropriately to widen the search. For example the search term ‘formular$’ was entered to search for both ‘formulary’ and ‘formularies’. Boolean search techniques (using ‘AND’, ‘OR’, ‘NOT’) were incorporated into the search to broaden or narrow the exploration where appropriate.

A literature search was conducted (Appendix 3) using the following search terms:

- Formulary (broadened to ‘hospital’ and / or ‘drug’ formulary)
- Formulary development / implementation / management
- Formulary compliance / adherence
• Medicines management
• Prescribing practice / behaviour / attitudes
• Obstacles / resistance in healthcare
• Doctors / pharmacists / non-medical prescribers

The following databases were searched:

• MEDLINE
• EMBASE
• Pharmline – recently incorporated under National electronic Library of Medicines, (NeLM)
• The Allied and Complementary Medicine Database (AMED)
• Cumulative Index to Nursing and Allied Health Literature (CINAHL)

In addition, specific journals were also searched:

• British Medical Journal (online search)
• Pharmaceutical Journal (online search)

And also websites:

• Department of Health
  www.dh.gov.uk
• NPSA
  www.npsa.nhs.uk

5.4 Overarching research strategy

The overarching research strategy for this study was based primarily on the action research model. This approach advocates closer ties between social theory and the solving of immediate social problems with an underlying aim of improving practice. Action research has been used in a variety of settings (including health and social care) typically where organisational development is central to investigation (Tanna, 2005; Green and Thorogood, 2004).

The following key characteristics of action research, outlined by Denscombe (2007) are particularly suitable for the evaluation of the Prescribing Guide:
- Practically orientated – focus is on difficulties arising in routine practice.
- Change – concerned with altering an aspect of current practice based on insights from users of the service.
- Cyclical process – initial findings generate insights that trigger the change in practice. The service is then further evaluated and the subsequent findings can potentially lead to another change, always perfecting the service in keeping with the needs of key stakeholders of the service (Figure 6).

Encourages participation – both in the actual implementation of change and with the design and focus of the research, practitioners are typically active not passive in the research process. This essentially ‘democratises’ the research.

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** Reference:**

**Figure 6.** An action-reflection-cycle (McNiff and Whitehead, 2006)

Chapter 3 illustrates that formularies are not ‘crystallised’ end-products but are instead evolving. An action research approach was therefore adopted in order to empower ‘stakeholders’ so that they can steer this ongoing development, manifesting in practice as ‘change’ to the service. Therefore after obtaining the views and perceptions of the Prescribing Guide from users (study objective 1), the study involved ‘applying’ these perceptions (study objective 5) by translating them into tangible modifications made to the Prescribing Guide. Once the modifications were made and a period of time was given to communicate the changes to all potential users, the Prescribing Guide was then subjected to another phase of evaluation, completing the action-reflection-cycle (Figure 6).

Action research also encourages stakeholders’ views about study design to be taken into account. Therefore, six stakeholders, including the Chief Investigator, were originally identified and invited to participate as official ‘Stakeholders’.
attending ‘Stakeholder Meetings’. These were held on three occasions in order to discuss and validate initial findings and emerging themes presented to them and discuss modifications to the Prescribing Guide.

To ensure that a representative sample of stakeholders was consulted, it was considered important to include the participants listed in Table 6. Essentially this was an attempt to merge as many categories of healthcare professionals as possible in order to maintain feasibility and ease coordination of meetings. After experiencing a number of refusals to participate in Stakeholder Meetings, an eventual total of four was accepted primarily because all of the categories outlined in Table 6 were subsumed within these four stakeholders.

### List of participants considered important for Stakeholder Meetings

- Formulary pharmacist
- Purchasing pharmacist
- Ward pharmacist
- New Drugs and Formulary (NDF) Committee member
- Consultant doctor
- NMP (a nurse or pharmacist)

**Table 6.** Participants for Stakeholder Meetings.

### 5.5 Qualitative research instruments

#### 5.5.1 Consideration of qualitative research instruments

A qualitative research instrument was considered essential in order to explore, in depth, the attitudes, perceptions and experiences of users of the Prescribing Guide. The subject of discussion in this section will be: focus groups, ethnography and qualitative interviews, since these research instruments can facilitate significant exposure to ‘key players’ closely linked to the phenomena under investigation, that is, users of the Prescribing Guide.

Focus groups are a qualitative instrument whereby a small group of people, moderated by the researcher, discuss “attitudes, perceptions, feelings and ideas about specific topics” (Denscombe, 2007, page 178). Although this appears to be an insightful research method, the difficulties in co-ordinating...
meetings is likely to be particularly troublesome (Bryman, 2004). In addition the researcher is unlikely to have as much control specifically over the groups’ proceedings than, for instance, with individual interviews. In particular, as Bryman (2004) describes, the researcher may have problems dealing with reticent speakers and those who wish to dominate the debate. Another problem is the propensity of participants to express “culturally expected views” in focus group scenarios rather than in individual interviews (Bryman, 2004, p360).

Ethnography requires the researcher to spend considerable time in the ‘field’, among the people whose perceptions and indeed actions are being studied (Denscombe, 2007). The four recognised roles that the researcher can assume are presented in Table 7.

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**Table 7.** The various roles of ethnographers (adopted from Bryman, 2004).

The advantage of such research, particularly in the present context of studying the Prescribing Guide, is that it is based on ‘direct observations’ rather than on second-hand statements obtained from interviews. Such an approach allows ‘holistic’ explanations to be constructed with a focus on “behind the surface events” as the researcher acquires a degree of self-awareness not achievable in other qualitative research instruments (Denscombe, 2007, page 72).

Turning to interviews, these can vary from structured, semi-structured to unstructured. In reality, qualitative interviews will operate along the continuum of semi-structured and unstructured allowing the interviewee the freedom to “speak their minds” and uncover complex issues (Denscombe, 2007, page 178). Researchers are also able to demonstrate accuracy since data can be checked for relevance during the interviews themselves (Denscombe, 2007).
Conducting interviews, as Denscombe (2007, page 173) puts it, is an “attractive proposition” for any qualitative researcher since it presents the interviewee with an opportunity to disclose their views and experiences once a theme or topic has been introduced. Certain issues simply will not be amenable to observation and only through asking and following up with further probing questions can the ‘truth’ be uncovered (Bryman, 2004). Rucker and Schiff’s (1990) study of formulary ‘misconceptions’ was based on such observations (at Pharmacy and Therapeutics Committee meetings). However, the attitudes and opinions outlined in Chapters 2 and 3 will instead require deeper probing and elucidation in order to understand the social reality of key stakeholders of the Prescribing Guide.

Furthermore, it was considered impractical to follow doctors around on their ward rounds waiting for them to use the Prescribing Guide and then attempting to observe their experiences with it, as ethnography would require. Ethnography is also recognised as having a greater potential for ethical problems concerning intrusions of privacy, particularly in the healthcare setting, where sensitive patient information is exposed (Denscombe, 2007). For this reason gaining informed consent from research subjects is also problematic.

5.5.2 Semi-structured interviews

Thus, one-to-one interviews with a semi-structured format were employed. In order to maintain clear areas of focus, interview topic guides (Appendix 4) were developed for doctors, pharmacists and NMPs. The interviewer maintained flexibility with the order in which the topics were considered and asked follow up questions in order to probe issues for greater clarity and understanding. The emphasis was for the interviewee to elaborate on particular aspects of prescribing practice and the Prescribing Guide. Lasting approximately 30 minutes, interviews were audio-taped, transcribed verbatim and then subjected to content analysis. Non-verbal and para-linguistic communication was also documented providing clarity on points of emphasis made by the interviewee.

Qualitative interviews can take up time and may involve travel. Within organisations operating with limited resources, such as a DGH, conducting a
pilot study to ensure feasibility is encouraged (Denscombe, 2007). For this reason, a senior pharmacist and a consultant were interviewed to ensure the chosen research instrument was in fact viable.

In the substantive study, interviews were carried out during two phases, each time over a period of approximately one month and were thought of as ‘reconnaissance’ or ‘fact-finding’ phases. The first wave of interviews was carried out in Week 5-8 of the study. Provisional analysis of emerging themes was presented to a group of 'Stakeholders' (Section 5.4) and through discussions, agreed modifications were made to the Prescribing Guide. The second wave of interviews, during Week 20-23, continued to explore users’ experiences of the Prescribing Guide but now in the light of any modifications made to the service during Week 11-19. Thirty interviewees were selected in total with fifteen interviewed in Week 5-8 and the remaining fifteen in Week 20-23. Particular attention was given to interview a similar category of participants in both instances. Each healthcare professional was contacted by telephone, a participant information sheet (Appendix 5) was then sent and a consent form (Appendix 6) signed just prior to the start of the interview.

In order to ensure a representative sample of users and stakeholders of the Prescribing Guide were selected, it was considered important to include the participants listed in Table 8. The ‘purposive sampling’ technique was used to select participants. In this form of sampling participants tend to be chosen deliberately as they are recognised as having a special contribution to make (Denscombe, 2007). Ultimately, purposive sampling attempts to “establish a good correspondence between research questions and sampling” (Bryman, 2004, page 333). As Denscombe (2007) clarifies, it very much depends on the underlying goals of the study. If the overall aim is to generate generalisable findings, then a representative sample (based on random sampling) is required. If, however, the primary aim is to produce in-depth insights, exploring attitudes and experiences, the recommendation is to select key players based on the knowledge and experience of the researcher (Denscombe, 2007; Thompson and Walker, 1998).
List of participants considered important for semi-structured interviews

- Junior doctor (FY1, FY2)
- Senior doctor (Registrar)
- Senior doctor (Consultant)
- Medical doctor (Consultant)
- Surgeon (Consultant)
- Consultant on the NDF Committee
- Junior Pharmacist
- Senior Pharmacist (Chief or Deputy Chief Pharmacist)
- Senior Pharmacist (Directorate)
- Clinical Governance Pharmacist
- Formulary Pharmacist
- Purchasing Pharmacist
- I.T. Pharmacist
- Pharmacist on the NDF Committee
- NMP (a pharmacist)
- NMP (a nurse)

Table 8. Participants for semi-structured interview.

5.6 Quantitative research instruments

5.6.1 Consideration of quantitative research instruments

The combining of qualitative and quantitative research instruments within a single study is often referred to as the ‘mixed methods’ approach. Although semi-structured interviews were conducted to investigate the attitudes and perceptions of the Prescribing Guide ‘in depth’, it was considered that an appropriately positioned quantitative element would corroborate these findings as well as provide a more comprehensive picture to the entire context (Thompson and Walker, 1998; Denscombe, 2007). In addition the sample population for semi-structured interviews is typically small and open to the criticism of being unrepresentative. Use of wide scale surveys can compensate for this recognised weakness. The combination of two different research approaches in this way is known as ‘methodological triangulation’. Triangulation is particularly successful if “markedly different” approaches are employed in order to allow the researcher to see things from as widely different perspectives as possible (Denscombe, 2007, page 135).
Quantitative research instruments are capable of allowing a broad, objective examination of the impact and influence of the Prescribing Guide. Of the quantitative research instruments available, ‘surveys’, including short structured interviews, self-completion questionnaires and observations, can produce a large amount of data in relatively short time and at relatively low costs – a pivotal advantage in an environment of finite resources (Denscombe, 2007). The ‘structured’ interview lends itself to the quantitative research philosophy which typically involves asking participants questions over which there has been tight control regarding the wording. The range of answers that are on offer are ‘standardised’ and thus make subsequent data analysis relatively easy (Denscombe, 2007). However, when data of such nature is desired, structured interviews are more expensive and far more time consuming than postal or online self-completion questionnaires.

Although in many ways the self-completion questionnaire and the structured interview are very similar (Bryman, 2004), if the researcher wishes to collect simple and relatively uncontroversial facts, then Denscombe (2007) recommends self-completion questionnaires are a far more cost-effective method. In addition to being cheaper and quicker to administer, they present a convenience to participants since they are able to complete and return the questionnaire at their leisure (Bryman, 2004). This does however point to the “most damaging limitation” of surveys by postal questionnaire – namely low response rates (Bryman, 2004, page 135). Bryman (2004) describes how this introduces the risk of bias since those who choose not to respond may differ in their perceptions and attitudes to those who have. For instance, those not responding to a questionnaire investigating the Prescribing Guide may not, in fact, be advocates of the formulary system or may have had conflicts with pharmacists attempting to enforce the decisions of the New Drugs and Formulary (NDF) Committee\(^7\) that are reflected within it. Bryman (2004) discusses several steps to improve response rates, summarised in Table 9.

\(^7\) New Drugs and Formulary (NDF) Committee – is effectively the local Drug and Therapeutics Committee (DTC) at East and North Hertfordshire NHS Trust
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Reference:

Table 9. Steps that can be taken in order to improve response rates to self-completion questionnaires (adopted from Bryman, 2004).

5.6.2 Self-completion questionnaires

An online self-completion questionnaire was thus designed and deployed as part of the study. Since it was emailed to a large number of potential users at the Trust via administrative staff, it was considered particularly useful as it eliminated the need for the researcher to meet with participants directly, ultimately saving time while having ‘accessed’ a significant proportion of the entire population.

Questionnaires were sent out during Week 5-7 and Week 20-23 in order to coincide with both waves of semi-structured interviews and together comprised two comprehensive reconnaissance phases. Separate questionnaires were designed for dissemination to doctors, pharmacists and NMPs (Appendix 8). The majority of questions sought to obtain information about the Prescribing Guide and prescribing practices that is clear, relatively brief and uncontroversial.

Designed using SurveyMonkey, the questionnaires were made available via a hyperlink sent by email to doctors, pharmacists and NMPs. Accordingly, medical, pharmacy and nursing administration and secretarial staff were

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8 SurveyMonkey™ — is an online professional survey tool that allows researchers to create customised questionnaires and embed them as hyperlinks in emails. It collects, stores and provides quick graphical representations of the data produced.
approached to assist in the delivery of the questionnaires. As with the previous research instrument, during Month 1, the feasibility of using questionnaires was also tested. For this reason, five doctors, four pharmacists and one NMP were identified, purposefully, in order to test for feasibility.

‘Implied consent’ was accomplished by sending a covering letter (Appendix 9) as part of the email communication. Consent was understood by participation and return of the questionnaire. It was not possible to identify those who had not responded, therefore follow-up reminders (along with the original hyperlink to the online questionnaires) were periodically sent to improve response rates.

All returned questionnaires were checked to ensure there were no mistakes in data entry by the respondent. Almost all raw data obtained from the questionnaires was in the form of ordinal data, which is to say they were in categories that were already in order. The range of answers on offer were therefore ‘standardised’ and thus made subsequent data analysis relatively uncomplicated (Denscombe, 2007). Relationships between selected variables were assessed using contingency tables and Chi-squared analysis. Variables were compared both ‘across’ questionnaires (for example, doctors’ frequencies of using the Prescribing Guide in questionnaire 1 against frequencies stated in questionnaire 2) as well as ‘within’ questionnaires (for example, relationships between healthcare professionals and other variables). These findings are presented in Chapter 7.

5.6.3 Prescribing trends and formulary adherence

Denscombe (2007) states that social surveys need not focus solely on people. Empirical research can be based on documents for example newspapers, company reports and committee minutes to name a few (Denscombe, 2007). The Pharmacy computer system at the Trust was quickly recognised as being able to provide significant prescribing statistics dating back to previous years. This was considered an effective and reliable method of tapping into the Prescribing Guide’s impact on prescribing practice.

This provided an opportunity to retrospectively extract information about the volume of total approved and unapproved ‘non-formulary drug’ dispensing (and
therefore prescribing) taking place over the previous 12 month period so as to clearly show any impact the launch of the Prescribing Guide may have had.

Similarly, formulary adherence was also monitored by extracting specifically targeted drug 'issues' (volume) and their associated 'expenditure' (cost) from the Pharmacy computer system. These drug categories were pre-selected during discussions at the first Stakeholder Meeting in Month 1. During the second and third Stakeholder Meetings, these findings were discussed in the light of other findings obtained from the semi-structured interviews and the self-completion questionnaires.

Once again, as part of a feasibility analysis, during Month 1 data was extracted in order to determine the level of complexity and the likely time required for total data extraction. Although this pilot was conducted on a small-scale (extracting only one month of data) the task was considered to be long and arduous. However, corresponding graphical presentations illustrated prescribing trends clearly and were deemed worthwhile. Senior management thus allocated the researcher time within the existing remit as Senior Formulary Pharmacist to complete the task.

The Pharmacy computer system provided a facility to easily convert the extracted statistics into Microsoft Excel spreadsheets. Subsequent graphical presentations have been able to display prescribing trends. Bar charts showing volume of prescribing are superimposed with line graphs showing corresponding cost. This data is presented in Chapter 7.

Statistics such as these are amenable to computer storage and analysis and are considered “hard facts around which there is no ambiguity” (Denscombe, 2007, page 228). An important advantage here is that provided the source is made clear (Pharmacy computer) those reviewing the study can be assured of the ‘credibility’ of this form of data since it is open to public scrutiny.
5.7 Analysis of qualitative research data

5.7.1 Discussion of approaches to qualitative data analysis

The most popular approaches to the analysis of qualitative research are ‘grounded theory’ and ‘phenomenology’ (Denscombe, 2007; Clissett, 2008). Both approaches adopt the interpretivist stance in which the researcher is concerned with human interactions and acquiring an understanding of ‘real life’ situations.

Grounded theory above all emphasises the importance of linking empirical fieldwork (in practice) very closely to any explanations that may be offered. This is typically achieved by continuing to undertake data collection throughout the entire course of the research and then systematically formulate theories from analysis of the emerging data (Denscombe, 2007). There is a constant effort made to refine the study as the specific nature of the problem begins to emerge (Clissett, 2008). In this sense, grounded theory does not submit to the charge of being speculative or based on abstract theory since there is constant attention to empirical data. However, it does represent a significant disadvantage, namely the inability to plan the research with any great precision (Denscombe, 2007). The grounded theorist will not be able to specify at the outset the exact nature of the sample population since the sample itself ‘emerges’ as the theory emerges. Such an approach is immediately problematic for a busy DGH in which healthcare professionals will often be unable to commit to research initiatives at short notice.

Turning to phenomenology, its founding principle is that “experience should be examined in the way that it occurs, and in its own terms” (Smith et al, 2009, page 12). Unless researchers step outside their ‘natural attitude’, owing to their predilection for order, they invariably seek to place initial understandings within a “pre-existing categorisation system” (Phillips-Pula et al, 2011). Instead, the ‘phenomenological attitude’ enables one to identify the ‘essence’ of human experience where the focus is on the subjects’ ‘lived experiences’ thus revealing their values, perceptions, meanings and beliefs (Starks and Trinidad, 2007). The central feature of phenomenology consists of the ‘epoche process’. This
means ‘bracketing’ the researcher’s presuppositions, beliefs, expectations and predispositions about the phenomenon under investigation. This may be classed as a drawback of phenomenology since the feasibility of truly suspending common sense in this way is doubtful (Denscombe, 2007). However, Hycner (1985, page 281) clarifies that this “in no way means that the phenomenologist is standing in some absolute and totally presuppositionless space”. Smith et al (2009) and Hycner (1985) both explain such an extreme is neither expected nor possible, respectively, and that the researcher needs to be reflective, self-conscious and attempt to moderate the impact of presuppositions. Grounded theory similarly encourages the researcher to adopt an ‘open mind’ without a “rigid set of ideas that shape what they focus on” (Denscombe, 2007, page 90; Clissett, 2008).

Furthermore phenomenology “celebrate(s)” the possibility of “multiple realities” (Denscombe, 2007, page 79). Clearly such grounds for analysis is particularly conducive to the present study of the Prescribing Guide in which the ‘lived experiences’ of doctors, pharmacists and NMPs are to be explored. Indeed, even this form of “pre-existing categorisation” (into ‘healthcare professionals’) is to be ‘bracketed’ since the individual interviewee could provide insights from a variety of standpoints for example, healthcare professional, manager, junior or senior practitioner. Grounded theory, in sharp contrast, is often criticised by interpretivists for claiming to provide the one ‘correct’ account of reality that is “not open to alternative interpretation” (Denscombe, 2007, page 105). While phenomenology’s critics (positivists) claim that its subjective focus lacks scientific rigour, it has previously been applied successfully in healthcare research in order to gain greater insights and improve collaboration between healthcare professionals (Hughes and McCann, 2003).

The present study is concerned with obtaining authentic descriptions of the ‘lived experiences’ of key stakeholders for which the phenomenological approach was considered most suitable. Its congruence with interpretivism and, unlike grounded theory, its ability to permit a well planned research makes phenomenology an attractive option for the present study of the attitudes and perceptions to the Prescribing Guide.
5.7.2 Generating codes and thematic analysis

Semi-structured interviews were audio-taped and transcribed verbatim. Each transcript was first assigned a unique serial number for reference purposes and read repeatedly in order to capture the ‘essence’ of accounts given. Phenomenological ‘bracketing’ of presuppositions must take place particularly during the reading and transcription process in order to first achieve a sense of the whole interview – a ‘gestalt’ (Hycner, 1985). The raw data was then subjected to a consistent process of analysis which incorporated the following four steps:

1. Coding – significant units of data were labelled with a code to clearly and transparently represent facts emerging from the raw data.
2. Categorising the codes – based on their relationships, codes were grouped into specific clusters.
3. Identify themes – emerging themes and patterns were identified that communicated the ‘essence’ of stated experiences and perceptions about the Prescribing Guide.
4. Develop concepts – the steps described above facilitated the discovery and identification of otherwise obscure concepts and allowed the researcher to arrive at generalisable statements.
### 5.8 Timescales for the study

Timescales for each element of the study are outlined in Table 10 and Figure 7.

<table>
<thead>
<tr>
<th>Week</th>
<th>Pilot study</th>
<th>Stakeholders Meetings</th>
<th>Reconnaissance phase</th>
<th>Formulary adherence / prescribing trends</th>
<th>Modifications</th>
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<tr>
<td>1</td>
<td>Testing of research instruments (small-scale)</td>
<td>First Meeting</td>
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<td>Ongoing monitoring of non-formulary and on-formulary drug prescribing</td>
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<td>6</td>
<td></td>
<td>First wave</td>
<td>First wave</td>
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<td>Previous 12 months formulary adherence data and prescribing trends to be prepared for presentation at second Stakeholder Meeting</td>
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<td>10</td>
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<td>Second Meeting</td>
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<td>Modifications to Prescribing Guide made after discussion with stakeholders in Week 10. Includes appropriately communicating any changes to the service to all users.</td>
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<td>32</td>
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<td>Second wave (resumed)</td>
<td>Retrieval resumed</td>
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<td>35</td>
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<td>Third Meeting</td>
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**Study suspended for 10 week period**

Due to a significant change in the researcher's personal circumstances, it was necessary to suspend the study for a period of ten weeks. Since this suspension occurred after the agreed modifications were put into place and users at the Trust had already been appropriately updated, it was considered that this break from the study would have had little effect on the overall findings.

**Table 10.** Timescale for the study.
Figure 7. Flow diagram outlining stages in study.
5.9 Research ethics

5.9.1 Local Research Ethics Committee (LREC) approval for study

Since the study would involve collecting data directly from individuals and in addition would require healthcare professionals to give up their time for various aspects of the study, ethical approval from the Local Research Ethics Committee (LREC) was sought. The researcher attended the Committee’s meeting on 22\textsuperscript{nd} April 2009 in order to answer any specific questions and provide further clarity.

On 29\textsuperscript{th} April 2009 the Hertfordshire Research Ethics Committee sent a letter (Appendix 10) confirming that, in fact, the study was not strictly speaking ‘research’, and instead fell into the category of ‘service evaluation’. Therefore, after final confirmation was secured from the East and North Hertfordshire NHS Trust’s Clinical Governance office, the study was commenced.

5.9.2 Ethical issues in the study

Although no ethical review was considered necessary by the Hertfordshire Research Ethics Committee, an ethical dimension to the research had already been built in to the design of the study. How these ethical considerations were incorporated into the present study of the Prescribing Guide will be briefly outlined in this section.

To ensure that there was no risk of deception or misrepresentation, efforts were made to ensure all participants were fully informed of the clear purpose of the evaluation. For the semi-structured interviews and Stakeholder Meetings, participants received a participant information sheet (Appendix 5) fully explaining the purpose of the evaluation and the Chief Investigator’s contact details if they would like to view the findings of the final report. Since the self-completion questionnaires were Internet-based, a ‘covering email’ (Appendix 9) was sent with similar information.
Consent of the interviewee is necessary and has become an important aspect of research ethics (Denscombe, 2007; Bryman, 2004). A consent form (Appendix 6) was therefore signed prior to starting an interview or meeting. These documents clearly stated that participation is voluntary and the participant is free to withdraw at any time. The participant information sheets explain that the researcher intends to audio-tape interviews and that any material produced will be subsequently analysed and may be published in a scientific peer-reviewed journal. For questionnaires, implied consent was considered appropriate by sending participants the aforementioned covering email. Consent was understood by participation and return of the questionnaire.

The covering letters and emails, participant information sheets and consent forms stated explicitly that any participant details will be kept in strict confidence. During the interviews and Stakeholder Meetings, no patient health records or personal information will be generated from this evaluation.

Those who contribute to the research should be no worse off, that is, harmed, at the end of their participation than they were when they started. One way this was ensured is by adhering to the interview topic guides with no deviance outside the remit of this research.

### 5.10 Steps taken to ensure rigour in research analysis

#### 5.10.1 Rigour in qualitative data analysis

Established ‘good practice’ guidelines that help to ensure rigorous analysis in qualitative research have been incorporated into the data collection and analysis of the present study. Lincoln and Guba (1985) suggest four key criteria that help contribute to the trustworthiness of qualitative research: credibility; transferability; dependability; and confirmability. How each of these concepts were incorporated into the present study will be discussed below.

Credibility is concerned with the ‘truth’ of interpretations (Green and Thorogood, 2004) and to the extent that researchers can demonstrate their data is accurate and appropriate (Denscombe, 2007). To mitigate the charge that data is a result
of absolute subjective interpretation, a number of measures can be incorporated into data analysis. For example, the primary purpose of the 'Stakeholder Meetings' was to provide a means of validating provisional findings and emerging theories from qualitative data. It is recognised that ‘respondent validation’ would have been ideal, as Green and Thorogood (2004, page 193) put it, this is the “ultimate mark of credibility”, however this approach was rejected for two reasons. Firstly on attending the LREC meeting, significant concerns about the amount of time taken to conduct semi-structured interviews were raised on more than one occasion. The researcher was reminded that the site of the study was a busy DGH and that healthcare professionals to be interviewed would no doubt be already under significant time constraints. Secondly, recruitment of interviewees was particularly difficult as many potential participants declined to be involved citing time constraints as the reason. Many of those that did eventually agree sacrificed tea breaks and lunch times to accommodate the research. For these reasons, the identified Stakeholders comprising: a senior clinical pharmacist; a consultant doctor; a senior NMP; and the Senior Formulary Pharmacist were considered to provide adequate feedback and validation of preliminary findings.

Methodological triangulation also increases the credibility of qualitative analysis. Triangulation through the use of both qualitative and quantitative research instruments has been discussed earlier. Another claim to triangulation arises from the inclusion of different categories of stakeholders namely doctors, pharmacists and NMPs. It was anticipated that different attitudes, perceptions and experiences would be revealed thus providing a wider context for making interpretations about the Prescribing Guide and its potential impact on prescribing practices.

In addition, during data analysis, deliberate attempts were made to ‘test’ emerging theory by searching for disconfirming evidence or deviant cases and then making attempts to account for them (Green and Thorogood, 2004). As Denscombe (2007) states this approach is related to the argument that good research is not just concerned with verification of findings but with their falsification as well. This is what Lincoln and Guba (1985) have termed ‘confirmability’ – the ability to keep an ‘open mind’ and being willing to consider
alternative explanations. This is closely related to the concept of ‘reflexivity’ which is discussed in the next section (Section 5.10.1.1) and a reflexive account has been presented in Appendix 11. Simple counts of relevant events or statements in order to increase the reader’s faith in interpretations have also been carried out, ultimately defending against the charge of ‘anecdotalism’, (Green and Thorogood, 2004).

We turn now to ‘generalisability’, a term more commonly employed in quantitative research. Since qualitative research typically deals with small sample populations, Lincoln and Guba (1985) instead developed the notion of ‘transferability’. This concept is concerned with the extent to which qualitative findings ‘could’ be transferred to other instances, rather than with an expectation that findings ‘are’ likely to exist in other instances, as is the case in quantitative research (Denscombe, 2007). In order to achieve a justified degree of transferability, the following approaches were taken for this study. The reader has been presented with relevant information and details in order to make comparisons with other instances. For example Chapter 4 has attempted to provide the reader with a clear picture of the organisation within which the research was conducted, as well as relevant details about the Prescribing Guide. The practice-based examples in Chapters 2 and 3 further contribute to the readers understanding of (a) the nature of the environment from which participants were selected to take part in the research; and (b) the dynamics of local formulary operation. Furthermore, attention to producing ‘rich’ and ‘thick’ descriptions has been a key underlying theme to the research from the outset. Thick descriptions imply ‘multi-layered’ insights often from different perspectives for instance pharmacists’ views about the Prescribing Guide contrasted against those of doctors.

Additionally, the inclusion of raw data within the analysis allows the reader to make their own judgements as to the reliability of interpretations (Green and Thorogood, 2004). For this reason, Chapter 6 has included relevant extracts from interview transcripts ensuring adequate context is provided rather than short statements.

Green and Thorogood (2004) discuss the issue of ‘transparency’, which concerns providing a clear account of procedures. While this chapter has
discussed the chosen research instruments, Chapter 6 will describe in further
detail the lengthy process of coding and theme generation. Providing such
detailed information acts as a “proxy for being able to replicate research”
(Denscombe, 2007, page 298).

‘Dependability’ concerns the question “if someone else did the research would
he or she have got the same results and arrive at the same conclusions?”
(Denscombe, 2007). Use of an independent coder (discussed in more detail in
Section 6.5.1.) was employed in order to help minimise the charge of
subjectivity as a second individual selected from the academic field would
facilitate cross checking of coding strategies and interpretation of data.

5.10.1.1 Reflexive analysis of researcher’s personal narrative

From the outset it was also recognised that the researcher himself is a part of
the process of producing the data. Whereas in positivistic studies, efforts are
made to ensure the researcher is largely ‘invisible’, in qualitative research the
strategy is to instead account, explicitly, for subjectivity (Green and Thorogood,
2004). Bryman (2004) describes ‘reflexivity’ as a “greater awareness and
acknowledgement of the role of the researcher as part and parcel of the
construction of knowledge”. The researcher’s own values – which are
essentially a form of preconception – can influence a number of points in the
process of research. In the present study, these issues are of particular
importance since the researcher was also employed by the Trust as a Senior
Formulary Pharmacist. As mentioned in Section 4.2, this role was pivotal in the
development and implementation of the local Prescribing Guide at East and
North Hertfordshire NHS Trust. During this process, the researcher made
contact with numerous doctors, pharmacists and non-medical prescribers who
were all ultimately potential participants to semi-structured interviews or
Stakeholder Meetings or respondents to the online self-completion
questionnaires. Specific effort was made to avoid selecting participants for
interviews or Stakeholder meetings who had been actively involved in compiling
the clinical content for the Prescribing Guide. Nevertheless, members of the
pharmacy department and those routinely attending the local DTC meetings
(consultants and senior pharmacists) were at least ‘known’ to the researcher prior to the research taking place.

Since objectivity and impartiality can thus be called into question, a reflexive account of the researcher’s self and their impact on the research has been included exploring how personal experiences and values might have influenced interpretations (Appendix 11). This has proven particularly conducive to the phenomenological approach taken to analyse the qualitative data. As Hycner (1985) suggests, a way of ensuring that presuppositions have indeed been ‘bracketed’ is for the researcher to initially list the presuppositions that they are consciously aware of. It is noteworthy that the reflexive account highlights in particular, the involvement of the researcher in previous encounters with doctors where there have been varying degrees of disagreement and divergence – a topic that is repeatedly raised by participants in the semi-structured interviews (Chapter 6). Similarly, in the capacity of the Trust’s Senior Formulary Pharmacist, the researcher has alluded to a positionality of ‘drug expert’.

In addition, as Denscombe (2007) advises, “personal experience linked to the research topic” have been made available in the practice-based examples outlined and discussed in Chapters 2 and 3 which should help the reader to understand the routine work of the researcher.

5.10.2 Rigour in quantitative data analysis

Quantitative research findings need to be both ‘reliable’ and ‘valid’ representations of the concepts being investigated. Reliability is concerned with the consistency of measures (Bryman, 2004). Threats to reliability, particularly in questionnaires include using ambiguous questions or two many questions where the respondent is likely to lose interest (UKMI, 2011). A good level of reliability is achieved if the questionnaire was capable of producing the same data on more than one occasion (Denscombe, 2007). Since this study would be deploying the same self-completion questionnaires on two separate occasions (Week 5-7 and Week 20-23), two ‘check questions’ were deliberately inserted to test for consistency (Denscombe, 2007). These questions were not considered
to be directly related to the phenomenon under investigation and therefore, even in the light of modifications made to the Prescribing Guide, respondents with similar profiles were expected to give similar answers. In addition, Greco et al (1987) suggest another approach to ensure a questionnaire’s internal consistency. They recommend looking for logical patterns within answers to different questions. This approach was adopted and is discussed in greater detail in Chapter 7.

Validity, put simply, is concerned with whether the measure of a concept really measures that concept (Bryman, 2004). The researcher attempted to ensure validation of quantitative data by ‘checking the data’ for errors arising from incorrect data entry by respondents (Denscombe, 2007). In many cases such a task can be laborious. However the questionnaires used in this study were completed online and electronically submitted using SurveyMonkey. This online resource provided a facility to set each question as a ‘required field’ so if a respondent had overlooked a question, he / she was instantly presented with another opportunity to provide an answer.

Additionally, the validity of quantitative research instruments is often assessed by determining whether the findings can be generalised to other similar settings (Denscombe, 2007). Chapter 8 provides a discussion of the findings and compares this to the existing body of literature, particularly where questionnaires or other forms of survey have been used to investigate hospital drug formularies. However, it is important to note that in this study questionnaires were deployed primarily to corroborate findings emerging from semi-structured interviews and to provide a more comprehensive overall understanding of the Prescribing Guide and its likely impact on prescribing practice.

5.11 Summary of Chapter 5

This chapter has attempted to provide a clear and explicit account of how the chosen research instruments were deployed throughout the course of the study. The principal component of the research is the findings from the qualitative research. As the aims and objectives of the study outline, the attitudes,
perceptions and experiences of users using the Prescribing Guide have been extracted using semi-structured interviews. Alongside this, online self-completion questionnaires have been developed in order to corroborate qualitative findings and have helped in providing a broader, more comprehensive context to this primary data. Formulary adherence and prescribing trends that were extracted from the pharmacy department’s computer have been more difficult to interpret but, nevertheless, provide further insights into the nature of prescribing practices.

Chapter 6 will now turn to the qualitative research data that has been subjected to an extensive and rigorous analysis.
Chapter 6
Findings – Qualitative Data

6.1 Introduction

This chapter is the first of two that present the study’s findings. Chapter 7 will analyse the quantitative findings from the online questionnaires and describe the prescribing data extracted from the Pharmacy department’s computer system. The present chapter focuses on the qualitative data arising from the semi-structured interviews. Since both Chapters 6 and 7, at various points, refer to the ‘modifications’ made to the Prescribing Guide, in the interests of greater clarity, this chapter begins by addressing these modifications at the outset.

In total, 34 semi-structured interviews were conducted. Although the phenomenological approach has been discussed in the previous chapter as has a broad overview of the thematic analysis, this chapter describes how the ‘coding scheme’ was first independently validated and then used to generate ‘units of meaning’ represented by an extensive number of codes. The vast majority of the chapter is spent on the presentation of 63 themes identified from the coded interview transcripts. These themes were further analysed in order to derive a number of ‘generalised statements’.

6.2 Modifications made to the Prescribing Guide

In this chapter the qualitative data set from both the first and second wave of semi-structured interviews will largely be presented together, however, notable differences will be highlighted when necessary and references to modifications will occasionally be made.

Two phases of reconnaissance or ‘fact-finding’ were conducted. The purpose of this approach was in order to introduce ‘change’, a central element of action research. After having discussed provisional findings (emerging from the first phase of reconnaissance) at the second Stakeholder Meeting, specific modifications were discussed, agreed and then implemented.
The modifications listed in Appendix 12 can be classified into three broad categories of change recommended by participants of semi-structured interviews and respondents to online questionnaires. These categories concern: (1) prescribing guidance; (2) awareness and / or training; (3) features available on the Prescribing Guide. The implementation and realisation of these modifications contributes to the study’s objective 5.

6.3 Pilot interviews

6.3.1 Recruitment of pilot interview participants

The purposive sampling technique was used in the study to identify and select potential participants for semi-structured interviews. During Week 1-4 two individuals were similarly chosen to participate in pilot interviews in order to test the research instrument’s feasibility considering the local pressures and resources. Another key advantage of the pilot was to ensure that the researcher would acquire some experience with conducting semi-structured interviews particularly in being able to remain impartial and refrain from asking leading questions.

The researcher was employed at the Trust as a Senior Formulary Pharmacist and thus was familiar with most consultant doctors and all pharmacists operating at the Trust. For this reason, the researcher was in a position to select participants based on their potential insights and any ‘special’ contribution they may have to make. It was considered more appropriate, for the purposes of the pilot interviews, to select ‘senior’ participants since they would be more likely to elaborate on the issues addressed in the interview topic guides (Appendix 4). Therefore, one consultant doctor (CD1) and one senior pharmacist (SP1) were selected and have been included in Table 11 (Section 6.4).
6.3.2 Reflections on the conduct of pilot semi-structured interviews

The pilot interviews were transcribed and reviewed repeatedly whilst listening to the original recording. The transcripts demonstrate that all original topics were addressed generating passages of discussion that could be appropriately subjected to thematic analysis. Therefore the interview topic guides were retained and used during subsequent semi-structured interviews.

However, during the first pilot interview with CD1, the interviewer did use leading questions on two specific occasions. On both occasions, CD1 fortunately appeared to not be influenced by such suggestive questions.

Since it is essential to minimise any preconceptions and presuppositions for a true phenomenological stance, the interviewer modified his approach by making a more concerted effort to ‘bracket out’ such knowledge. The interviewer conducted the second pilot interview without any leading questioning.

During the second pilot interview, the venue chosen was a small pharmacy office beside a noisy out-patients’ waiting area. Although the noise did not disrupt the discussion between the participant and the interviewer and the digital dictaphone was sensitive enough to pick up the entire conversation, there were sections that were difficult to transcribe and required repeated listening and review in order to confirm the exact words used. Once again, this was a useful experience leading to the interviewer placing the dictaphone more strategically and ensuring the venues chosen were quieter where possible.

In summary, the pilot interviews proved to be useful, yielding interesting findings. Owing to their successful execution and insight from the participants the transcriptions were included in the larger qualitative data interpretation.

6.4 Conducting the semi-structured interviews

Although 32 semi-structured interviews (including pilot interviews) were originally planned, two extra interviews were also permitted on the advice of the Stakeholders. The first supplemental interview was with the Chief Pharmacist who had declined to participate however after discussions with the researcher’s supervisor and the Stakeholders, the researcher continued to pursue this
individual due to potentially unique insights. The second additional interview followed the presentation of emerging themes at the second Stakeholder Meeting. All four Stakeholders felt that the perceptions of the one NMP, during the first wave of semi-structured interviews, were particularly interesting and felt that there should be more NMP interviews. The NMP-Stakeholder suggested a potential participant and provided contact details. Table 11 lists all 34 semi-structured interviews conducted during this study. An example interview transcript has been provided in Appendix 18.

After the 10 week suspension in the study (Table 10), the interviewer resumed data collection in Week 32. Three semi-structured interviews were conducted by telephone. For each of these participants, consent forms were sent to the participants prior to the agreed interview dates. Telephone interviewing carries with it, its own unique set of advantages and limitations. While they can prove to be far cheaper to conduct and save having to travel long distances (as in the researcher’s case), interviewers obviously cannot engage in observation (Bryman, 2004). Therefore non-verbal cues such as signs of puzzlement and unease or occasions in which the participant uses gestures of emphasis will not be discernible. However, the necessity to rely on telephone interviewing as an alternative did not appear to have caused any significant detriment to the study since the participants' perceptions and views were recorded and analysed without any perceived ambiguity.
Table 11. Semi-structured interviews conducted during study (* pilot interviews).

6.5 Coding and thematic analysis

6.5.1 Independent coding for validation of coding scheme

Independent coding was also sought out for the analysis of the qualitative data. The process was considered to have provided further credibility to the qualitative data analysis.
First a ‘coding scheme’ was established based on a description of Glaser and Strauss’s original ‘grounded’ approach to data analysis (Miles and Huberman, 1994). Recommended for the more inductive researcher, it encourages more open-mindedness and contextual-sensitivity. In contrast to other coding approaches, this coding scheme did not support developing a ‘prefabricated start list’ of codes instead allowing the “data to get well molded [sic.] to the codes that represent them” (Miles and Huberman, 1994, page 58).

Once the coding scheme had been discussed and agreed with the researcher’s doctorate supervisor, it was applied to CD1’s interview transcript, generating a list of codes along with their code definitions. An independent coder, identified from within the academic field, then provided their own interpretations of the interview transcript. Once the researcher and the independent coder reviewed each other’s contributions, they were then in a position to identify areas of congruence; where they differ; and also discuss codes that had been deemed ambiguous. This resulted in the refinement of codes and code definitions which could then be applied to the remaining interview transcripts.

6.5.2 Presentation of themes

The analysis of the entire qualitative data set for the study generated a number of codes which were then categorised into ‘clusters’ (Appendix 13). Themes were then derived from further patterns identified between the clusters and codes. These themes are presented in Sections 6.6 to 6.9 below. The sections have been organised according to the order in which the topics appear in the original interview topic guides.

All sixty-three themes appear in the following sections, numbered, in black and bold face. Table 12 outlines how the themes in each section are linked to the study’s original aim and objectives.
6.6 Perceptions of the hospital drug formulary and DTC

1. Formularies ensure management of constrained financial resources

The wider budgetary benefits and implications of hospital drug formularies were clearly identified, particularly by pharmacists, as one of the principal reasons for their existence. A senior pharmacist and manager stated one of the purposes of the local formulary was:

“...to control prescribing, to support the PCT as well in controlling their prescribing.”

SP5 Interview No.15

Doctors and pharmacists both expressed a similar awareness of limited ‘available resources’ and an NHS in which there is a finite budget. The implications of this financially constrained healthcare setting on the local availability of drugs are clearly understood by most participants.

2. Pharmacists more likely to speak about formularies in terms of clinical benefits to patients

Participants were in general able to elaborate thoroughly, and without the need for further probing, about how the formulary is intended to help impact on prescribing practices. Pharmacists were more inclined to first state how
formularies are likely to be clinically beneficial to the patient within practice and then mentioned a cost-effectiveness strategy.

Senior pharmacists, particularly managers, were quick to point out that the formulary ensured ‘cost-effective’ prescribing as opposed to ‘cost-containment’ alone.

3. Doctors insistent on formulary being adaptable

Other participants, notably more doctors, while providing an overall supportive sentiment for formularies often supplemented this support with a somewhat 'conditional' undertone. For example, one consultant stipulates the need for formularies to be “adaptable” and the need for “room to manoeuvre”.

Only one senior pharmacist displayed similar views asserting the need for the formulary to be able to adapt in “certain situations”. This pharmacist routinely visited many wards as part of her role and was an experienced member of the pharmacy department involved in training junior pharmacists. She often spoke from experience and justified the need for flexibility within the formulary.

4. Pharmacists unaware of restrictive language

A number of participants articulated the view that formularies were in fact devices of control and impose restrictions on prescribing practices. Some pharmacists, though not overtly expressing any formal support for a ‘restrictive approach’ per se, routinely used words such as “ought to” and “enforce”.

One senior pharmacist manager who oversees the purchasing department described scenarios in which the prescribing of certain non-formulary drugs or second-line options were not routinely challenged by pharmacists. She complained “there isn’t a rigid <<emphasis>> system” (SP4 Interview No.14).
5. Doctors perceive formulary as restrictive

In sharp contrast were doctors’ views. The majority of doctors far more overtly described the formulary as a means to limit, restrict and ultimately control prescribing. In addition, with many of these statements there were a number of allusions to a perceived cost-motivated element to formularies.

“To keep the prices down <<smiles>>. Oh, I think a very distant second is umm, good practice...it’s restrictive rather than helpful.”
CD4 Interview No.4

NMPs interviewed stated that the formulary was to ensure appropriate prescribing and ensuring drugs were chosen on the basis of their evidence-base and cost-effectiveness. One NMP did however stress that the formulary is a “guideline” and felt it should not interfere with clinical judgment.

6. Formulary restrictions generate opposition and resistance

Continuing with the theme described above of ‘control’ and ‘restrictions’, the interviews also revealed far more ‘assertive’ versions of such views about the formulary concept. These views often appeared to result in some form of ‘outright’ opposition towards the formulary’s existence. In one interview with a medical registrar, initially supportive comments, on further probing by the interviewer, diminished to a more resistive stance, stating that the formulary is in fact “wrong” to “force” doctors to change their drug choices (RD3 Interview No.7).

Many doctors described frustrations around the local imposition of excessive guidelines and reviews in prescribing practice. Duplicating reviews and writing guidelines locally were deemed “wasting a lot of time” (CD 6 Interview No.20).

Two doctors in particular described how they usually attempt to overcome the perceived restrictions of the hospital formulary. Faced with such restrictions, rather than ‘capitulate’ to it, doctors effectively bypass the hospital formulary and the pharmacy department and involve the patient’s GP in obtaining the drug in question for the patient.
7. Prescribing practice should include being able to experiment with drugs and gain experience

It seemed that doctors may also oppose the existence of the formulary on the grounds that they should be free to gather experience by prescribing a wide range of drugs.

Notably, one senior pharmacist also expressed a similar view. He stated that formularies, through limited availability of drugs, can “stifle innovation” because drugs are not being used beyond “stringent” clinical trial settings (SP3 Interview No.13).

8. Only pharmacists and DTC members able to elaborate on DTCs’ importance and role

Many of the views regarding the local DTC seemed to mirror those of the formulary. Participants, in particular pharmacists, referred to clinical effectiveness, evidence-based medicine, patient safety and cost-effectiveness routinely. Those participants who were members of the DTC were better able to elaborate on its functions and purpose. Registrars on the whole were familiar only with the existence of a local DTC who at best could only vaguely outline its purpose.

9. Doctors regard DTC as primarily concerned with cost-containment

CD5 when discussing the DTC, further implies that it exists to support pharmacists in their role to control prescribing. Although he asserts that the DTC is “obviously very important” he also adds:

“...so I mean it is, it’s rather a policeman’s role I’m afraid to say, sorry <<laughs>>...”

CD5 Interview No.19

His seemingly apologetic stance may imply that he feels he has revealed a sentiment that may offend pharmacists or is contentious.
Junior doctors on the other hand, particularly in the first wave of interviews were unaware of the Trust’s DTC. After the modifications (Appendix 12) were implemented and new doctors were spoken to about the DTC’s purpose at their induction training and leaflets were handed out explaining how it operates, two out of the three junior doctors during the second wave of the interviews were able to, at least vaguely, recall the DTC’s function. One junior doctor displayed a frustrated tone when the DTC was being discussed in the interview describing it as “a lot of red tape” (JD6 Interview No.27).

10. Pharmacists tend to justify the cost-motivation behind the DTC

Pharmacist participants also tended to mention a cost-motivated element to DTCs, but here there was a frequently observed effort to contextualise the cost-orientation and in effect, justify the ‘cost-effectiveness’.

Conversely, it should be noted that there were ‘sceptical’ views even among members of the pharmacy department who were critical of the DTC’s intentions (for example JP3).

11. Doctors regard the DTC as excessively bureaucratic

Many consultants and registrars expressed the view that the DTC represented a bureaucratic system of controlling prescribing. These participants ranged from junior to senior doctors and also included members of the DTC. There was a sense of ‘resignation’ from many, a pervasive tendency to abandon pursuits when faced against the DTC process as it is perceived to be “an uphill battle” (RD2 Interview 6). One consultant (CD2) described his time constraints and the number of patients he sees routinely and complained that it is too difficult for him to “sit down and produce a voluminous application process for things that are done and dusted around the world and internationally”.

The Chairman of the DTC, who was also interviewed (CD3 Interview 3), was notably forthcoming about his view that the DTC was indeed bureaucratic. He
spoke about the “torturous way in which we appraise drugs” and stated there was “a lot of duplication [of drug reviews] unnecessarily”.

12. Pharmacists tend to justify the need for the DTC process

Of the pharmacists that had discussed aspects of the DTC, many appeared to be able to ‘understand’ the frustrations and sympathise with the resentment of doctors. Nevertheless, these pharmacists all maintained an apparently pragmatic view, going on to justify the rationing of the drug budget and asserting that adherence to the DTC was essential for effective medicines management.

“I think they think they’re giving away some of their autonomy... 
...but at the end of the day you can’t have one consultant have one form of treatment and another having another...”

JP4 Interview No.32

13. The formulary perceived as a threat to prescribing autonomy

Almost all doctors expressed some degree of discomfort with the formulary process restricting their prescribing practices. Certainly all consultants, including members of the local DTC, maintained such views as well registrars.

While many of the comments were either obscured or tempered with an overall appreciation for the formulary, other consultants took a particularly ‘damning’ view. A consultant commenting on the perceived value of formularies to junior doctors explained that formularies could in fact harm free and independent thinking. Although there was no clear reference to the issue of autonomy, the consultant contended:

“juniors will tend to see it as an instruction which precludes thinking about things...possibly reduces their cerebral activity...

...so if I became dependent on it, I wouldn’t be able to function
properly without it.”

CD4 Interview No.4

The implication is that by relying on the formulary for prescribing decisions, junior doctors are unable to develop ‘autonomous’ prescribing practice. Junior doctors on the whole appeared to take a more collaborative stance however there were more forthcoming participants who took a similar view to their superiors.

Non-medical prescribers corroborated much of the rhetoric from doctors.

14. NMPs feel restricted by their own lists

NMPs described how they felt restricted in much the same way doctors did. According to the three NMPs interviewed, the Trust had imposed a tailored ‘list’ to which each NMP was required to adhere to.

6.7 Perceptions of the Prescribing Guide

15. Prescribing Guide widely welcomed and praised as a new service

The Prescribing Guide was widely praised for having an innovative design and interactive features. As with the perceptions of the formulary concept, once again pharmacists were more able to elaborate on the various aspects of the Prescribing Guide.

One senior pharmacist manager stated that in her 10 years of being at the Trust, the Prescribing Guide “was the best thing that has come out of the Pharmacy department” (SP6 Interview No.28). Whether participants had expressed an earlier resentment towards the formulary concept or not, all participants, except one (CD7 Interview No.21), to some extent complimented the Prescribing Guide. CD7 appeared notably dismissive about the new service asserting her established drug expertise.
Other doctors however, as with pharmacists were nevertheless impressed with the available version of the Prescribing Guide. When senior doctors were asked whether the Prescribing Guide met their expectations of what a local hospital formulary should offer its users, most participants stated it was better than their expectations.

16. Managers concerned with impact data

Some participants did, however, demonstrate a level of doubt and suspicion regarding the actual use and impact of the Prescribing Guide. Noticeably, the two participants to express this scepticism most bluntly were a senior pharmacist manager and a consultant who were both senior members of the DTC.

“...I’m very anxious to know if the quantitative research shows that it has changed prescribing habits...

...the Trust wants to know whether they’ve got value for money out of it...”

SP5 Interview No.15

17. Vague conjecture regarding a perceived impact of the Prescribing Guide

Throughout the interviews there was a sense of ‘perceived impact’ rather than anything particularly tangible that participants could point to. Many pharmacists for instance, were aware that the Prescribing Guide was now part of the doctors’ induction training programme and they may have been making assumptions about the impact of the service based on this knowledge.

Among doctor participants there was again, rather vague conjecture regarding the perceived, potential impact of the Prescribing Guide. Doctors speculated that the Prescribing Guide was likely to be influencing specifically junior doctors’ prescribing and not at the consultant level. Consultant Doctor 5 (CD5 Interview
No.19) also stated that the Prescribing Guide will have “increased patient safety”, although once again he seemed to have derived this statement only from speculation rather any distinct examples that he could point to in practice.

18. Resorting to the Prescribing Guide needs to become ‘habit’

A number of doctors also mentioned that they were actively introducing the Prescribing Guide to colleagues in their teams. Two registrars in particular described the importance of “making an effort” (RD5 Interview 23) and to “hammer it home” to their junior doctors because “often they need a helping a hand and the Prescribing Guide offers so much” (RD4 Interview 22).

There was also a sense that in order for the Prescribing Guide to have a sustained impact on practice, referring to it as a primary resource would need to become a “habit” or part of “routine” activities over time.

“...it’ll get into our habits and collective consciousness eventually.”
CD5 Interview No.19

19. Prescribing Guide is currently more supportive to junior doctors rather than an immediate source of drug information

Many pharmacists pointed out that currently the Prescribing Guide was probably “more supportive” (JP3 Interview 31) to junior doctors rather than a first port of call. This was confirmed by corroborating statements made by junior doctors.

Following the modifications made to the Prescribing Guide, some pharmacists and doctors did make comments about a perceived improvement in the level of awareness of the Prescribing Guide as a result of now being included in the new junior doctors’ induction training:

“...in my, you know, the induction for new junior doctors, it’s quite high up as an influence and it’s going up for sure...
...I mean when I spoke to them yesterday, they were like ‘oh yeah I know how to use that’ so the awareness is there now for sure.”  
SP7 Interview No.29

Participants described, often in some detail, instances of using the Prescribing Guide. Many of these descriptions take the form of verbal diaries that help to understand where it appeared to be useful.

20. Prescribing Guide now primary source of drug information for most pharmacists

Pharmacists were, on the whole, more readily able to describe various experiences of using the Prescribing Guide. A number of pharmacists stated that their primary source of information was now the Prescribing Guide in order to check whether a prescribed drug was stocked at the Trust.

“Right, for me, I would be looking at formulary status so looking at the Prescribing Guide as my number one thing because...I would rather than using my personal opinions and using sort of like past experience, I would rather be looking at what is laid down as sort of rules and regulations so I would be looking to use that.”  
JP2 Interview No.17

21. Pharmacists and doctors differ in consideration of formulary status of drug

Pharmacists stated that inappropriate or incorrect prescribing would typically be challenged “retrospectively” (SP4 Interview No.14). Although many pharmacists aspired to be able to challenge prescriptions “at the point of prescribing” (SP7 Interview No.29) while being part of doctors’ ward rounds, they felt that owing to limited available resources, the reality meant that they had no other resort other than to identify errors ‘after’ prescribers had already selected and prescribed the
drug. Faced with such a reality, pharmacists stated they would use the Prescribing Guide accordingly:

“...like, if a doctor prescribed something but now you can say 'you can’t have it' and he’s like 'well why not'...you can say 'here look, this is the Prescribing Guide and it is such and such line'.”

SP1  Interview No.11

This does however highlight a significant difference between the pharmacists’ approach to drug therapy and the prescribers’ approach. Pharmacists not only manage prescriptions ‘after’ drug selection has already been made, but also, typically approach the 'appropriateness' of the drug by checking its formulary status. Conversely, doctors often do ‘not’ incorporate the formulary status of a drug into the selection process and often cite the patient’s well being as the primary driver for drug choice. Therefore the need to consult the Prescribing Guide in the ‘first’ instance, that is, ‘prior’ to drug selection was seen to be noticeably absent in doctors.

“...doctors don’t think about the formulary in the same way you do...doctors only really think about the patient hey?”

CD6  Interview No.20

22. Prescribing Guide facilitates pharmacists’ retrospective challenging of prescribed drugs

All pharmacists stated that they would typically use the Prescribing Guide during their routine dispensary duties to screen in-patient drug charts and out-patient prescriptions. Once again, this represented a tendency to retrospectively analyse drug prescribing. Nevertheless, pharmacists seemed to find the Prescribing Guide useful in this setting since it provided convenient access to the BNF, NICE and other guidelines and links to the DTCs drug decisions. Four pharmacists referred to challenges they made individually regarding the inappropriate prescribing of solifenacin, a ‘red’ traffic light drug (third-line) being prescribed, against the DTC decision as a first-line choice. They all described how the Prescribing Guide was successfully used to inform their challenges during each encounter with the corresponding prescribing doctors.
Of the doctors, only a single registrar claimed to use the Prescribing Guide in a similar fashion to pharmacists screening in the dispensary, that is, available at the desk in her out-patient clinic:

“...I'll bring it up for every clinic...so I'll open up typically Kodak, ICE and the Prescribing Guide so that I can just check stuff as I'm seeing patients.”
RD1 Interview No.5

23. Access to Prescribing Guide thwarted by limited computer terminals

A number of pharmacists explained that use of the Prescribing Guide on the wards, as opposed to in the Pharmacy dispensary, was less achievable due to limited accessibility to computer terminals. Doctors and NMPs corroborated these claims.


One senior pharmacist did however contend that accessibility was not as much a barrier as was the limitation placed on the amount of time made ‘permissible’ to each pharmacist on their ward. Another senior pharmacist made the following comments regarding junior pharmacists in the department:

“they feel under pressure you know they just don’t have the time to spend on each patient, you know they might make a difference for one patient, but then they’ve still got twenty-nine to deal with in umm, a umm very short space of time on the ward, umm you often just end up making the supply and that’s about it...”
SP8 Interview No.30

This was corroborated by a number of pharmacists, particularly juniors. Junior doctors felt similar time constraints prevented them from using the Prescribing Guide as frequently as they perhaps might intend to. JD5 stated he used the Prescribing Guide to access the eBNF adding that he routinely lacks the time to
be able to browse through the “outside reference sources” that have been made available via links.

25. Prescribing Guide not appropriate for specialists (use value)

Consultant doctors and some registrars stated they were familiar with the drugs they routinely prescribe and therefore did not feel the need to consult the Prescribing Guide. Many did however mention that they may use it for drugs that they are not familiar with as the quote illustrates below:

“...so for umm, respiratory, I’m fairly on board with what I’m doing and I’m fairly certain I’m aware of all the evidence I would need to practice...but certainly for the more general medication outside my own area of expertise, yeah sure, I’d consider it in that situation.”
RD5  Interview No.23

NMPs appeared to share the opinions of doctors. They all asserted a level of confidence in their own drug ‘lists’ and thus felt no immediate need to consult the Prescribing Guide since they would not be prescribing ‘outside’ their area of expertise. NMP3 stated she accessed it regularly only to check local stock and formulation availabilities. NMP1 (a pharmacist), stated that she routinely used the Prescribing Guide only for screening prescriptions in the Pharmacy dispensary – therefore solely in the capacity of a pharmacist. Interestingly though, as an NMP, she too felt confident in her area of expertise (anaemia in renal patients) and asserted that she was able to function as a prescriber without the need for additional support from the Prescribing Guide.

26. Prescribing Guide praised for its comprehensive inclusion of a wide range of information sources within one local website

As stated in the previous subsection, participants in general praised various aspects of the Prescribing Guide. Pharmacists emphasised in particular: the traffic light system of organising the drugs; links to external websites; the apparent ease-of-use; and links to drug decisions made by the local DTC.
The majority of NMPs and doctors also praised individual features of the Prescribing Guide. In particular, many doctors stated that inclusion of links specifically to the eBNF was “quite a good touch and obviously crucial” (RD4). Doctors commented on the “easily recognisable setup” referring to the BNF-style breakdown of chapters and subsections.

There was widespread appreciation for the availability of clinical guidelines and other prescribing guidance. Both junior professionals as well as seniors described the value this feature offered.

27. Prescribing Guide on occasion supplanting advice of colleagues

Similarly doctors identified how on occasions the Prescribing Guide can serve as an alternative to contacting their senior colleagues or the ward pharmacists for advice.

“Oh well I think it’s fantastic especially for us umm, junior doctors, it’s a way of as I said, umm knowing what’s the first-line options available to you without having to contact the reg or the consultant…”

JD5  Interview No.26

28. Prescribing Guide provides an awareness of local availabilities and priorities

Participants from each of the healthcare professions stated that the Prescribing Guide was useful in making users aware of the local stock availabilities, local preferences through traffic light systems and local guidelines. The emphasis here is clearly on the ‘localised’ insight that the Prescribing Guide can bring to prescribing practices. Once again, senior practitioners – pharmacists and doctors – made the case for this local insight being most useful for ‘juniors’ at the Trust.
29. Prescribing Guide has educational value

There were also numerous references to the educational value that the Prescribing Guide brings to practitioners. SP1 spoke of how the Prescribing Guide was used in a junior pharmacist’s formal training exercise. Other participants referred to a more subtle, indirect educational function that the Prescribing Guide served through regular use.

“...with all the links that go beyond the Trust, especially to the juniors, because ultimately it is educational, it is something that people can easily click around on and just become familiar with the drugs used at this particular hospital...”
RD4  Interview No.22

30. Traffic light system causes confusion

Although participants praised the traffic light system for its visual, graphic representation of first-line and second-line drug options, there were a number of participants, notably pharmacists, who felt confused by the ‘red’ traffic light.

“...I can remember what green is, amber I can probably, I’m never sure if red is restricted or not allowed because I think if it’s not allowed at all, it’s not there...I sometimes have to think about that so maybe if I think that, others would too.”
SP5  Interview No.15

JP1 also describes an incident in which doctors were frustrated at seeing a drug classified as ‘red’ and assuming that indicated it was a ‘non-formulary’ status and thus unavailable when in fact this was not the case.

31. Prescribing Guide contains more information than is needed

A few participants spoke about the perceived comprehensiveness of the Prescribing Guide as further compounding the already time constrained atmosphere.
“I’ll tell you another thing, I mean, you ask me a negative, I know that you’re attaching guidelines...the down side to that is that I find the juniors wanting to check so many guidelines, I mean three hours to screen a prescription, I think to myself we can’t be doing that.”

SP5  Interview No.15

CD4 similarly referred to the Prescribing Guide as “encyclopaedic”. He further cited requirements on doctors “being asked to do more and more in shorter time” as a reason why using the Prescribing Guide was “relatively not productive in clinic”. CD4 stated that information sources can often reduce the “cerebral activity” of doctors and using a “computer program which tells you what it [the drug for a patient] is” can hinder the development of a competent and autonomous medical professional. There appears to be an implication here that the Prescribing Guide ‘may’ provide guidance for the clinical management of the patient that is inappropriate and that the doctor should engage the required thought process to be able to discern this for them self.

32. Doctors concerned with patient’s impression of them using the Prescribing Guide

Doctors also raised the issue of the patient’s perspective with regards the Prescribing Guide. They contended that not only was it impractical to move away from the patient’s beside in order to consult information sources but particularly in the out-patient clinic setting, “it is still very obvious to the patient that you’re looking though the book about them” (CD1 Interview No.1).

33. Recommendation to ensure more up-to-date links to local and national guidelines

All categories of participants stated more guidelines would encourage them to use the Prescribing Guide more. One registrar suggested listing the appropriate clinical management of common scenarios that he encountered in his speciality
for example the drug management of a patient being admitted for a routine angiography.

Guidance was also noted to take the form of advice from specialists for example Directorate Pharmacists. SP3 stated that these senior clinical specialists ought to be more responsible for updating their corresponding chapters and even conceded that he, himself, should contribute more too. Pharmacists made a number of recommendations, often very specific and concerning their own area of expertise.

An important feature of ‘guidance’ was seen to be its ‘timely’ relevance. Many participants, across all healthcare professionals, stated that guidance should be kept up-to-date.

“You know for me if I knew that it wasn’t updated more than once each year then I wouldn’t want to look at it again...”

CD2 Interview No.2

34. Practitioners are interested in local DTC’s drug decisions

Particularly pharmacists stated they felt the summarised decisions available through links on the Prescribing Guide were useful in informing their discussions with doctors. However, one consultant still took issue with a perceived lack of transparency of the DTC:

“What I feel about the New Drugs and Formulary Committee is that I don’t see any transparency...so from there the NDF Committee is like a black box, so doctors just don’t like black boxes...”

CD2 Interview No.2

35. Recommendations to improve functionality of Prescribing Guide

Participants also pointed to specific features that could improve the functionality of the Prescribing Guide. Locating specific drug information on the site proved to be troublesome for some participants. In some cases, these participants
recommended developing a search bar to ease search and navigation or to develop the ‘How to use’ section better with more descriptive detail.

Other features that individual participants mentioned included developing a designated area on the home page, effectively a ‘notice board’ with “today’s message” (SP5 Interview No.15) consistently promoting “regular problems” in local prescribing practice.

### 36. Recommendation to increase training and awareness

A common recommendation was to ensure there was adequate training offered to all potential users particularly junior staff. SP4 (Interview No.14) stated, “you assume you know it but you don’t until you go to the training session” adding “we have to make sure that our juniors are familiar with, that they’ve been to the teaching sessions”.

Other similar calls to ensure adequate training also came from members of the DTC who considered it “high on the agenda” (CD3 Interview No.3). Junior doctors and registrars equally stressed the importance of training as well as raising awareness through vigorous promotion particularly in the month of August since this is when new junior doctors join the Trust.

### 6.8 Influence on local prescribing practices

### 37. Doctors highly influenced by their senior colleagues

Doctors indicated there was a strong tendency to either directly follow the instructions received from their senior colleagues or to make independent decisions that are also ultimately based on the ‘preferences’ of their seniors or mentors.

This high regard that junior doctors appear to have for senior members of their team was also widely recognised by pharmacists who could cite various instances of observing such behaviour.
38. Pharmacists less influenced by senior colleagues

A smaller proportion of pharmacists, discussing their influences, tended to mention the advice of senior colleagues ‘after’ other influences, such as local Trust guidelines, whereas doctors notably mentioned their senior colleagues as significant influences often ‘before’ other factors.

39. Doctors more likely to access primary sources of evidence-based medicine compared to pharmacists in routine practice

Doctors, particularly consultants and registrars cited evidence-based medicine as an influence and often clarified by specifying “actual key papers” or “meta-analysis which is pure evidence, scientific evidence” (CD2 Interview No.2). Often doctors would refer to particular websites or other sources of information that provide them with up-to-date evidence-based drug information.

Pharmacists rarely mentioned evidence-based medicine alone as an immediate influence. No pharmacist spoke about checking clinical trial data from primary sources of evidence as doctors did, unless it was for a review they were carrying out for the DTC. Instead pharmacists mentioned broader sources of drug information like NICE and local Trust guidelines where evidence-based medicine had already been incorporated. Additionally, pharmacists often mentioned ‘clinical evidence’ as essential for appropriate prescribing in other contexts, for example, when describing interventions made.

40. Through experience pharmacists are more likely to develop an understanding of drug usage rather than individual clinical outcomes

The quote below highlights how pharmacists often demonstrated a knowledge of drug usage patterns rather than clinical outcomes with drug usage. Here the pharmacist refers to previous experience of seeing drugs being prescribed against protocol. Based on this experience she feels she is able to foresee a similar scenario occurring, in this case with Movicol – a restricted drug identified as consistently being prescribing outside agreed protocol.
“...I see Movicol as being a creeping tide and I’ve been here before, I saw lactulose go from, like that <<clicks fingers>>...Movicol might be fantastic and maybe we should have it but we shouldn’t let it creep in...”

SP5 Interview No.15

Some pharmacists claimed that they are not able to ‘access’ a ‘complete’ insight of drug therapy. For example SP1 stated that pharmacists, in general, were not attending doctors’ ward rounds and were not reading patients’ clinical notes. She felt that pharmacists were therefore far detached from knowing how recently prescribed medication has affected the patient’s clinical condition.

41. Doctors develop experience of individual clinical outcomes

Doctors frequently made references to previously seen “caseload” (JD1 Interview No.8) or “experience” (CD4 Interview No.4). One consultant when describing an incident in which he made a life-saving intervention stated:

“...I don’t think you can know about the sort of algorithm there is somewhere in my frontal lobes, you know there’s umm, somewhere in that brain there were, the last thirty-five years some connections have been made and they’ve been made because of experience not because of sitting down and trying to work out an algorithm...”

CD4 Interview No.4

Although some junior doctors also cited experience as influence, it was more pronounced in senior doctors who often appeared to incorporate additional elements of confidence and autonomy.

Pharmacists’ recollections of challenges to doctors' prescribing corroborated much of doctors' statements regarding their reliance on personal experience.
42. NICE useful in time constrained scenarios for pharmacists and junior doctors

Among pharmacists, there was widespread appreciation for NICE and it was referred to as a significant influence on pharmacy practice. Doctors and NMPs also cited NICE as an influence on their prescribing. However, there was a notable difference in the comments made by junior and senior doctors. All six junior doctors displayed a tendency to rely on NICE and stated it was particularly useful in time constrained situations for instance when on-call. JD2 when discussing NICE, described how she often feels “out of my depth” and needed to rely on “somebody else’s decision”. Senior doctors asserted that NICE was useful in principal – often refraining from any further commentary on the topic. However consultants and registrars, after prompting, displayed signs of scrutiny and in some cases defying NICE’s drug reviews and decisions.

43. Prescribers feel restricted by NICE because it impacts local decision-making

Senior doctors in particular, expressed a frustration with the view that NICE was primarily concerned with keeping national drug expenditure to a minimum. CD4 mockingly referred to the organisation as “the National Institute of ‘Cost’-Effectiveness” stating it is a “terminological inexactitude” to call it ‘clinical evidence’.

Doctors appeared to dismiss NICE on the grounds that it is merely ‘guidelines’ and therefore it is not mandatory that doctors adhere to it. CD7 makes an interesting allegation – that pharmacists use NICE in order to justify restricting doctors from prescribing drugs.

Many pharmacists were familiar with such sentiments within the medical profession thus corroborating their existence. Such feelings of being restricted were not confined solely to doctors, NMPs also expressed a similar frustration. NMP1 stated that NICE was useful in helping to “keep to the budget” since NICE often developed specific prescribing criteria. However, she often felt that
some patients falling outside of such criteria would in fact benefit by receiving
treatment earlier but felt limited by NICE.

44. Formulary regarded as a supportive influence for pharmacists

The formulary or the local DTC is a recognised influence, acknowledged by a
number of participants. The formulary was specifically mentioned and discussed
– unprompted – only by pharmacists.

“I suppose the first influence would be whether we have it on the
formulary, so the formulary is one of the very big influences
because if it’s not on the formulary I’m not going to be able to
persuade somebody to prescribe it…”
SP2 Interview No.12

45. Formulary recognised as a restrictive and largely unwanted influence
on doctors prescribing practices

Doctors did not list either the ‘formulary’ or the ‘DTC’ as influences. However,
during discussions with the interviewer on other topic areas, or when directly
asked to comment on the purpose of the DTC, doctors appeared to indicate that
the formulary, through its “policeman’s role” (CD5 Interview No.19) prevented
them from access to a broader range of drugs and thereby constituted an
influence.

46. Pharmaceutical industry is considered highly biased and
untrustworthy

Some participants cited the pharmaceutical industry as a recognised influence
on prescribing practices. Two consultants stated, for example, “we’ve got
industry reps and they’re a big influence” (CD3 Interview No.3) or that the
industry has “an effect of bringing that particular drug to the top of your list”
(CD2 Interview No.2).
It is notable that on all occasions, doctors and pharmacists displayed a degree of suspicion and caution in speaking about this particular influence. One consultant referred the interviewer to a recent talk at the Trust in which the guest speaker discussed allegations of the pharmaceutical industry withholding important information regarding side effects:

“...I think the pharmaceutical industry is playing dirty...”
CD6 Interview No.20

47. Junior doctors and pharmacists often adopt ‘stepwise’ approach to drug therapy

All categories of participants at some point displayed a tendency to ‘rely’ on decisions made elsewhere. This was particularly pronounced among junior doctors and both junior and senior pharmacists. Pharmacists, in general, appeared to imply that the use of Trust guidelines and the recent Prescribing Guide, enabled them to, effectively, ‘read and repeat’ drug information presented in a ‘stepwise’ manner.

SP1 expressed her dissatisfaction with this overreliance and strict adherence to guidelines. She was particularly concerned about the lack of pragmatism evidenced by pharmacists. Doctors often reinforced this notion of pharmacists relying heavily on guidelines. This often manifested when doctors expressed frustration over being unable to prescribe certain drugs unless – as the pharmacists insist – the required ‘protocol’ had been strictly adhered to.

Among the medical participants, however, there was clear evidence that junior doctors were similarly reliant on a “stepwise approach” to drug therapy often presented in guidelines.
48. Pharmacists operate independently therefore more likely to require decision-support tools

SP7 stated that pharmacists look at the Prescribing Guide and “repeat what it says”. When asked to elaborate on this statement she clarified that pharmacists rely “less on senior colleagues” and more on “paperwork”. Clearly the pharmacist argues that since pharmacists typically operate on a very individual basis, they require other forms of ‘back up’ to supplement their routine clinical activities.

In contrast, among doctors, most consultants and registrars instead asserted their ability to be able to unravel a patient’s complex problems and discern the appropriate therapeutic interventions without the need for ‘decision-support’. Other than junior doctors, only one senior doctor, a medical registrar appeared to take a different view and felt, favourably, algorithms and “standardised” treatment regimens were becoming more prominent (RD4 Interview No.22).

6.9 Practitioner-oriented dynamics within which the Prescribing Guide functions

49. Doctors recognised as open to collaboration provided it is on their terms

A number of both junior and senior pharmacists clearly expressed the opinion that doctors were “on the whole” (SP4) collaborative and willing to work with pharmacists.

“...most team doctors are willing to working alongside a pharmacist in a very open...they don’t like being told not to do something unless there’s something else that they feel is as good.”

SP2 Interview No.12

The quote above does, however, include an apparent contradiction. SP2 seems to indicate that doctors’ collaboration may, in fact, be contingent upon receiving input from pharmacists that they ‘approve of’ and find useful.
Doctors also acknowledged pharmacists as “very useful” (RD2) and often stated that they hoped for more involvement. CD2 described working with a pharmacist by saying:

“...I’d turn to her and say okay you tell me what are the interactions here...and she would have her BNF out and she would look at that, so, it’s good you know, because that is what multidisciplinary is all about...”

CD2 Interview No.2

Although this statement may be intended to be complimentary there is an implication that the consultant would wish to utilise a potential pharmacist attending his ward round in a manner that one might expect a junior doctor to be utilised. In addition there is the assumption that the pharmacist would ‘rely’ solely on the BNF for their knowledge.

50. Junior doctors more likely to adopt a collaborative approach than senior doctors

Some pharmacists were also able to express notable differences between junior and senior doctors. One senior pharmacist stated that junior doctors are more “malleable” and familiar with “the kind of bureaucratic process within pharmacy” whereas consultants came from a “they know best...school of thought” (SP3). Pharmacists and doctors also stated that junior doctors were likely to appreciate structured guidelines and sources like the Prescribing Guide as decision-support tools.

Similar views about the hierarchy within the medical profession were echoed by some doctors as well as NMPs. A medical registrar, once again, appeared to be able to recognise the attitude of some consultants and in addition the expertise and value of the pharmacist. RD4 (Interview No.22) stated that some consultants take it as “an affront when a pharmacists questions them”.

Sandeep Bagga | Doctor of Pharmacy Practice 2012
51. NMP expertise is recognised in multidisciplinary environment

Non-medical prescribers felt that they were largely accepted by doctors and were often relied upon for their expertise. One senior pharmacist and a single junior doctor elaborated on very specific incidents in which NMPs were of particular use and support to them. It ought to be noted, however, other than NMPs themselves, no other participants were able to point to positive contributions from NMPs.

52. Pharmacists feeling marginalised by prescribers

Pharmacists expressed frustrations over incidents in which they felt they had been overlooked and marginalised in some way. For example, SP1 described an incident concerning a drug review she had prepared to present at a DTC meeting. She discovered after the meeting that the consultant who had requested the drug (for permanent use at the Trust) had in fact previously already discussed the merits of the drug with the Chair of the DTC bypassing the pharmacist carrying out the review.

Pharmacists, while commenting on other issues, also appeared to imply – perhaps not consciously – other manifestations of being sidelined or marginalised. For instance, a common area of concern among pharmacists was the failure to address prescribing problems at the point of prescribing and instead having to retrospectively intervene and challenge doctors prescribing.

Another example of pharmacists feeling similarly marginalised and disconnected is illustrated below in a comment made by a junior pharmacist about non-medical prescribing for pharmacists:

“...I think we’ve only got one non-medical prescriber in pharmacy, there are so many nurses prescribers <<emphasis>>...it sort of bugs me to think that pharmacists shouldn’t have at least a say in what to prescribe but a nurse prescriber can override them.”
JD3 Interview No.31
53. Prescribers are subject of pharmacists’ scrutiny

Whether retrospective or at the point of prescribing, on the whole, pharmacists claimed that they were capable of scrutinising doctors’ prescribing. In addition, pharmacists also raised concerns about the level of influence the pharmaceutical industry was having on prescribing practices. Two senior pharmacists demonstrated a similar nature of suspicion towards doctors and NMPs being targeted and persuaded to use non-formulary drugs.

54. Conflicts between pharmacists and prescribers centre around guidelines and experience / judgement (respectively)

Many pharmacists were able to cite particular incidents in which they felt their advice to doctors was not accepted and caused conflict. A number of pharmacists frequently described incidents concerning a newly approved drug, ‘solifenacin’. In many of these cases, although the Prescribing Guide provided background information for pharmacists, consultants were still insistent, often basing the reason for their choice on successful previous experience with solifenacin. Another senior pharmacist described a consultant who tended to routinely deviate from local Trust guidelines or agreed policies. In one particular incident, the consultant was quoted as referring to pharmacists as “part of the Gestapo pharmacy” (SP7 Interview No.29).

Doctors similarly raised grievances against pharmacists restricting access to drugs they wished to prescribe for their patients, often with a sense of outright hostility in some interactions between doctors and pharmacists. NMP3 similarly commented on what she thought was an inappropriate ‘celebratory’ attitude taken by pharmacists towards having enforcing a cheaper drug against the recommendation of the Anaesthetic team (including NMP3 who was ‘Pain Nurse’). Furthermore, NMP3 described another incident in which her decision to deviate from the Trust guideline for pain relief (Analgesic ladder) was questioned by a pharmacist. She stressed that as a prescriber and a specialist she felt confident in her judgement and asserted that she “could take offence to that”.

Sandeep Bagga | Doctor of Pharmacy Practice 2012 143
55. Participants reinforcing traditional divides and segregated working arrangements

Participants made many comments about their own roles and how they are distinct from the roles of others. In many instances participants, in particular doctors appeared to affirm and reinforce their own professional duties, activities and role. A consultant, and DTC member, commented on a pharmacist discussing potential drug interactions with a patient by saying “I sort of think if you want to see the patient you should become a doctor” (CD6 Interview No.20). This consultant went on to say, unequivocally, that he sees this as the “pharmacist interfering”. One junior doctor made the following comment:

“...I wouldn’t try and tell you oh don’t, I don’t know, stop packing your pills in some way...

...if I’m giving tramadol because codeine won’t work for them, I don’t like being questioned about that.”
JD2 Interview No.9

The last quote here, by a junior doctor, not only asserts a level of expertise and training that enables doctors to prescribe as they see fit for their patients (in this case the doctor is arguing the case for tramadol over the Trust’s approved first-line agent, codeine), but also depicts her perceived view of a pharmacist’s role – “packing your pills”. Similarly other doctors have stated that the pharmacist is only responsible for the accurate ‘supply’ of a prescribed drug (for example CD3). There is an apparent attempt to distinguish the roles and areas of expertise of doctors and of pharmacists.

Doctors often reinforced their own roles by outright rejections of the perceived intrusions by those of other professions. For example, CD3 expressed concerns about nurses’ and pharmacists’ prescribing, stating such initiatives are “encroaching” on to doctors’ practice (CD3 Interview No.3).
56. Pharmacists are considered to be obstructive in prescribing practice

Similar notions of freedom to prescribe without pharmacy or others interfering were widely made by many doctors and NMPs. NMP3 commenting on the formulary and pharmacists impacting on their ‘autonomy’ stated:

“...I think that a lot of us that are clinical nurse specialists...find pharmacists and pharmacy as a whole, a bit of obstructive <<lowers voice and leans over>>, umm and that cost-efficiency, umm sometimes overrides may be individual patient need at a particular time.”
NMP3 Interview No.34

57. Doctors attempt to limit the prescribing powers of NMPs

Interestingly, however, a number of doctors appeared to be mildly critical of non-medical prescribing. While there ‘were’ a few more overtly critical comments made about NMPs, most appeared to ‘limit’ and ‘confine’ non-medical prescribing in some way. For example, doctors of all grades expressed either the opinion that NMPs should never initiate medication (only continuation and maintenance is acceptable) or that prescribing ‘over-the-counter’ medication and ‘simple’ medication like laxatives and painkillers are acceptable.

58. Pharmacists are too algorithm-driven

There appears to be an acknowledgement by pharmacists that one of their routine roles concerns the enforcing and upholding of guidelines. However, what appears to be more ‘subtly acknowledged’ by fewer pharmacists is a worry that such an approach has a detrimental impact on the potential clinical contribution that pharmacists have.

Other pharmacists, in seemingly stark contrast, used words like “policing” to describe the role that pharmacists have with respect to prescribing and further complained that pharmacists are, in fact, not “policing” enough. Some senior
pharmacists used words, often repeatedly throughout their interviews, such as "enforce" (SP3 Interview No.13) referring to pharmacists ensuring that guidelines are adhered to by prescribers. This pharmacist had joined the Trust relatively recently and often referred to previous experience at a large teaching hospital. His previous hospital operated a similar online formulary that had additionally adopted a highly extensive algorithm-oriented approach to directing prescribing. When asked to comment on the potential for overreliance on such tools, SP3 stated:

“I think it’s just the way things are going with IT in general so I don’t think it’s a problem, not really... and freedom to choose sort of the kind of things you want is sort of being eradicated.”

SP3 Interview No.13

NMP1 made an interesting comment regarding this adherence to algorithms and guidelines:

“Hmm, yeah, yeah I think because as I’ve said we’re doing weird things with cinacalcet now which before I’ve gone no you can’t do that and NICE says this and formulary says that and whatever, but now I’m like, what can you do with this patient, we’ve got to try something.”

NMP1 Interview No.18

This statement reveals a previous tendency to adhere to guidelines very stringently – as a pharmacist – but now, operating as a prescriber, she is inclined to confidently deviate from the guidelines for the benefit of the patient.

59. Pharmacists are too preoccupied with the supply function

Most pharmacists felt they were too preoccupied with the ‘supply’ of drugs and that this had an impact on the time they could spend on more clinical activities. SP7 stated that this focus on only the supply of medicine is “soul destroying for our junior pharmacists”. Junior pharmacists themselves routinely displayed dissatisfaction about their present roles and function.
There were two pharmacists however who did ‘not’ feel that they were overwhelmed by a supply function (SP4 and SP3).

60. Pharmacists lack clinical expertise and opportunity to further cultivate a more clinical understanding

A number of pharmacists expressed a desire to attend and contribute routinely to doctors’ ward rounds. SP1 stated that as a result of attending ward rounds, there was not only a greater chance of acquiring a “special understanding” about how drugs are prescribed, but also stated that pharmacists would “get more respect”.

On prompting, pharmacists revealed their perceptions of their own roles and priorities. The ‘frustrations’ concerning the implications of ‘supply function’ on clinical input were clear even among senior pharmacist managers who were also able to elaborate on the limited resources that further compound the problem:

“...we’ve got the University of Hertfordshire just there, and we still can’t relieve pharmacists for further specialist training, instead they’re stuck in there doing a bunch of supply <<pointing at dispensary>>”
SP6 Interview No.28

61. Prescribers claim unique ability to deal with unusual and uncertain patient cases

Doctors routinely mentioned an ability to successfully manage complex patient scenarios and deal with uncertainty, particularly by not adhering to existing guidelines or any other form of published guidance. CD4 refers to an incident in which he seems to imply that he acted on sheer instinct and this resulted in saving the patient’s life. The consultant alludes to the fact that as a result of different experiences others may have chosen a different treatment option. CD7
similarly uses ‘experiences’ to justify the lack of consensus between the respiratory consultants at the Trust.

Doctors laid claim to this ability to manage uncertainty solely for the medical profession, excluding pharmacists in particular. Many doctors, both junior and senior, tended to mention their years at medical school and training in order to justify their ability to discern the most appropriate course of action for patients. A consultant, commenting on his ability to deviate from guidelines, also makes a similar point:

“...what I’m saying is that I’ve trained <<<emphasis and point finger>> and that training allows me to say this patient falls out of current NICE recommendation.”
CD1 Interview No.1

Doctors did accept that guidelines, whether local Trust guidelines or national guidance such as NICE, was often incorporated into their decision-making process. For example, a medical registrar accepted the role guidance plays in practice however he stated that often time constraints prevented him from covering all of NICE guidelines and therefore also relied on “experience” and “own knowledge”.

62. NMPs claim an evolution in clinical understanding that equips them with ability to manage ‘uncertainty’ in complex patient cases

Non-medical prescribers also made claims to a unique ability and a level of insight that enabled them to manage ‘uncertainty’ in complex clinical scenarios. As with medical doctors, they too demonstrated an impulse to nonconformity with guidelines when they ‘felt’ it was appropriate. NMP1 (a pharmacist) made the following comments about DTC decisions:

“...I think becoming a prescriber I’m starting to see more the clinical side of things, before I was very pharmacy, like yes formulary, cost and all that, but now I’m starting to see patients and prescribing and stuff, it’s not so clear cut, you’ve got these patients and they’re
all individuals and that’s where the formulary might be limiting, the formulary’s decision might not be suitable for that one patient. I think my opinions might be slightly changing as I’ve become an NMP...you slowly start to break your own rules...”

NMP1 Interview No.18

She contrasted her previous role as a pharmacist with her current role as a ‘prescribing pharmacist’ and highlighted the “weird” manner in which she exercises “judgement” and can prescribe drugs for her renal patients.

Amongst NMPs there appears to be an attempt to associate and align one’s self with medical doctors.

63. Doctors claim to be the only party who is entirely patient-focused

Consultants in particular widely maintained that they were predominantly patient-focused and that they were not primarily concerned with either the cost of treatment options or whether a drug was on formulary or not. Similar perspectives are echoed by registrars and junior doctors:

“...I’d rather be in the patient’s best interests, I don’t really care about the formulary and about money...I’d rather practice with evidence based so even if it’s a couple of pounds more I’d rather put the patient’s benefits first.”

JD2 Interview No.9

Doctors frequently compared their ‘level’ of patient-orientation with that of others for example pharmacists or NICE or “the formulary”.
6.10 Generalised statements from semi-structured interviews

Using the themes presented in the previous section, ‘generalised’ statements were inferred and are presented here. As an example, Appendix 14 shows how the themes were utilised in order to arrive at ‘Statement 5’.

Statement 1

The Prescribing Guide has been well received at the Trust although limited time and local IT problems currently hamper its full potential. It is predominantly useful for practitioners who require either decision-support as in the case of non-consultant doctors and pharmacists or in reinforcing challenges and interventions made by pharmacists.

Statement 2

The Prescribing Guide is primarily viewed from four different but in some cases, overlapping perspectives: as a control measure; as a necessity and a utilitarian service; as means to improve autonomy; as a threat to autonomy.

Statement 3

The Prescribing Guide has quickly become the primary source of drug information for pharmacists. The following reasons have been identified: (1) pharmacists can routinely and easily access the Prescribing Guide from the Pharmacy dispensary only struggling with access, as doctors do, with resource constraints on the ward level; (2) pharmacists see the value and rationale behind the existence and implementation of a local formulary and are prepared to defend it; (3) pharmacists invariably work alone so need extra support; (4) pharmacists feel too preoccupied with 'supply' adversely affecting the time left to research clinical trial data; (5) the Prescribing Guide facilitates the retrospective 'checking' of prescribed medication; (6) the design of the Prescribing Guide is closely aligned with pharmacists' role so is seen as a useful educational tool.
Statement 4

Among doctors, the Prescribing Guide is most useful for non-consultant doctors particularly in providing information about local priorities and availabilities and when senior colleagues are unavailable. However owing to the following factors, the Prescribing Guide struggles to become a core component of doctors’ routine within prescribing practice: (1) the perceived uniqueness of medical professional’s role (specifically, a unique patient-focus and an authority based on clinical knowledge); (2) local resource constraints; (3) lack of training in specific features of the Prescribing Guide and; (4) an underlying distrust for the formulary concept.

Statement 5

The local formulary symbolises a critical split in approaches to resource management and patient care. The formulary is therefore central to many of the conflicts that take place within prescribing practice where the opponents take varying degrees of either a supportive or opposing view of the formulary decisions.

Statement 6

Different claims to and manifestations of authority seem to exist in the local prescribing arena (often overlapping): formularies and DTC claim resource-conscious and evidence-based evaluations; NMPs and doctors claim a unique patient focus and ability to call upon expert judgement; managers through hierarchy; pharmacists through being drug experts.

Statement 7

Pharmacists are ‘closely bound’ to the local formulary forming a perpetual and ingrained component of their thought process thus are unable to detach the formulary from their role in drug therapy. Pharmacists, therefore, very much rely on the formulary for pre-structured (often algorithm-driven) decision-support.

Statement 8

Pharmacists ‘do’ wish to develop clinically by involving in clinical activities but they feel isolated from the ‘real’ frontline patient care (at the point of drug
selection). This isolation arises from the 'continued subjugation' of pharmacists in their environment.

**Statement 9**

The local formulary and pharmacists who advocate adherence to guidelines and pre-structured approaches to patient care are seen to challenge and threaten traditional roles and activities - both pharmacists' and doctors' roles.

**Statement 10**

Doctors' value unrestricted and unfettered freedom to exercise their own judgement for the benefit of the patient and will resist attempts to either mimic this judgement or mitigate their 'valued' freedom.

**Statement 11**

Doctors consider their role in healthcare to be 'uncorrupted' by resource-based influences and perceive their role as entirely patient-focused. While they are willing to engage in some discussion regarding drug therapy from the pharmacist, they feel it is their prerogative to reject such advice in the capacity of, in effect, 'guardians' of patient clinical treatment - they portray themselves as 'closely bound' to the patient.

**Statement 12**

Junior doctors are more likely to adopt a collaborative approach with pharmacists and in the absence of their senior colleagues are willing to incorporate tools such as the Prescribing Guide into their prescribing practice. However since they are: (1) highly influenced by seniors; (2) consider themselves to practice with 'absolute' patient-focus and; (3) further 'believe' that they possess a unique ability to manage uncertainty, there is a likelihood that they will eventually reaffirm the resistive attitudes to being dictated, normally held by senior doctors and will thus uphold the same divides and segregated working arrangements in prescribing practice.

**Statement 13**

NMPs experience an evolution in clinical thought process learning to apply knowledge in a different way than in their previously held posts. They
characterise this as an ability to autonomously exercise clinical judgement for the patient's good. While they attempt to fully embrace their new role as 'prescribers' they are frustrated by the DTC's imposition of a 'prescribing list' and pharmacy and doctors' attempts to limit their abilities by reinforcing existing (traditional) divides.

6.11 Contributions made via Stakeholder Meetings

Throughout the study, Stakeholder Meetings were held as planned (Table 13). The first three meetings in May 2009 involved the researcher with one other Stakeholder. It was not considered necessary to coordinate a single meeting with all Stakeholders in this instance since the topics covered did not need extensive discussion. During the second and third Stakeholder Meetings, all four Stakeholders attended and discussed provisional findings.

<table>
<thead>
<tr>
<th>Stakeholder Meeting</th>
<th>Stakeholders attending</th>
<th>Date</th>
<th>Duration (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (i)</td>
<td>Senior Pharmacist and Senior Formulary Pharmacist</td>
<td>May 2009</td>
<td>20mins</td>
</tr>
<tr>
<td>1 (ii)</td>
<td>Consultant Doctor and Senior Formulary Pharmacist</td>
<td>May 2009</td>
<td>20mins</td>
</tr>
<tr>
<td>1 (iii)</td>
<td>NMP and Senior Formulary Pharmacist</td>
<td>May 2009</td>
<td>20mins</td>
</tr>
<tr>
<td>2</td>
<td>All</td>
<td>July 2009</td>
<td>1hr 30mins</td>
</tr>
<tr>
<td>3</td>
<td>All</td>
<td>January 2010</td>
<td>1hr</td>
</tr>
</tbody>
</table>

Table 13. Stakeholder Meetings held during study.

The second Stakeholder Meeting consisted of a wide ranging discussion concerning potential modifications that could be made to the Prescribing Guide in an effort to improve the service further. Stakeholders helped to facilitate the implementation of many aspects of the modifications. For instance, the consultant doctor used his position at the Trust in order to help establish 'workshops' at the Trust's Grand Rounds providing demonstrations of the Prescribing Guide.

The most significant input that Stakeholders provided was by way of discussions and feedback regarding the emerging themes and provisional
findings from the qualitative and quantitative data. Notes were taken by the researcher during the meetings and have been summarised in Appendix 15.

6.12 Summary of Chapter 6

This chapter has presented themes that describe existing local attitudes and perceptions towards the formulary concept, the Prescribing Guide and various aspects of prescribing practice. In addition, the qualitative analysis has also identified themes concerning the working dynamics within which the Prescribing Guide operates, focusing on the interactions between key stakeholders.

While there is evidence of collaboration between healthcare professionals, participants have revealed that varying degrees of conflict ‘do’ exist. Both doctors and NMPs consistently described an ability to apply judgement in complex patient scenarios and deal with ‘uncertainty’ in a manner that involves deviating from local or national guidelines. Pharmacists were often seen by prescribers to be obstructive since they routinely challenged such deviance. Pharmacists appear to be 'closely bound' to the formulary concept which may symbolise a critical split that exists within prescribing practice. The Prescribing Guide is subjected to many of the attitudes that participants maintain about the formulary and the DTC. Although the Prescribing Guide ‘does’ appear to be well received and is considered by many to be a good contribution to the Trust’s overall medicines management strategy, participants have consistently cited key resource-oriented limitations that hamper its continued uptake.
Chapter 7
Findings – Quantitative Data

7.1 Introduction

This chapter will now turn to the quantitative arm of the study. Quantitative data have been obtained from two sources. Firstly, online self-completion questionnaires were designed and disseminated to all doctors, pharmacists and NMPs at the Trust during the two ‘reconnaissance’ phases of the study. Secondly there was an ongoing extraction of data concerning formulary and non-formulary prescribing from the Pharmacy department’s computer system.

The questionnaires’ results include bivariate analysis and have thus employed inferential statistics. Relationships between dependent and independent variables have been statistically analysed using chi-square testing. Comparisons are predominantly made between doctors and pharmacists since the small sample population of NMPs did not permit valid statistical testing. Following modifications made to the Prescribing Guide (Week 11-19), some respondents to the second wave of questionnaires responded differently to questions about the Prescribing Guide. Many of these observed differences were statistically significant and are later incorporated with the qualitative themes and generalised statements from Chapter 6. The data extracted from the Pharmacy computer system have been represented diagrammatically with attempts made to analyse the trends observed.

7.2 Pilot

As with the semi-structured interviews, during Week 1-4 both quantitative research instruments were also tested for practical feasibility. This section presents the results obtained from this pilot phase along with initial reflections.
7.2.1 Self-completion questionnaires

Separate questionnaires were designed (using SurveyMonkey™) for dissemination to doctors, pharmacists and NMPs (Appendix 8). Although all respondents were essentially asked the same questions, it was considered good practice to include certain subtle differences to some of the questions’ wording owing to the differences in the nature of respondents’ professional activities. For example for doctors and NMPs only Question 4 reads:

“Please indicate how important you consider each of the following factors with respect to its influence on your prescribing practice:”

For pharmacists, the same question instead reads:

“Please indicate how important you consider each of the following factors with respect to its influence on your role in drug therapy:”

The second notable difference, also in Question 4, concerns the ‘factors’ that influence ‘prescribing practice’ or ‘role in drug therapy’. Doctors were asked to rate both ‘pharmacists’ and ‘NMPs’, while pharmacists were specifically not asked to rate ‘pharmacists’ and, similarly NMPs were not asked to rate ‘NMPs’. The reason for this was because it was presumed that pharmacists and NMPs would rate members of their own profession under the factor ‘senior members of your profession’ and therefore the further addition of either ‘pharmacist’ or ‘NMP’ would unnecessarily complicate the questionnaire for the respondent.

During the first Stakeholder Meeting, initial drafts of the questionnaires were presented to Stakeholders who provided input into the design and content. For the purposes of the pilot, five doctors, four pharmacists and one NMP were also identified at this initial meeting, purposively.

The questionnaires themselves were made available via a hyperlink sent by email. The process of dissemination proved to require little effort particularly since the covering email was prepared by the researcher and then forwarded to medical and pharmacy administrative staff who then emailed the identified respondents. The questionnaires themselves were ‘collected’ and ‘stored’ using SurveyMonkey™. After a two week period, follow-up reminder emails were sent to increase response rates and proved to be effective. However, of the ten
questionnaires sent, two (of the five) doctors did not respond during the entire one month pilot phase (Table 14, 15 and 16).

<table>
<thead>
<tr>
<th>Number of doctors</th>
<th>Consultant</th>
<th>ST3 to SpR (Registrar)</th>
<th>ST1 to ST2</th>
<th>FY1 / FY2</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 14. Doctors responding to the pilot self-completion questionnaires (n = 3).

<table>
<thead>
<tr>
<th>Number of pharmacists</th>
<th>Band 9</th>
<th>Band 8</th>
<th>Band 7</th>
<th>Band 6</th>
<th>Pre-reg Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 15. Pharmacists responding to the pilot self-completion questionnaires (n = 4).

<table>
<thead>
<tr>
<th>Number of NMPs</th>
<th>Nurse</th>
<th>Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 16. NMPs responding to the pilot self-completion questionnaires (n = 1).

Of the eight questionnaires returned and analysed, there were no errors noted and all questions were considered to be answered appropriately. The researcher also gained sufficient insight and confidence into the functionality of SurveyMonkey™. The website allowed individual questionnaires to be browsed. Data were transferred with relative ease into Microsoft Excel spreadsheets and corresponding graphical representations of the results were thus easily obtained.

7.2.2 Formulary data extracted from pharmacy computer

The second quantitative element involved the extraction of data relating to both formulary- ‘approved’ and ‘not approved’ drug issues (that is, number of drugs dispensed) from the Pharmacy computer system. During the initial Stakeholder Meetings (Week 1), this aspect of the pilot phase was discussed. Two Stakeholders in particular, namely the researcher, owing to his capacity as Senior Formulary Pharmacist, and the Principal Pharmacist both acknowledged
an expected level of complexity was likely to be involved in the data extraction process. Therefore, since it was hoped that the more substantive phase of the study would target similar prescribing trends over a 12 month period, the process of extraction would be piloted in order to test for feasibility (with particular attention given to time and man-power involved). It was agreed that non-formulary prescribing data over a one month period (from 1st August 2008 to 1st September 2008) and the ‘statins’ drug class would be targeted for 12 months. The outcomes of the data extraction are shown in Table 17 and Figure 8 (page 161).

<table>
<thead>
<tr>
<th>No. of non-formulary drugs dispensed ('issues')</th>
<th>Total Approved</th>
<th>Total Not Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2008</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>September 2008</td>
<td>27</td>
<td>28</td>
</tr>
</tbody>
</table>

Table 17. Total ‘approved’ and ‘not approved’ non-formulary drug prescribing at Lister Hospital August 2008-September 2008.

The statistical extraction from the Pharmacy computer system proved to be achievable yet time consuming. However, the data produced was considered particularly valuable for routine medicines management by senior members of staff. Hence a designated time slot was arranged for the researcher, and incorporated into their routine formulary work for the Trust, in order to capture all the required data.

The process of data extraction from the Pharmacy computer was a complex and arduous task and required appropriate training. This was arranged with the IT Principal Pharmacist who devised a method of data collection and provided the necessary ‘system permissions’ for the researcher. However, the initial data collection and subsequent figures produced were deemed inaccurate due to what was considered an error in counts for drug issues. Table 18 shows an extract from a Microsoft Excel spreadsheet displaying formulary-approved and unapproved drug issues in August 2008. Initially the total ‘approved’ drug issues would have been counted as ‘3’ (rows 1 to 3) and total unapproved as ‘9’ (rows 4 to 12). This was considered inaccurate since many drugs for the same patient were inadvertently being counted more than once, as the highlighted rows...
show. For example, ‘triptorelin’ was approved and then prescribed for Patient B on only one occasion (04/08/2008). It appears twice in the data because it was dispensed by Pharmacy on two occasions. Similarly, ‘azithromycin’ for Patient G is dispensed on four occasions (rows 8 to 11) and since it appears four times in the data, it was also ‘initially’ counted four times. Once this error was recognised, it was considered fair to count same drugs for same patients (within a given month) on only one occasion. Therefore, the total approved was in fact, ‘2’ and total unapproved was ‘6’.

<table>
<thead>
<tr>
<th>Date</th>
<th>Non-formulary drug</th>
<th>Approval status</th>
<th>Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/08/2008</td>
<td>CILOSTAZOL 100mg TABLETS</td>
<td>Approved</td>
<td>A</td>
</tr>
<tr>
<td>04/08/2008</td>
<td>TRIPTORELIN 3.75mg SYRINGE</td>
<td>Approved</td>
<td>B</td>
</tr>
<tr>
<td>22/08/2008</td>
<td>TRIPTORELIN 3.75mg SYRINGE</td>
<td>Approved</td>
<td>B</td>
</tr>
<tr>
<td>14/08/2008</td>
<td>AMANTADINE 50mg/5ml SYRUP 150ml</td>
<td>Not approved</td>
<td>C</td>
</tr>
<tr>
<td>30/08/2008</td>
<td>AZITHROMYCIN 250mg CAPSULES</td>
<td>Not approved</td>
<td>D</td>
</tr>
<tr>
<td>01/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>E</td>
</tr>
<tr>
<td>19/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>F</td>
</tr>
<tr>
<td>14/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>G</td>
</tr>
<tr>
<td>17/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>G</td>
</tr>
<tr>
<td>19/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>G</td>
</tr>
<tr>
<td>21/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>G</td>
</tr>
<tr>
<td>14/08/2008</td>
<td>AZITHROMYCIN 250mg TABLETS</td>
<td>Not approved</td>
<td>H</td>
</tr>
</tbody>
</table>

Table 18. Extract from Microsoft Excel spreadsheet illustrating the initial error in total approved and unapproved counts.

Data concerning ‘formulary-approved’ drugs were also extracted. As part of the pilot’s objective to test for feasibility, prescribing trends for ‘statins’ (simvastatin, pravastatin, atorvastatin and rosuvastatin) over a 12 month period were produced. Although all drugs are ‘formulary-approved’ the Prescribing Guide outlines which should be the first-line option (indicated by a ‘green’ traffic-light). Similarly second- and third-line options are also represented (‘amber’ and ‘red’ traffic-lights respectively). Using this colour-coding Figure 8 (page 161) illustrates the level of adherence to Trust-approved options.

Although again the process was considerably time consuming, it was deemed achievable and following this success, Stakeholders agreed to the following drugs (Table 19) being targeted in a similar fashion for the substantive phase of the research:
<table>
<thead>
<tr>
<th>Drug class</th>
<th>Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proton-pump inhibitors (PPI)</strong></td>
<td>Omeprazole; lansoprazole; esomeprazole; pantoprazole</td>
</tr>
<tr>
<td><strong>Laxatives</strong></td>
<td>Lactulose; senna; Milpar; ispaghula husk; Movicol</td>
</tr>
<tr>
<td><strong>Statins</strong></td>
<td>Simvastatin; pravastatin; atorvastatin; rosuvastatin</td>
</tr>
<tr>
<td><strong>Opioid analgesics</strong></td>
<td>Morphine; diamorphine; oxycodone; fentanyl</td>
</tr>
<tr>
<td><strong>Macrolide antibiotics</strong></td>
<td>Erythromycin; clarithromycin; azithromycin</td>
</tr>
<tr>
<td><strong>Drugs for urinary retention</strong></td>
<td>Oxybutynin; tolterodine; solifenacin; trospium; duloxetine</td>
</tr>
<tr>
<td><strong>Non-steroidal anti-inflammatory drugs (NSAID)</strong></td>
<td>Ibuprofen; diclofenac; naproxen</td>
</tr>
<tr>
<td><strong>Prostaglandin eye drops</strong></td>
<td>Bimatoprost; latanoprost; travaprost</td>
</tr>
</tbody>
</table>

Table 19. ‘Formulary-approved’ drug classes agreed to be targeted during substantive phase of research.

In summary, the pilot phase proved to be of considerable value particularly in assessing the manner of deployment of chosen research instruments and finalising the exact method of data collection. In addition, there was also a greater clarity regarding the level of man-power and time required for each aspect of the study.
Figure 8. Statin usage at E&N Herts NHS Trust (July ’08 to June ’09)
7.3 Self-completion questionnaires

This section will now turn to the self-completion questionnaires sent to all doctors, pharmacists and NMPs at the Trust. The results from each element of the questionnaire will be presented in turn beginning below with a descriptive overview of all respondents, breaking down each profession into rank order and clinical speciality.

Results from Questions 2, 3, 4 and 5 will then be presented. These results include bivariate analysis and will thus employ inferential statistics (Bryman, 2004). First each subsection will seek to establish how dependent variables concerning either the Prescribing Guide or prescribing practice (for example ‘knowing how to access the Prescribing Guide’ or ‘frequency of using the Prescribing Guide’) are affected by an independent variable (healthcare professional) ‘within’ questionnaires. For example, doctors’ frequency of using the Prescribing Guide will be compared to pharmacists’ frequency of using the Prescribing Guide. Presented alongside this will be a further analysis of the same dependent variable ‘across’ questionnaires. For example, the frequency of doctors using the Prescribing Guide prior to modifications to the service will be compared to the frequency of doctors using it post-modifications. These results have been prepared using contingency tables generated using SPSS⁹ and statistically analysed for relationships and associations using chi-square (\( \chi^2 \)) testing. Notable results, discussed in the accompanying commentary, have been highlighted to assist interpretation.

In order to simplify the terminology, from this point on, self-completion questionnaires prior to modifications will be referred to as ‘QRE1’ and self-completion questionnaires conducted after modifications will be abbreviated to ‘QRE2’.

7.3.1 Descriptive overview of respondents

Respondents were required to provide basic details pertaining to their specific role at the Trust. For all healthcare professionals, an indication of seniority

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⁹ SPSS (Statistical Package for the Social Sciences) – is a program that allows statistical testing of data produced in social science studies.
(Tables 22, 23 and 24) and clinical speciality (Figures 9, 10 and 11) were requested. The principle reason for this was in order to ensure a representative sample population was accessed and that the views of all categories of doctors, pharmacists and NMPs were taken into consideration in the subsequent analysis. The category of respondents in both QRE1 and QRE2 are comparable in terms of response rates, seniority and clinical speciality.

Question 1 provided respondents the additional opportunity to specify any job titles or clinical specialities that had not been included as options for respondents to select. This category did not reveal any undue anomalies and were considered to not adversely affect the results or interpretations. However in the interests of increasing transparency, these additional details have been summarised in Table 20.

<table>
<thead>
<tr>
<th>Summary of category: ‘Other (please specify below)’</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job title</strong></td>
</tr>
<tr>
<td><strong>Doctors</strong></td>
</tr>
<tr>
<td><strong>Pharmacists</strong></td>
</tr>
<tr>
<td><strong>NMPs</strong></td>
</tr>
</tbody>
</table>

Table 20. Additional role details provided by respondents.

Since the method of questionnaire dissemination was via emails, sent out by medical and pharmacy administrative staff, the total number of questionnaires sent out can be stated. Medical secretaries stated approximately 300 email addresses were in their possession and were sent by selecting a ‘group email’ option. The pharmacy secretaries stated 40 pharmacist-email addresses were routinely used for group emails. For NMPs, the NMP-Stakeholder during the first Stakeholder Meeting provided a list of NMPs employed at the Trust and their corresponding email addresses and the researcher himself emailed the questionnaires to them. Based on these totals, Table 21 outlines the respondents to the questionnaires (QRE1 and QRE2) before and after...
modifications were made to the Prescribing Guide and provides corresponding response rates as percentages.

Clearly the highest response rates can be seen from pharmacists and since they are both over 85%, they are considered “excellent” for questionnaires (Bryman, 2004, page 135). This may be because the Prescribing Guide had been the subject of considerable discussion within the pharmacy department during its development phases, particularly among the senior staff. Additionally, since the researcher was employed as Senior Formulary Pharmacist, his presence in the department was likely to have constituted, in effect, a reminder to complete and submit the questionnaires. According to Bryman (2004, page 135) the NMPs response rates of 52% in QRE2 is considered “barely acceptable” and therefore any results from this particular cohort of respondents may not completely represent the views of the NMP population at the time.

<table>
<thead>
<tr>
<th></th>
<th>QRE1</th>
<th></th>
<th>QRE2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>Responses</td>
<td>Response rate</td>
<td>Responses</td>
</tr>
<tr>
<td>Doctors</td>
<td>181</td>
<td>60%</td>
<td>187</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>39</td>
<td>98%</td>
<td>38</td>
</tr>
<tr>
<td>NMPs</td>
<td>13</td>
<td>68%</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 21. Total respondents to questionnaires with associated response rates.

Since chi-square statistical analysis was to be employed, ‘expected counts’ are computed by SPSS as part of the calculation. Owing to the relatively small sample populations of NMPs (QRE1, n=13 and QRE2, n=10), some of the ‘expected counts’ in the contingency tables computed to below the value of 5. This is a requirement of the statistical test and thus leaves those particular tests for association invalid. Any potential associations that may be ‘observably’ discernible are in fact, statistically insignificant.
<table>
<thead>
<tr>
<th></th>
<th>Consultant</th>
<th>ST3 to SpR (Registrar)</th>
<th>ST1 to ST2</th>
<th>FY1 / FY2</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Questionnaire 1 (n=181)</strong></td>
<td>37 (20%)</td>
<td>35 (19%)</td>
<td>33 (18%)</td>
<td>61 (34%)</td>
<td>15 (8%)</td>
</tr>
<tr>
<td><strong>Questionnaire 2 (n=187)</strong></td>
<td>47 (25%)</td>
<td>39 (21%)</td>
<td>36 (19%)</td>
<td>42 (22%)</td>
<td>23 (12%)</td>
</tr>
</tbody>
</table>

*Table 22.* Doctors responding to questionnaires by seniority.

*Figure 9.* Doctors responding to questionnaires by clinical speciality.
Table 23. Pharmacists responding to questionnaires by seniority.

<table>
<thead>
<tr>
<th></th>
<th>Band 9</th>
<th>Band 8</th>
<th>Band 7</th>
<th>Band 6</th>
<th>Pre-reg Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire 1 (n=39)</td>
<td>0 (0%)</td>
<td>18 (46%)</td>
<td>12 (31%)</td>
<td>6 (15%)</td>
<td>3 (8%)</td>
</tr>
<tr>
<td>Questionnaire 2 (n=38)</td>
<td>0 (0%)</td>
<td>16 (42%)</td>
<td>13 (34%)</td>
<td>7 (18%)</td>
<td>2 (5%)</td>
</tr>
</tbody>
</table>

Figure 10. Pharmacists responding to questionnaires by clinical speciality.
Table 24. Non-medical prescribers responding to questionnaires by profession.

<table>
<thead>
<tr>
<th></th>
<th>Nurse</th>
<th>Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire 1 (n=13)</td>
<td>11 (85%)</td>
<td>2 (15%)</td>
</tr>
<tr>
<td>Questionnaire 2 (n=10)</td>
<td>10 (100%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Figure 11. Non-medical prescribers responding to questionnaires by speciality.
7.3.2 Access to the Prescribing Guide

Question 2 sought to establish the proportion of healthcare professionals who knew how to access the Prescribing Guide from the Trust Intranet to which respondents were required to select either ‘Yes’ or ‘No’. A total of 128 (70.7%) out of 181 doctors responding to QRE1 were familiar with how to access the Prescribing Guide compared to 100% of both pharmacists and NMPs (Table 25). This difference is statistically significant ($\chi^2 = 19.71$, df = 1, $p < 0.001$).

<table>
<thead>
<tr>
<th>Do you know how to access the Prescribing Guide from the Trust Intranet?</th>
<th>Count</th>
<th>% within HCP*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>128</td>
<td>70.7%</td>
</tr>
<tr>
<td>No</td>
<td>53</td>
<td>29.3%</td>
</tr>
<tr>
<td>Total</td>
<td>181</td>
<td>77.3%</td>
</tr>
</tbody>
</table>

Table 25. Contingency table showing how many doctors, pharmacists and NMPs are able to access the Prescribing Guide (*HCP=Healthcare professional).

After modifications, responses to QRE2 show that 100% of both pharmacists and NMPs still knew how to access the Prescribing Guide. As Table 26 shows, a statistically significant increase in the proportion of doctors knowing how to access the Prescribing Guide was observed in QRE2 ($\chi^2 = 6.952$, df = 1, $p < 0.01$).

<table>
<thead>
<tr>
<th>Doctors responses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRE1</td>
<td>QRE2</td>
</tr>
<tr>
<td>Do you know how to access the Prescribing Guide from the Trust Intranet?</td>
<td>Count</td>
</tr>
<tr>
<td>Yes</td>
<td>128</td>
</tr>
<tr>
<td>No</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>181</td>
</tr>
</tbody>
</table>

Table 26. Contingency table showing the proportion of doctors who knew how to access the Prescribing Guide in QRE1 and QRE2 (*Q’re=Questionnaire).
Contingency tables are displayed for the results of Question 2 only, simply to demonstrate their use. The data for the remaining questions are described solely in the text.

7.3.3 Frequency of using the Prescribing Guide

Question 3 was concerned with how frequently the Prescribing Guide was accessed by target users. The respondent could choose from six categories available in rank order. Initially the chi-square test was unable to yield legitimate values. This is because the chi-square test makes the assumptions that 80% of cells (in the contingency table) have an ‘expected count’ of greater than five and that all cells have an ‘expected count’ of greater than one. These expected counts are automatically calculated by SPSS. However, the results for Question 3 ‘violated’ these assumptions since some of the cells in the contingency tables were either under five or one. In these circumstances, Marston (2010, page 119) advises “to collapse some categories to give fewer cells with larger cell counts”. However, she warns against ‘illogical’ combining of categories, that is, only “adjacent” groups should be combined. Table 27 shows how this was done for the categories in Question 3.

<table>
<thead>
<tr>
<th>New category</th>
<th>Old categories (as they appear in questionnaires)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent use</td>
<td>More than once daily; Daily; Weekly</td>
</tr>
<tr>
<td>Infrequent use</td>
<td>Monthly; Not at all (but previously aware of Prescribing Guide); Not at all (NOT previously aware of Prescribing Guide)</td>
</tr>
</tbody>
</table>

Table 27. Original categories for ‘frequency of use’ were collapsed and amalgamated into two categories.

In QRE1, approximately 18% of doctors frequently used the Prescribing Guide compared to approximately 69% of pharmacists and NMPs. The difference is statistically significant ($\chi^2 = 50.40$, df = 1, $p < 0.001$). Similar results are observable for QRE2 (approximately 44% and 79% respectively) and are once again statistically significant ($\chi^2 = 18.50$, df = 1, $p < 0.001$).
Comparing the frequency of using the Prescribing Guide between doctors and pharmacists alone, QRE1 reveals approximately 18% of doctors and approximately 80% of pharmacists demonstrated ‘frequent use’ of the Prescribing Guide. This difference was statistically significant ($\chi^2 = 58.36$, df = 1, $p < 0.001$). In QRE2, the difference between doctors (approximately 44%) and pharmacists (approximately 95%) was again statistically significant ($\chi^2 = 32.14$, df = 1, $p < 0.001$). Doctors demonstrated a statistically significant increase in ‘frequent use’, approximately 26% ($\chi^2 = 29.14$, df = 1, $p < 0.0001$). Pharmacists also showed an estimated 15% increase in ‘frequent use’ however this result was not statistically significant ($\chi^2 = 3.96$, df = 1, $p < 0.047$).

The increase in doctors’ use of the Prescribing Guide is therefore unlikely due to chance and can be considered a result of the modifications made to the service. It can be deduced that although it is an improvement, the modifications to the service failed to secure ‘frequent use’ (‘More than once daily’, ‘Daily’ or ‘Weekly’) among the majority of doctors. However it can be concluded that with on-going interventions (of the sort outlined in Appendix 12), the stated use of the Prescribing Guide can measurably increase.

7.3.4 Influences on local prescribing practices

The questionnaires explored how a series of pre-selected factors influenced local prescribing practices. In Question 4, respondents were presented with a factor to consider and then, using the rating scale provided, they were required to indicate the level of importance they attribute to it with respect to their own prescribing practice (in the case of pharmacists, their role in drug therapy).

The five options available to the respondents ranged from ‘Extremely Important’ to ‘Not at all Important’. These were collapsed, as in the previous section, into two categories in order to maintain the underlying assumptions of chi-square tests (Table 28).
Table 28. Original categories for 'importance of influences' were collapsed and amalgamated into two categories

<table>
<thead>
<tr>
<th>New category</th>
<th>Old categories (as they appear in questionnaires)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important</td>
<td>Extremely important; Very important</td>
</tr>
<tr>
<td>Not important</td>
<td>Somewhat important; Not very important; Not at all important</td>
</tr>
</tbody>
</table>

7.3.4.1 Check questions

As described in Chapter 5, two ‘check questions’ were deliberately inserted in order to help demonstrate reliability. In summary, if the questionnaire is able to produce the same data on more than one occasion, a good level of reliability is achieved. Therefore this section begins with the responses collected regarding the importance of two factors on prescribing practice that were deemed to have been unaffected by the modifications made to the Prescribing Guide and could thus be expected to yield the same data. These factors were: ‘senior members of your profession’ and ‘personal experience’.

Approximately 80% of doctors responding to QRE1 considered senior members of their profession an important influence on their prescribing practice. Doctors’ response to the same factor in QRE2 was approximately 83%. Similarly, 85% of pharmacists responding to QRE1 and 87% of pharmacists responding to QRE2 considered senior members of their profession an important influence on their role in drug therapy. By simple comparison, these results demonstrate a consistency between healthcare professional and the importance of senior members of their profession on prescribing practice.

The second factor, ‘personal experience’, produced similar results. Approximately 80% of doctors in QRE1 and 75% of doctors in QRE2 considered their own personal experience important to their prescribing practice. Similarly, approximately 90% of pharmacists in QRE1 and 82% of pharmacists in QRE2 considered personal experience an important influence on their role on drug therapy. Once again the data produced by the same group of individuals on two separate occasions was comparable and helps to ensure reliability for the questionnaire design.
7.3.4.2 The importance given to NICE

Of the 181 doctors responding to QRE1, 140 (77.3%) consider NICE ‘important’ to their prescribing practice compared to all 39 (100.0%) pharmacists who consider NICE ‘important’ ($\chi^2 = 10.59$, df = 1, $p < 0.01$). In QRE2, comparable results are observed ($\chi^2 = 4.92$, df = 1, $p < 0.05$) although 3 (7.9%) of the 38 pharmacists were categorised under ‘Not important’. It should be noted however that these 3 pharmacists had in fact rated NICE as ‘Somewhat important’.

Owing to the statistically significant nature of the findings here it can be said that although a high proportion of both doctors and pharmacists consider NICE important for prescribing practices, pharmacists appear to rely on NICE guidance far more and more consistently than doctors do.

7.3.4.3 The importance given to the pharmaceutical industry

In QRE1, 26 (14.4%) of the 181 doctors responding considered the pharmaceutical industry ‘important’ to their prescribing practice. This is compared to 9 (23.1%) of 39 pharmacists answering the same question. This difference is not statistically significant. In QRE2, approximately 16% of doctors indicated that the pharmaceutical industry’s was ‘important’ in prescribing practice. The proportion of pharmacists in responding to the same question is approximately 18%. For both doctors and pharmacists the responses in both questionnaires are comparable. It appears that the pharmaceutical industry is acknowledged as a source of influence on prescribing practices however an evidently large majority of healthcare professionals consistently rate it as ‘not important’.

7.3.4.4 The importance given to pharmacists

Pharmacists were considered important by doctors when it comes to their prescribing practice. Taking only the first three categories as they appeared originally in the questionnaires, approximately 23% of doctors considered pharmacists ‘Extremely important’, 48% selected ‘Very important’ and 26% selected ‘Somewhat important’. In QRE2, the results from doctors were notably
similar, 28%, 48% and 21% respectively. Using the ‘new categories’ (outlined in Section 7.3.4), 71% of doctors in QRE1 and 75% of doctors in QRE2 considered pharmacists ‘important’.

Pharmacists were similarly considered influential to the prescribing practices of responding NMPs. The responses to QRE1 were as follows: approximately 31% considered pharmacists ‘Extremely important’, 31% considered pharmacists ‘Very important’ and 31% chose ‘Somewhat important’. In QRE2 comparable results were obtained from NMPs, 30%, 40% and 30% respectively. Using the ‘new categories’, 61% of NMPs in QRE1 and 70% of NMPs in QRE2 considered pharmacists an ‘important’ influence on their prescribing practices.

7.3.4.5 The importance given to the local DTC

The influence the local DTC had on healthcare professionals’ prescribing practice was also explored using the questionnaires. Both questionnaires revealed a substantial difference between doctors and pharmacists. In QRE1 approximately 35% of 181 doctors compared to 87% of 39 pharmacists ranked the DTC as important to their prescribing practice ($\chi^2 = 35.70, \text{df} = 1, p < 0.001$). In QRE2, the difference between doctors and pharmacists was again statistically significant: approximately 48% of doctors and 82% of pharmacists ranked the DTC as important ($\chi^2 = 14.21, \text{df} = 1, p < 0.001$). It can be seen that the proportion of doctors increased from approximately 35% to 48%. This difference was again, statistically significant ($\chi^2 = 6.72, \text{df} = 1, p < 0.05$) indicating that such an increase is unlikely to be due to chance. Pharmacists’ results from QRE1 and QRE2 were comparable.

The majority of NMPs also ranked DTCs as ‘important’ to their prescribing practices and once again, the responses were comparable across the questionnaires: approximately 77% (10 out of 13) in QRE1 and 70% (7 out of 10) in QRE2.
7.3.4.6 The importance given to NMPs

NMPs at the Trust proved to have relatively little influence on others' prescribing practices. In QRE1, 165 (91.2%) of 181 doctors considered NMPs ‘not important’ to their prescribing practices compared to 26 (68.7%) of 39 pharmacists ($\chi^2 = 16.82, df = 1, p < 0.001$). In QRE2, a similar set of results were obtained. Approximately 87% of doctors responding to QRE2 considered NMPs ‘not important’ to their prescribing practices. Similarly approximately 76% of pharmacists also indicated NMPs were ‘not important’ to their role in drug therapy. Unlike QRE1, this difference is not statistically significant. Therefore, according to QRE1 alone, it appears that NMPs are more likely to influence a relatively small proportion of pharmacists in their role in drug therapy rather than doctors.

7.3.4.7 The importance given to the Prescribing Guide

Among the selected influences on prescribing practice, the Prescribing Guide itself was also listed for respondents to consider and rank in terms of its perceived level of importance. In QRE1 approximately half, 50% of 181 responding doctors considered the Prescribing Guide ‘important’ compared to approximately 90% of pharmacists ($\chi^2 = 20.42, df = 1, p < 0.001$). In QRE2, a notably similar proportion of pharmacists, 90%, still considered the Prescribing Guide an ‘important’ influence on their role in drug therapy compared to approximately 63% of doctors ($\chi^2 = 10.02, df = 1, p < 0.01$). The observable increase in the proportion of doctors who ranked the Prescribing Guide as ‘important’ was statistically significant ($\chi^2 = 6.17, df = 1, p < 0.05$) and thus is unlikely a chance occurrence. It can therefore be said with some confidence that this increase resulted from the modifications made to the service. Pharmacists on the other hand appear to have a ‘consistently' high regard for the Prescribing Guide perhaps indicating an intrinsic value for such medicines management tools.
7.3.5 Statements about the Prescribing Guide

The questionnaire employed a Likert scale to determine the degree of agreement or disagreement respondents had concerning a series of statements about the Prescribing Guide. Question 5 presented respondents with seven categories available for each statement. Once again, as with the previous two questions (and as described in Section 7.3.3), these original categories were collapsed and amalgamated into two broad categories for the purposes of producing two-by–two contingency tables and maintaining the assumptions that permit chi-squared analysis (Table 29).

<table>
<thead>
<tr>
<th>New category</th>
<th>Old categories (as they appear in questionnaires)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Strongly agree; Agree; Partly agree</td>
</tr>
<tr>
<td>Not agree</td>
<td>Neither agree or disagree; Partly disagree; Disagree; Strongly disagree</td>
</tr>
</tbody>
</table>

*Table 29. Original categories showing 'agreement to statements' were collapsed and amalgamated into two categories

7.3.5.1 Responses to the statement 'The Prescribing Guide is user-friendly' (Statement 1)

This first statement generated remarkably different views from respondents. Of the 181 doctors responding to QRE1, 100 (55.2%) agreed with the statement. Pharmacists however responded considerably differently. Thirty-eight (97.4%) of the 39 pharmacists agreed that the Prescribing Guide was user-friendly. This difference between doctors and pharmacists was statistically significant ($\chi^2 = 24.43$, df = 1, $p < 0.001$). Doctors and pharmacists responding to QRE2 showed a similar difference in opinion with approximately 63% of doctors and 100% pharmacists ($\chi^2 = 20.22$, df = 1, $p < 0.001$). There is an observable increase in the proportion of doctors who consider the Prescribing Guide user-friendly from QRE1 to QRE2 however this is not statistically significant.
7.3.5.2 Responses to the statement ‘The Prescribing Guide is easily accessible’ (Statement 2)

The second statement for respondents’ consideration concerned the accessibility of the Prescribing Guide. As with the previous statement, this statement once again elicited notably different views among doctors and pharmacists.

In QRE1, approximately 53% of doctors agreed that the Prescribing Guide was indeed easily accessible. This response was compared to approximately 97% of pharmacists. The difference is statistically significant ($\chi^2 = 27.12$, df = 1, $p < 0.001$). In QRE2, approximately 61% of doctors agree with the statement compared 97% of pharmacists ($\chi^2 = 18.97$, df = 1, $p < 0.001$). The proportion of doctors agreeing with the statement before and after modifications was comparable, as were the proportions within pharmacists. Therefore no statistically significant differences ‘across’ questionnaires were found.

One plausible reason for so many pharmacists displaying agreement with this statement could be due to the fact that they operate on both clinical wards as well as within the Pharmacy department. Therefore computers within the dispensary and in the many offices within the department provide easy and regular access to the Prescribing Guide for pharmacists.

7.3.5.3 Responses to the statement ‘The Prescribing Guide helps me decide what to prescribe’ (Statement 3)

The next statement continues the professional discrepancy between doctors and pharmacists. Forty-two percent of doctors responding to QRE1 agreed that the Prescribing Guide helps them decide what to prescribe when used. This is compared to approximately 92% of pharmacists responding to the same questionnaire ($\chi^2 = 32.51$, df = 1, $p < 0.001$). In QRE2 doctors in agreement with this statement increases to approximately 62% while pharmacists remain at a comparable 90%. This difference between doctors and pharmacists is again statistically significant ($\chi^2 = 11.05$, df = 1, $p < 0.01$).
What is of particular interest is that the almost 20% increase in doctors’ agreement for the statement is also statistically significant ($\chi^2 = 14.02, \text{df} = 1, p < 0.001$).

7.3.5.4 Responses to the statement ‘The Prescribing Guide improves my professional autonomy’ (Statement 4)

In QRE1 approximately 39% of doctors indicated that they agree the Prescribing Guide improved their professional autonomy, referring to the ability to work independently. Correspondingly, over 60% did not agree with the statement. Of pharmacists, approximately 87% agreed with the statement ($\chi^2 = 30.29, \text{df} = 1, p < 0.001$). In QRE2 pharmacists maintained a similar proportion in agreement while only approximately 49% of doctors agreed ($\chi^2 = 20.79, \text{df} = 1, p < 0.001$). As with the previous statement, the increase in proportions of doctors in agreement was statistically significant ($\chi^2 = 4.13, \text{df} = 1, p < 0.05$).

7.3.5.5 Responses to the statement ‘I find the Prescribing Guide confirms my own preferences’ (Statement 5)

This statement was included in the list of influences for respondents to consider in order to establish the degree of congruence between healthcare professionals’ own initial drug choices (personal formularies) and the options presented to them within the Prescribing Guide. In QRE1, only 82 (45.3%) out of 181 doctors agreed that the Prescribing Guide confirms their own preferences. This is compared to 28 (71.8%) of 39 pharmacists ($\chi^2 = 9.01, \text{df} = 1, p < 0.01$). QRE2 yielded somewhat similar response rates: 47.6% for doctors and 60.5% for pharmacists were in agreement with the above statement, however this was not statistically significant. The almost 10% decrease in pharmacists, although notable, was not statistically significant.
7.3.5.6 Responses to the statement ‘I think the Prescribing Guide supports evidence-based medicine’ (Statement 6)

Almost the entire pharmacist sample population in QRE1 (94.9%) indicated that they agreed with the statement that the Prescribing Guide supports evidence-based medicine. This is compared to approximately half the proportion of doctors responding to the same statement (50.8%). This difference is statistically significant ($\chi^2 = 25.66$, df = 1, $p < 0.001$). In QRE2 similarly, 60.4% of doctors and 97.4% of pharmacists agreed with the same statement and the difference was again statistically significant ($\chi^2 = 19.39$, df = 1, $p < 0.001$). The increase in doctors response rates from 50.8% in QRE1 to 60.4% in QRE2 was not statistically significant.

7.3.5.7 Responses to the statement ‘The Prescribing Guide is patient-focused’ (Statement 7)

The final statement concerned whether healthcare professionals regarded the Prescribing Guide as patient-focused. In QRE1, the majority of doctors, approximately 60%, did not agree with the statement. This is compared with the large majority of pharmacists (almost 80%) who do agree that the Prescribing Guide is patient-focused. This difference is statistically significant ($\chi^2 = 20.32$, df = 1, $p < 0.001$). The response rates to this statement in QRE2 are notably similar (approximately 46% for doctors and 79% for pharmacists) and once again are statistically significant ($\chi^2 = 14.18$, df = 1, $p < 0.001$).

7.3.6 Open-ended questions

The final section of the questionnaires provided respondents with the opportunity to prepare and submit their own wording commenting freely on any aspect of the Prescribing Guide. Respondents were encouraged to express any particular difficulties experienced with the use of the Prescribing Guide or where they felt improvements needed to be made. Comments from QRE1 were used to help fulfil study objective 5, that is, the comments contributed to the modifications made to the Prescribing Guide and the way the service is
promoted. The comments from both QRE1 and QRE2 will similarly help to fulfil study objective 6 concerning any final recommendations to ensure the Prescribing Guide continues to evolve.

7.3.6.1 Comments from first questionnaire

The comments from all respondents to QRE1 were first tallied according to subject matter and are now summarised in Figure 12 (doctors), Figure 13 (pharmacists) and Figure 14 (NMPs). In order to simplify presentation, each figure shows the top 10 comments from each category of healthcare professional. A total of 233 distinct comments were made by doctors. The top 10 comments account for 84% of this total. For pharmacists, Figure 13 shows 53 of 56 comments and therefore accounts for 95% of comments. Finally in Figure 14 all comments from NMPs have been presented.

A large proportion of respondents chose to make no comments and these are presented in the figures. For example, of the 233 distinct comments made by doctors, 54 represent ‘No comment’ (Figure 12). Similarly there are proportions of pharmacists and NMPs who have also opted not to answer this question (Figure 13 and 14).

In Figure 12, 23 comments have been labelled as ‘Trigger to use Prescribing Guide’. The comment refers to a statement made by the respondent that implies the questionnaires themselves have been a source of promotion or ‘trigger’ to use the Prescribing Guide. This indicates that the promotional campaign following the launch of the Prescribing Guide was not sufficiently penetrating since respondents did not know of its existence. Such comments were not found in responses from either pharmacists or NMPs.
Unique to pharmacists’ comments were references to the stock kept within the Pharmacy department. Five comments were condensed to ‘Increase stock details’. Both pharmacists and NMPs requested that the Prescribing Guide be kept up-to-date with some pharmacists also remarking that some details within the Prescribing Guide were out-of-sync with the Pharmacy computer (these comments do not appear in the ‘top 10’ list of comments).

Figure 12. A pie diagram showing doctors’ responses to open-ended questions in QRE1.

Figure 13. A pie diagram showing pharmacists’ responses to open-ended questions in QRE1.
Four of the 13 comments from NMPs indicated that there was ‘No need for the Prescribing Guide’ (Figure 14). Owing to the small sample population of NMPs, it is difficult to conclude that this is specific to NMPs only. However, no pharmacists made such a comment and of the 233 comments made by doctors, only one comment of a similar nature was made.

![Figure 14. A pie diagram showing NMPs’ responses to open-ended questions in QRE1.](image)

The remaining comments made by respondents were common within all three category of healthcare professionals. For example, increasing clinical guidance was a common theme as was increasing accessibility, promotion and training. Doctors in particular stressed the need for junior doctors’ Trust induction to include a session that provides training on how to access and use the Prescribing Guide.

7.3.6.2 Comments from second questionnaire

The comments from the open-ended question posed to respondents in QRE2 will be used to make final recommendations. As with the previous section, Figure 15 (doctors), Figure 16 (pharmacists) and Figure 17 (NMPs) show the top 10 comments made by respondents. From a total of 213 distinct comments made by doctors, the pie diagram shown in Figure 15 shows 85% of all comments. Pharmacists made, in total 44 comments and NMPs made 10
comments, all of which have been represented in their corresponding pie diagrams (Figures 16 and 17).

**Figure 15.** A pie diagram showing doctors’ responses to open-ended questions in QRE2.

**Figure 16.** A pie diagram showing pharmacists’ responses to open-ended questions in QRE2.
Many of the characteristics of the previous comments (in QRE1) were present in those made in QRE2. Since the modifications to the service were made in order to overcome the limitations identified as a result of the original comments, the fact that the same comments have been made again would suggest that the modifications were not powerful or extensive enough to completely eliminate the originally identified reservations.

7.4 Formulary data extracted from pharmacy computer

This section will now present the results from the extraction of data from the Pharmacy computer system, carried out as an on-going process during the entire study period. The first subsection deals with the prescribing and dispensing of non-formulary drugs (both ‘approved’ and ‘not approved’). The second subsection describes any findings from trends of ‘on-formulary’ drug prescribing.

7.4.1 Non-formulary drug prescribing

As the pilot had shown, data extraction of the nature required for this study, proved to be a long and arduous task. Non-formulary drug data over a period of
12 months was extracted for both Lister Hospital (Figure 18) and QEII Hospital (Figure 19). In both figures the 'blue' trend line represents dispensing (and therefore prescribing) of non-formulary drugs that were 'approved' by senior pharmacy managers and the local DTC. The 'red' trend line indicates non-formulary drugs that were prescribed, remained unchallenged and subsequently dispensed 'against' local guidelines or policy. According to local Pharmacy procedure, a pharmacist (normally the relevant ward pharmacist) should have identified the non-formulary drug in question and intervened by discussing its legitimacy with the prescribing doctor. In many cases, recommending an alternative (an on-formulary drug listed in the Prescribing Guide) can resolve the matter. However in other cases, the requesting doctor may present evidence to suggest that their non-formulary choice is in fact clinically superior than existing formulary options and thus justified.

The Prescribing Guide is not expected to have had any impact on total approved non-formulary drugs (blue trend line) since these drugs represent the involvement of a pharmacist and thus consideration of drugs listed in the Prescribing Guide. It was hoped that the prescribing of unapproved non-formulary drugs (red trend line) would show a decline since doctors and pharmacists would refer to the Prescribing Guide and seek out on-formulary options for their patients. Both Figures 18 and 19 indicate the point at which the Prescribing Guide was launched at the Trust (January 2009).
Figure 18. Total 'approved' and 'not approved' non-formulary drug prescribing at Lister Hospital August 2008-October 2009.
At Lister Hospital, from January to April 2009 the trends for both lines are largely unremarkable. During May 2009 a sharp decline in ‘not approved’ non-formulary drugs can be seen, after which a gradual increase is noted. Also from May 2009 a somewhat erratic fluctuation in ‘approved’ non-formulary drugs can be observed. The total number of ‘not approved’ non-formulary drugs in October 2009 is in fact higher than it was in January, when the Prescribing Guide was launched indicating no significant impact in this area of prescribing practice.

It is notable however, that the two trend lines seem to follow a similar pattern in their peaks and troughs. For example, during November 2008 and April 2009, no drastic changes to the number of issues made for either categories can be seen. Similarly in July 2009 and September 2009, both ‘approved’ and ‘not approved’ drug issues experience a sharp increase. In order to explore this further the original Microsoft Excel spreadsheets extracted from the Pharmacy computer were analysed. It was revealed that during 2009, as a result of the swine flu pandemic, a large number of antiviral drugs (for example, oseltamivir and zanamivir) were issued and many complications of virus were also treated. The trends in non-formulary drug prescribing reflects the patient load that the Trust was required to contend with. This is entirely consistent with national data published by the Health Protection Agency (HPA) who demonstrate peaks in both swine flu cases and antiviral prescriptions in and around July and September 2009 (HPA, 2011). The antiviral drugs ‘oseltamivir’ and ‘zanamivir’ were historically input into the Pharmacy computer as non-formulary drugs so their prescriptions to treat swine flu cases at least partly explains the rise in the blue trend line. During these periods, an inordinate volume of unapproved non-formulary drugs were also prescribed. These ranged from other antivirals, antibiotics and low molecular weight heparins (LMWHs) such as tinzaparin, to name a few. It can be logically concluded that these drugs were prescribed in order to treat complications and associated conditions arising from new swine flu cases.

Since both ‘approved’ and ‘not approved’ non-formulary drug prescribing has inevitably been confused by the prescribing of such agents, it has become difficult to elucidate the true picture of non-formulary drug prescribing after the launch of the Prescribing Guide.
Figure 19. Total ‘approved’ and ‘not approved’ non-formulary drug prescribing at QEII Hospital August 2008-October 2009.

No. of non-formulary drugs dispensed (‘issues’)

<table>
<thead>
<tr>
<th>Month</th>
<th>Total Approved</th>
<th>Total Not Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug-08</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Sep-08</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Oct-08</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td>Nov-08</td>
<td>28</td>
<td>39</td>
</tr>
<tr>
<td>Dec-08</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>Jan-09</td>
<td>41</td>
<td>36</td>
</tr>
<tr>
<td>Feb-09</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>Mar-09</td>
<td>41</td>
<td>35</td>
</tr>
<tr>
<td>Apr-09</td>
<td>50</td>
<td>31</td>
</tr>
<tr>
<td>May-09</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Jun-09</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td>Jul-09</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>Aug-09</td>
<td>64</td>
<td>28</td>
</tr>
<tr>
<td>Sep-09</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Oct-09</td>
<td>34</td>
<td>34</td>
</tr>
</tbody>
</table>

Launch of Prescribing Guide
Figure 19 displays trends in non-formulary prescribing at the QEII Hospital. The characteristics of these trends are of a similar nature to those at the Lister Hospital. There appears to be a gradual decline in 'not approved' non-formulary drug prescribing from January 2009 until June 2009. In July 2009 and September 2009 'not approved' non-formulary drug prescribing peaks, approximately when 'approved' non-formulary drug prescribing also peaks. A check on the original Microsoft Excel spreadsheet for QEII non-formulary drug issues reveals similar antiviral drugs were prescribed during these periods however not to the same extent as seen at the Lister Hospital. The peak in 'approved' non-formulary drugs in July 2009 for example is not entirely a result of the swine flu outbreak and instead indicates a combination of genuinely large number of non-formulary drugs being approved by the local DTC and patients being admitted to the Trust who had previously been prescribed drugs that are locally considered non-formulary.

7.4.2 Formulary-approved prescribing

The final aspect of quantitative data in the present study concerns exclusively formulary 'approved' drug prescribing. In Appendix 16, eight figures show the data extracted for a selected series of drug classes. These particular drugs were chosen after deliberations during the first Stakeholder Meetings. The figures display volumes of drug issues (bars) along with their corresponding costs (trend lines) for all drug classes except 'laxatives' (Figure B). For this class of drug, only cost information has been displayed since the number of issues were complicated due to the fact that some laxatives were issued as specific millilitres and others as packs (of tablets or capsules) and therefore the comparisons would not have been appropriate. For all figures, this particular type of data was only available on a retrospective quarterly basis with the Prescribing Guide being launched in the quarter, January-March 2009. At the time of collection, the last quarter available was April-June 2009.

In large part, the figures do not show any significant impact of the Prescribing Guide on local prescribing practice. In Figure B, the cost of Movicol (a restricted laxative at the Trust) peaks in March 2009 and then begins a steady decline
over the next three months. Figure C shows a small decrease in the cost of atorvastatin (a restricted cholesterol lowering drug) prescribing but no real discernible reduction in the volume prescribed. In Figure D, a steady decrease in the cost and volume of fentanyl (restrictive opioid painkiller) prescribing can be seen over the last three quarters. However this appears to be countered by an ‘increase’ in the prescribing of oxycodone (another restrictive opioid painkiller) over the same period. In Figure F, the prescribing of solifenacin (a recently reviewed and restricted drug for urinary incontinence) appears to have declined and then ‘stagnated’ over the last three quarters. All of these, relatively small, reductions in the prescribing of restricted drugs offer only a tenuous link to the impact of the Prescribing Guide. The figures do not point to any drastic or convincing changes to the prescribing of any class of drug and thus no real changes to prescribing behaviour.

Formulary approved drugs have, however, remained the most frequently prescribing drugs within each class of drug. For example in Figure A, the prescribing of omeprazole remains far more frequent than either lansoprazole or esomeprazole (drugs to inhibit gastric acid secretion) and in Figure C, simvastatin prescribing is consistently greater than either pravastatin or atorvastatin. Once again, since there are no discernible changes after the first quarter of 2009, the data does not show any impact of the Prescribing Guide.

One reason for the lack of a visible difference in the prescribing data is that the Prescribing Guide was in fact ‘exposed’ to potential end-users in a basic format prior to the research. As outlined in Chapter 4, ‘Phase I’ of the Prescribing Guide was launched to the Trust in November 2007. This phase involved obtaining consensus from specialist consultants at the Trust and Directorate Pharmacists as to the allocated traffic light of each drug in the Prescribing Guide. Although there was no clinical guidance available for users at this stage of the development process, it is reasonable to conclude that the Prescribing Guide may have been used by various healthcare professionals to at least check on the formulary status of drugs and the restriction based on the traffic light system. Therefore the Prescribing Guide may have ‘already’ impacted prescribing practice prior to the study, perhaps on a gradual basis.
Another explanation may concern the resistive attitudes of some doctors who wish to prescribe restricted drugs in the manner in which they feel appropriate. Generalised Statement 4, outlined in Chapter 6 has outlined specific reasons why the Prescribing Guide “struggles to become a core component of doctors’ routine within prescribing practice”. This will be discussed further in Chapter 8.

The figures do help develop an appreciation for the relative costs of formulary first-line, second-line and third-line drug options. For instance, in Figure A (Appendix 16), the cost of the formulary’s third-line proton-pump inhibitor (PPI) esomeprazole, can be seen to be more than half the cost of the formulary’s first-line agent, omeprazole. What is of interest is that the volume of esomeprazole prescribing amounts to a very small proportion of total PPI prescribing. Similar pictures emerge in Figure C (statins), Figure D (analgesics), Figure E (macrolide antibiotics), Figure F (drugs for urinary retention), Figure G (NSAIDs) and Figure H (prostaglandin eye drops). These findings will be discussed further in Chapter 8 and help to corroborate claims regarding perceived priorities for the Trust, the Pharmacy department and the prescribers.
7.5 Summarising findings from self-completion questionnaires

Figure 20 below highlights the key results from the self-completion questionnaires in order to ease further analysis and interpretation. All boxes 1-12 in the diagram show only statistically significant differences ‘between healthcare professionals’. Any statistically significant changes ‘across questionnaires’ (from QRE1 to QRE2) have been specifically emphasised (with **).

Figure 20. Boxes 1-12 summarise key findings from the online self-completion questionnaires (** indicates the changes in doctors responses ‘across questionnaires’ are statistically significant).
7.6 Summary of Chapter 7

This chapter has presented the quantitative findings for the study. In large part, the focus has been on results produced by the online self-completion questionnaires. The results illustrate vast differences between doctors and pharmacists. Far more pharmacists know how to access the Prescribing Guide compared to doctors. Similarly, a considerably greater proportion of pharmacists use the Prescribing Guide than do doctors. Following the ‘modifications phase’, statistically significant increases in doctors’ responses were noted indicating that the modifications did have some impact.

Non-formulary prescribing at both hospitals within the Trust was also analysed. It may initially be concluded that the Prescribing Guide has had an impact on prescribing practices. However, a deeper consideration of the trends and corresponding drugs prescribed, along with a wider national consideration, reveals that in both hospitals much of the observable trends are due to the prescription of drugs for swine flu and its complications. This has partially obscured the ability to be able to discern the truth about the Prescribing Guide’s impact on non-formulary drug prescribing.

Formulary approved prescribing data has been appended. In most cases, formulary first-line, and second-line agents are ‘rightly’ used to a greater extent. These figures provide a unique insight into the volume and corresponding cost burden of selected formulary approved drugs. They will further contribute to later discussions in the following chapter.
Chapter 8
Discussion

8.1 Introduction

The discussion focuses predominantly on the qualitative findings with quantitative data being incorporated to help provide more comprehensive understanding of phenomena. The phenomenological analysis has facilitated the construction of participants' 'lived experiences'. Using established sociological and political frameworks and drawing on existing formulary literature, attempts are made to contextualise these lived experiences.

The chapter begins with a reflection on identified study limitations and the attempts made to overcome or minimise them. The next section discusses the main study findings based in large part on the generalised statements outlined earlier. This chapter attempts to adhere to the following narrative: initial perspectives of the Prescribing Guide; initial perspectives on the formulary concept focusing on the 'critical split'; discussions on the lived experiences of doctors, pharmacists and NMPs in prescribing practice. Based on the discussions in this chapter, a conceptual model is proposed to optimise both the functioning of the future hospital drug formulary and the pharmacy profession.

8.2 Reflections on study limitations

8.2.1 Recruitment of participants and Stakeholders

A pre-selected list of participants (Table 8, page 92) was compiled. Since any agreement to take part in the study may have been an indication of a favourable endorsement for the Prescribing Guide, it was therefore recognised that a bias may have been introduced by the chosen sampling technique. However, the interview transcripts along with subsequent analysis have revealed that a wide range of experiences and perceptions exist ranging from positive to negative. A similar rationale applies to recruitment of Stakeholders (Table 6, page 88).
In addition, the number of Stakeholders recruited was eventually four (including the study researcher in the capacity of Senior Formulary Pharmacist). As Section 5.4 outlines, difficulties were encountered in being able to recruit the originally planned number of six. This is recognised as a limitation to the Stakeholder Meetings since a larger number of Stakeholders may provide more comprehensive interpretations of the emerging themes presented to them. Nevertheless as outlined in Appendix 15, in all meetings lively discussions took place.

8.2.2 Analysis of qualitative data

For the qualitative data analysis, a large number of codes (Appendix 13) were eventually produced along with code definitions. These codes have been reduced to 63 themes and then to 13 generalised statements. Such a large network of information may have been managed using new software such as NUD.ist (QSR, 2011). However since the researcher felt particularly adept at using Microsoft Excel, spreadsheets were used to track codes and themes as they were produced. This is a robust and appropriate system of data handling.

A potential limitation of qualitative analysis concerns the interpretation of the data. Only a single researcher conducted the analysis and interpreted participants’ ‘lived experiences’. It is plausible then that the interview transcripts may be interpreted differently by other researchers. In order to address this limitation and ensure the quality of the research, the researcher arranged for independent coding (outlined in Section 6.5.1) to validate initial codes and code definitions. Additionally a reflexive account of the researcher's views on formularies and healthcare professionals have been presented (Appendix 11) in order for readers to assess for themselves where the researcher's personal experiences and values may have influenced analysis. This account was written prior to conducting the phenomenological analysis.
8.2.3 Stakeholder Meetings

In total three Stakeholder Meetings were arranged. In Stakeholder Meetings 2 and 3, provisional findings and emerging themes were discussed. However, more substantive qualitative analysis yielding codes, themes and generalised statements were not discussed since this analysis was conducted a number of months after Stakeholder Meeting 3. A further 'Stakeholder Meeting 4' was considered but arranging a meeting at such a later date on balance would not have been beneficial since Stakeholders would not in all probability have been able to recall the context in which the final analysis was being presented. The summaries of the contributions made by Stakeholders (Appendix 15), demonstrate that many of the interpretations and discussion points resonate with the final themes and generalised statements.

Stakeholder Meetings were not audio-taped as is the case with the semi-structured interviews. However during these meetings, extensive notes were taken in order to ensure all significant discussion points were captured as faithfully and comprehensively as possible.

8.2.4 Semi-structured interviews

During the semi-structured interviews, environmental factors often contributed to loss of sound quality in the audio recording. One example of this was with SP1’s interview in which the pharmacist's voice could in some segments be only faintly heard. This was due to the fact that the venue chosen was a small office beside a noisy out-patients' waiting area. Following this experience, the dictaphone was placed much closer to the interviewee. However, interviewees frequently made statements in which their clarity was obscured either due to unexpected environmental factors or because the interviewee's speech was muffled.

One particular study limitation associated with semi-structured interviews concerns the 'interviewer effect'. The researcher who conducted the interviews was also the Trust's Senior Formulary Pharmacist and was therefore known to many of the participants. It is established that what the interviewer's identity
'means' to the interviewee is likely to influence their willingness to divulge information (Denscombe, 2007). Fortunately, the qualitative data demonstrates a wide range of answers were expressed allowing broad understanding of participants' attitudes and perspectives. Additionally, the quantitative data produced from the self-completion questionnaires has been used to corroborate the qualitative findings. Respondents to these questionnaires, submitted anonymously, were not affected by an 'interviewer effect' or concerns about the Formulary Pharmacist's perception.

8.2.5 Online self-completion questionnaires

There is a noticeable discrepancy between qualitative and quantitative findings in relation to views expressed towards 'senior colleagues'. According to the results of Question 4 in the self-completion questionnaires, pharmacists indicated that seniors were 'important' influences to their role in drug therapy. However during semi-structured interviews, while discussing influences, most pharmacists listed senior colleagues either very late in a list of influences or not at all. This discrepancy was discussed at the third Stakeholder Meeting. The senior pharmacist-Stakeholder provided a rationale for this discrepancy. He stated pharmacists invariably carry out their ward duties alone (unlike doctors who work in teams) and so although pharmacists certainly regard their senior colleagues as 'important' as indicated in the quantitative data, "they do the best they can on their own". Since he was often involved in educating junior pharmacists he also added that when pharmacists were unable to resolve an issue independently then they "always come up to me or whoever for direction". Therefore regarding this issue of senior colleagues, rather than the two sets of data conflicting or being discrepant, it would appear that in fact they provide a more comprehensive interpretation of pharmacists' regard for their senior colleagues.

There is also recognition that, in Question 5, the notion of 'professional autonomy' may have been ambiguous, particularly for doctors. Firstly, it is considered that 'autonomy' could be taken to imply the ability to work without 'any' influences and without the need to rely on support other than the
practitioner themselves. Secondly, it could also be regarded as the ability to work independent of other individuals but accepting the need to rely on non-human resources such as the Prescribing Guide. Regardless of this apparent distinction, there is a consistent and notable difference between pharmacists and doctors.

8.2.6 Quantitative data extracted from Pharmacy computer

The figures illustrating ‘formulary-approved prescribing’ (Appendix 16), described in Section 7.4.2, have been produced using data up to June 2009. This data was available for extraction from the Pharmacy department's computer system in quarterly portions only and therefore at the time of final data collection, the next three months was not accessible. This is a recognised study limitation since the impact of the 'modifications' cannot be commented on. The figures in Appendix 16 have, however, provided a useful visual understanding of not only the prescribing trends of formulary approved drugs but also highlighted the relationship between prescribed volumes and their corresponding costs. For example, atorvastatin is the Trust's approved third-line statin (Figure C) and, while it is prescribed significantly less than simvastatin (first-line statin), it is far more costly. The figures also provide insights into areas in prescribing practice that require more clinical interventions from pharmacists for example, 'diclofenac' prescribing was prescribed more than 'ibuprofen' in the first three quarters of Figure G.

8.3 Reflections on findings

8.3.1 Initial perceptions of the Prescribing Guide

During semi-structured interviews, the immediate comments made about the Prescribing Guide were largely positive in nature. However subsequent comments were wide ranging – apparently drawn either from experiences of
having used the service or from deeper existing attitudes and perceptions to such influences in prescribing practice.

Statements 1 and 2 summarise participants' key perspectives. The Prescribing Guide is considered useful for practitioners who seek decision-support, typically non-consultant doctors and pharmacists. In addition, pharmacists make extensive use of the Prescribing Guide to facilitate the 'retrospective' checking of prescriptions and supporting clinical interventions.

Although Themes 30-32 highlight very specific difficulties with the use of the Prescribing Guide itself, it is considered that the issues summarised in Themes 23 and 24 are more likely to prevent the new service from achieving its full potential. In particular, the utilisation of the Prescribing Guide is hampered by the limited computer access. Doctors indicated that access to the Prescribing Guide was troublesome on the wards. Approximately half of all doctors responding to QRE1 agreed that the Prescribing Guide was easily accessible compared to almost all pharmacists. This is in keeping with pharmacists' statements made during interviews, that is, pharmacists are easily able to access the Prescribing Guide from computers within the Pharmacy department.

8.3.2 Key conceptualisations of the Prescribing Guide

Statement 2 summarises participants' four key conceptualisations of the Prescribing Guide. These perspectives are shown diagrammatically in Figure 21. Although it could be argued that 'Improves autonomy' can be interpreted as 'Utilitarian' and similarly 'Restricts / threatens autonomy' could be subsumed under 'Control measure', based on the findings in this study, it was considered that each of the four categories merit individual discussion.

Schumock et al (2004, page 557) state that the "effectiveness of strategies to control the quality and cost for medication use is largely dependent on the ability to alter prescribing behaviour". Theme 4 summarises how some senior pharmacists (often managers) use restrictive terminology when discussing medicines management. This may suggest a lack of 'attitudinal-engagement', particularly by managers in attempting to influence prescribing practice, instead
there is a resort to restrictive policies. Such individuals may interpret the “ability to alter prescribing behaviour”, that Schumock et al (2004, page 557) refer to, as more oriented around enforcing controlling measures rather than an acknowledgement of prescribers grievances.

![Diagram]

**Figure 21.** Positioning tool representing the four identified conceptualisations of the Prescribing Guide (based on Statement 2).

In contrast to such control-oriented approaches, participants who appear to have constructed a 'utilitarian' view of the Prescribing Guide, address its benefits with specific reference to their 'own' personal practice rather than an immediate attention given to the Trust's 'wider' medicines management strategy. In this context, the most common feature of the Prescribing Guide mentioned was its comprehensiveness and thus its ability to support drug selection – this was particularly prominent among non-management pharmacists. Allen and Harkins (2005, page 1768) state that a "critical mass" of guidelines can be produced, where "sheer volume" is impossible to be applied or even read properly. The Prescribing Guide is similarly seen as a conduit for extensive drug knowledge that organises this information so that it is relevant.
for local priorities and needs. In addition, while serving as a central access point for drug information, the Prescribing Guide offers an apparent 'education-in-practice' for many practitioners.

Although the Prescribing Guide is adversely affected by a severely time-constrained setting, it paradoxically holds particularly high use value when practitioners are in need of advice quickly. Doctors have, for instance, described busy on-call scenarios in which the Prescribing Guide has been helpful and similarly pharmacists and doctors have both described using the Prescribing Guide as a useful alternative to contacting senior colleagues and having obtained information they required immediately.

The remaining two perspectives concerning 'autonomy' will be discussed later in the section as the 'lived experiences' of healthcare professionals are further explored.

8.3.3 Rationing and resource management

Statement 5 outlines a critical 'split' within prescribing practice. The hospital drug formulary is central to this 'split' which concerns resource management, namely the allocation of the drug budget. The importance of the drug budget is illustrated by examining the Figures A-H in Appendix 16. Typically, third-line agents are used far less than first-line agents yet they cost the Trust a substantial amount more than first-line agents.

During semi-structured interviews, solifenacin (drug for urinary incontinence), was often mentioned by a number of pharmacists as an example of a third-line alternative inappropriately prescribed as first-line. In all cases, pharmacists described that subsequent clinical intervention, including challenging the prescriber, proved to be contentious. However, eventually doctors agreed to switch treatment to oxybutynin (first-line option). Pharmacists further praised the Prescribing Guide for providing all relevant details that essentially facilitated the challenge. It is likely that referring to the Prescribing Guide may have contributed to the reduction in solifenacin prescribing seen in Figure F (Appendix 16)
Unauthorised non-formulary drug prescribing (Figures 18, page 185 and Figure 19, page 187) is also of significant concern since it represents the allocation of financial resources to unapproved drugs.

Appropriate resource management has been an issue in the NHS since its creation in 1948 (Harrison and McDonald, 2008, page 10). The Minister of Health in 1966, for example, stated that the medical profession when faced with “various forms of rationing” react with “frustration and irritation”. It is interesting that the sentiments expressed in 1966 can be observed in some of the participants interviewed in the present study. Some junior and senior doctors, for instance, implied that the drug budget appeared to take greater priority than the patient's best interests. Similarly, isolated voices within pharmacist participants also described resentment towards the formulary's perceived focus on cost-minimisation and lack of patient consideration.

Today, in a period of increasing fiscal austerity, in which the so-called 'Nicholson challenge' presents a momentous task for the NHS, appropriate allocation of resources is even more crucial (Hughes and Thorp, 2010; BBC, 2010). The sort of ‘split’ amongst key practitioners symbolised by the formulary cannot be conducive to meeting such financial challenges.

8.3.4 The 'critical split' depicted by the formulary

In its most fundamental manifestation, this split can be seen in participants’ perceptions of the definition and purpose of the formulary concept. In Chapter 3, the current literature was consulted in order to establish a loose consensus on the accepted definition of a formulary. Firstly, a focus on improving the quality of rational, evidence-based prescribing and; secondly, limiting unjustified use of expensive drugs.

Many participants perceive the formulary essentially as a means of 'stock control' and to aid the 'logistics' involved in maintaining a large number of approved drugs. In this context, doctors in particular discussed the involvement of the Pharmacy department or experiences in which pharmacists were seen to cite the formulary. Clearly there is a perception among doctors that the
formulary and the pharmacy profession are closely aligned and may therefore perceive such initiatives as 'externally-generated' control.

Doctors also described cost-motivation as a key aspect of the formulary's remit, however rather than take a secondary level of priority, cost-minimisation was seen to be the primary focus of formulary implementation. This is in keeping with doctors' sentiments found in the literature.

The quantitative findings provide further light on doctors' impressions of the local formulary, that is, the majority of doctors consistently disagreed with the statements that the Prescribing Guide was 'patient-focused' or 'supports evidence-based medicine'.

Pharmacists were able to elaborate on the formulary's purpose and remit much more readily resonating well with the themes identified in the literature. Theme 21 further highlights the different regard that the doctors and pharmacists have towards the 'formulary status' of drugs. However there were, among senior pharmacists, varying degrees of restrictiveness implied when describing how formularies were meant to operate. This echoes Pearce and Beggs' (1992, page 191) use of terms such as "limited list" to describe the formulary. At the other extreme, two pharmacists expressed a perceived lack of pragmatism associated with the formulary and its 'excessive' interest in cost-minimisation – both these comments consisted of pejorative undertones.

Another noted observation concerns the apparent cognitive dissonance among doctors who early in the interview asserted support for the formulary for its service to the 'greater good', yet later, when describing conflicts in prescribing practices, appeared to reject the notion of the formulary (or other forces) impinging on their freedom to prescribe.

8.3.5 Reflections on the ‘lived experiences’ of doctors in prescribing practice

In this study, through the application of phenomenological analysis there has been an attempt to uncover the 'lived experiences' of participants. Statements 10, 11 and 12 highlight the key features that attempt to represent the 'reality' of
the ‘social world’ as interpreted by doctors. The social world in this context is the domain of drug therapy within the Trust. Statement 4 is a further effort to isolate and develop those experiences in which the Prescribing Guide tends to take central relevance.

Doctors placed great value on their perceived ability to prescribe freely with little or no intrusion from those outside their profession. Any discussions during interviews on initiatives that could be seen as limiting this 'freedom' were in most cases quickly countered with statements expressing their frustrations and unease with such notions (Theme 55).

In the previous section doctors' views of the underlying purpose and definition of the local formulary have been noted. It is such interpretations of the formulary that generates an opposition to the way in which the formulary is perceived to restrict doctors' autonomy. In much the same way doctors have also referred to the work of pharmacists as the "policeman's role" (CD5 Interview No.19).

Although, as Statement 11 asserts, doctors demonstrate a willingness to engage in discussions about appropriate drug therapy, pharmacists are often seen as cost-motivated, entirely concerned with enforcing guidelines and in some cases considered obstructive. Indeed doctors made attempts to lay out clear demarcations that separated the professional territory of the medical profession and the perceived territory of pharmacists.

Elements within the medical profession have previously voiced varying degrees of concern about the growing threats to their ‘autonomy’ as is rather telling from Zabawski’s (2002, page 726) provocatively titled paper: “No trespassing! Are the Pharmacists Stepping over the Line?”. The author, a doctor, focuses on the specialist knowledge the ‘doctor’ possesses (not the pharmacist) and particularly highlights pharmacists’ “outright interference with the care that doctors are endeavouring to provide” (Zabawski, 2002). As early as 1979, the development of clinical pharmacy has been described as “boundary encroachment” and “an attempt to extend the boundaries of pharmacy practice into the territory of the medical profession” (Eaton and Webb, 1979).

In Section 2.3.1 we have seen that the medical profession has traditionally been in a unique position to be able to exert influence over 'kindred' occupations. This
influence and ability to extend control beyond its own profession’s jurisdictions has been possible due to its unrivalled relationship with the government. Klein (1990, page 700) describes a "mutual dependency" between the medical profession and the state. With the formation of the NHS, the state became dependent on doctors to "run" it. In the early years of the NHS, to ‘promote rationing' of clinical resources was considered politically damaging for all political parties. Doctors as a result of the state-backed 'professional autonomy', served a political purpose, that is, 'implicit rationing' of resources and treatment\(^\text{10}\). As one of the very early principles on which the NHS was constructed, the Minister of Health in 1944 stated the following:

“doctors…must remain free to direct their clinical knowledge and personal skill…in the way…they feel to be best” (Harrison and McDonald, 2008, page 42)

Therefore, the medical profession has been 'historically' empowered by the state in order to serve what appear to be political ends, namely the management of resources and maintaining the NHS. This early empowerment might explain the, perhaps remnant notions of, freedom and autonomy that we can see in doctor participants in this study. Statement 11 further describes a 'prerogative' that doctors appear to allude to. Despite other influences and authorities (pharmacists or NICE guidance) that might operate within the prescribing domain, since doctors consider themselves to be particularly 'closely bound' to patients, they therefore perceive themselves to be in a position of authority to adopt or reject drug advice.

During interviews, doctors presented this patient-focus in a number of ways. They either unequivocally asserted that as members of the medical profession they are solely patient-orientated, or they made discrediting statements about other parties involved in the medicine management process. The pharmacy department for example, was frequently deemed to be concerned with stock

\(^{10}\) Implicit rationing - Harrison and McDonald (2008) explain how 'professional autonomy' was supported by the government to allow doctors to match supply and demand as they saw fit. Research in 1984 shows doctors tried to make the 'denial of care' seem routine or optimal for example if a patient was too old for the clinical age for dialysis, the doctor would inform the patient and the relatives that the patient has 'chronic renal failure' and nothing can be done for them. The political advantages are that rationing of resources, a difficult subject to face publicly, did not need to be addressed by the government of the day.
control or surreptitiously engaged in cost-minimisation. There were also clear notions that pharmacists lacked the skills required to be patient-focused, instead adopting a far more guidelines-centric approach.

Doctors rejected the notion that pharmacists are also, in addition to themselves, in some way 'accountable' for the prescribing of medicines. There was a notable effort, ranging from junior doctors to consultants, and from members and non-members of the DTC, to distance pharmacists' accountability from their own. Attempts were made to distinguish between the clinical expertise involved in making drug selection 'by doctors' and the technical duties involved in dispensing and supplying medicines 'by pharmacists'.

The reluctance to partake in joint professional ventures or to be regulated in any manner by 'outside' bodies gives credence to the 'conflict theories' described in Chapter 2. Rather than work closely or in Durkheim's words 'in harmony', with those of different occupations and so demonstrating a general consensus around both patient and professional goals, a significant body of literature instead points to a degree of defiance and resentment in the attitudes of members of the medical profession as seen in the present study (Gollop et al, 2004; Degeling et al, 2006).

Larson's model of the 'professional project' (Figure 1), has portrayed occupations as endeavouring to acquire 'social closure'. Central to this model is a 'monopoly of knowledge' which according to many sociologists is the "core generating trait" of professionalism (Freidson, 1994, page 185). Professions have long been criticised for "mystifying their knowledge" (O'Day, 2005 in Harrison and McDonald, 2008, page 28). Indeed Theme 61 highlights doctors' claims to possess the ability to "deal with uncertainty" (CD3 Interview No.3), perhaps a manifestation of 'mystification' within local practice. Doctor participants frequently referred to the application of 'clinical judgement' in such instances of uncertainty.

In the findings presented in Chapter 6, we have noted doctors alluding to a monopoly over a wide range of clinical expertise. For example, there have been references to a perceived monopoly on knowledge of clinical outcomes which includes the knowledge of drug therapy (Theme 41), or the monopoly on
pathophysiology or the monopoly on diagnostic skills. However, for the purposes of the present study, it is the realm of drug therapy that may be seen to be an area of competition and contestation also implicit in Zabawski's (2002) article and other authors (Goodwin, 2003; Kwan, 2005). In the light of such theorising, the rationale behind doctors resisting pharmacists' clinical interventions now appears to comprise an additional, perhaps 'ulterior' motive – namely the defence of their own professional jurisdiction and monopoly on knowledge of drug therapy.

The medical profession has been described as the dominant profession in the healthcare arena where other 'semi-professions' are subordinate (Harrison and McDonald, 2008). Freidson (in Harrison and McDonald, 2008) explains subordination can take on various forms from doctors giving instructions to nurses through to the medical profession influencing the training and licensing of other health professions. Pharmacists, however, have a claim to extensive training and knowledge specifically concerned with the realm of drug therapy hence a monopoly that can, potentially, challenge this aspect of the work of the medical profession. This 'contested' ground is further emphasised since drug therapy is the most frequent therapeutic intervention with 97% of hospital patients prescribing medicines (NPC, 2011b; Picton and Quinn, 2011; Healthcare Commission, 2007).

A number of themes captured notions of a wider distrust that doctors have for the local formulary and the DTC. Often deemed to be excessively 'bureaucratic', the formulary 'process' restricts doctors from practicing as autonomous practitioners. One medical registrar used a particularly notable metaphor to describe the formulary. He stated that it acted like a "big iron door" (RD2 Interview No.6) discouraging him from engaging in the established review process to obtain the drug he wanted to prescribe. Weber famously forewarned that bureaucracy constituted an 'iron cage' from which society could not escape (Taylor et al, 2003). One interpretation is that this perceived bureaucracy has evidently penetrated medical practice at the Trust giving rise to frustrations and resistance.

Section 2.2.4 described organisation through bureaucracy coupled with the advancement of science, as 'rationalisation'. This Weberian concept focuses on
the application of precise calculation and organisation, involving rules and procedures (Giddens, 2009). For example, Themes 8, 10, and 12 outline instances in which participants support the 'concept' of rationalising drug therapy through establishing effective formularies and local DTCs. Themes 47 and 48 indicate the conscious adoption of the 'outcomes' of rationalisation, that is, algorithms, guidelines for their decision-support value. Conversely, there are varying degrees of opposing views, predominantly from doctors and NMPs, such as seen in Themes 3, 5, 9, 11, 14, 30, 43 and 45. These themes provide a critique of some aspect of rationalisation, whether it is broadly through the imposition of the formulary's decisions, recommendations from NICE or from specific features in the Prescribing Guide that cause confusion (such as the traffic light system). Essentially, through both supportive and opposing voices in the present study, the perceived existence of rationalisation of local drug therapy is confirmed.

Rationalisation in healthcare, further impacting on doctors' professional autonomy, has been previously recognised with the rise of evidence-based medicine (Mykhalovskiy and Weir, 2004; Britten, 2001). As Traynor et al (2010) state evidence-based medicine targets “the mystique and privacy of medical decision-making” (Traynor et al, 2010, page 1506). Even NICE has been implicated as offering “too much guidance” which in effect can be “unhelpful and can lead to confusion” (Allen and Harkins, 2005, page 1768). Similar notions were expressed in the present study as doctors expressed disapproval about unnecessary confusion caused by the duplication of effort when reviewing drugs for local consideration at the Trust when national reviews had already been published.

Ultimately rationalisation confines practitioners, seeking to organise work “according to the principles of efficiency and technical knowledge” (Giddens, 2009, page 93). Jamous and Peloille’s I / T ratio (described in Section 2.2.3 Specialist Knowledge) provides an effective means by which to ‘measure’ the degree of professionalism an occupation can claim to.

Since the content of ‘purely’ professional work consists of high indeterminacy and a rejection of rationalistic confines doctors are reluctant to embrace the formulary or its perceived ‘agents’ (pharmacists). The consequences for the
Prescribing Guide, based on this underlying conceptual framework are likely to be closely related to the combative stance taken towards the formulary.

Other recognised contemporary challenges to the medical profession manifest as managerialism and the breakdown of professional boundaries (Crinson, 2007). A 2006 study demonstrated that doctors in particular rejected the notion of introducing practices that would facilitate the ‘systemisation’ of clinical work (Degeling et al, 2006).

In a Marxian interpretation where “clinical service” is the “product” of healthcare professionals, practice is constantly under the scrutiny of the state in efforts to increase efficiency, reduce expenditure and raise standards (Cornett, 2006, page 301). For instance, the recently formed Care Quality Commission (CQC) states that it “regulates providers of medical and clinical treatment...including treatment given in hospitals...” (CQC, 2011). Another recent form of oversight and further evidence of government initiatives penetrating healthcare activities comes as the Commission for Quality and Innovation (CQUIN) framework. Introduced in 2009, the aim of the CQUIN framework is “to secure improvements in quality of services and better outcomes for patients, whilst also maintaining strong financial management” (Crown, 2012). The framework enables commissioners of services to ‘incentivise’ local providers to deliver improvements in quality and safety of healthcare while also improving efficiency. The four CQUIN ‘goals’ for 2013/14 describe specific quality improvement objectives to be incentivised for example, “To reduce avoidable death, disability and chronic ill health from venous thromboembolism” (Crown, 2012). CQUIN ‘indicators’ are measures which determine whether a goal has been achieved and in turn, whether the provider ‘earns payment’.

Improvements specifically concerned with the quality of prescribing and medicines management has been led by the ‘Medicines Use and Procurement’ workstream which is part of the Department of Health’s Quality, Innovation, Productivity and Prevention (QIPP) programme introduced by the previous government. The aim is to “ensure that value for money is further enhanced while quality of care is maintained or improved” (NPC, 2013). The National Prescribing Centre (NPC) has worked closely with the Department of Health to identify a range of QIPP therapeutic topics. Once again, these areas come with
indicators to monitor performance for example, the QIPP topic ‘Renin-angiotensin system drugs’, is monitored by the following indicator ‘ACE inhibitor % items’\(^\text{11}\) (NICE, 2012). As early as 2003, the introduction of ‘performance indicators’ into clinical care was recognised as a “challenge...to a previously guarded aspect of clinical autonomy – the assessment of work performance” (Exworthy et al, 2003, page 1493).

In addition, more emphasis has been given to patient choice and their personal needs and preferences. With the advent of the Internet contributing to a decrease in the knowledge gap between doctors and patients, patients are recognised as becoming increasingly well informed and able to cite sources during discussions with doctors (Britten, 2001). Lord Ara Darzi’s review of the NHS (DH, 2008b), stated that patients will be given “more rights and control over their own health and care”. In the same review, the first NHS Constitution was announced. With the NHS Constitution now law under the Health Act 2009, all patients in England have a “legal right to drugs and treatment recommended by NICE” (PJ, 2010). Research in the UK and abroad has shown the treatment is more effective if patients are encouraged to understand, choose and control their care (NHS Choices, 2013; Crown, 2011). Patient choices promoted by the NHS in England outlined in the new ‘Choice Framework’ for 2013/14 include being able to “choose a GP and to change to another if not happy with the service received” (Kings Fund, 2011). The relatively recent concept of ‘concordance’ between the patient and the doctor (introduced by the Royal Pharmaceutical Society of Great Britain in 1997) acknowledges in particular, the ‘patients’ autonomy’ within a consultation (Britten, 2001). The traditional paternalistic approach to prescribing and any ‘absolute’ autonomy of prescribers could be at threat.

Given these relatively recent developments in healthcare, it is not surprising that some Marxist-influenced writers have suggested professional autonomy is in fact largely illusory (Harrison and McDonald, 2008). Instead of dominant professions, such as medicine, having secured a high social status by securing ‘elite' approval, as described in Section 2.2.2, these thinkers postulate that in

\(^{11}\) ACE inhibitor % items – this refers to the number of prescription items for ‘ACE inhibitors’ (a drug used for high blood pressure, heart failure etc.) as a percentage of the total number of prescription items for all drugs affecting the renin-angiotensin system (a hormone system within the human body that regulates blood pressure and fluid balance).
fact, it is the elite, or the 'capitalist state' that "sanctions ostensible professional dominance for its own purpose" (Harrison and McDonald, 2008, page 33).

Indeed a brief historical overview of political influences on UK healthcare reveals a consistent effort to optimise the work of healthcare professionals. Already mentioned is 'implicit rationing' that had kept the issue of rationing resources away from the political agenda for 30 years since the creation of the NHS (Harrison and McDonald, 2008). In recent times various parties in government have introduced competition with a view to maximise efficiency (Butler, 2010). It would appear by these initiatives that practitioners are essentially "agents of control for a powerful state" (Esland, 1980 in Harrison and McDonald, 2008, page 33). The recently introduced Health and Social Care Bill in which privatisation and competition will be further increased, faced overwhelming opposition from the major healthcare professions particularly medicine (Adams, 2012). The British Medical Association\textsuperscript{12} (BMA) raised concerns about vast amounts of guidance that were perceived to be "constraining clinician-led commissioning within a bureaucratic straitjacket" (BMA, 2011).

The resistance outlined in Statement 10 (against efforts to mimic clinical judgement or to mitigate prescribing freedom) now appears to be the result of more than simply an 'uncorrupted' patient-focus (Statement 11). Instead, doctors perceive their professional jurisdictions to be continuously encroached on by converging forces echoing Britten’s (2001) conclusions. The result is a ‘collective reflex’, to protect and defend ‘social closure’ for the continued maintenance of historically acquired professional status. What appears to emerge from the semi-structured interviews is that these reactions are only vaguely implied. It is only after relating to the wider political and social literature do these motivations become clear and given meaning through context.

\textsuperscript{12} British Medical Association (BMA) - is the doctors' professional organisation established to look after the professional needs for its members. The BMA "maintain the honour and interests of the medical profession" (BMA, 2012).
8.3.6 Reflections on the ‘lived experiences’ of pharmacists in prescribing practice

Generalised Statements 7 and 8 highlight the key features that represent the ‘reality’ of the domain of drug therapy within the Trust as experienced by pharmacists. Statement 3 focuses on those experiences that directly involve the Prescribing Guide.

One interpretation that the present study makes is the notion that pharmacists are 'closely bound' to the local hospital drug formulary. With the formulary essentially forming an inherent component of their decision-making process, pharmacists invariably incorporate 'ready-made' decisions (often depicted in the formulary) in most prescription interventions. This phenomenon appears to operate at all levels within the rank and file of the pharmacy profession at the Trust.

There is also a wider portrayal of pharmacists being dependent on pre-structured decision-support tools. For example, of the influences presented to participants in the self-completion questionnaires, the vast majority of pharmacists consistently rated NICE guidance and the Prescribing Guide as ‘important’ to their practice. Such an apparent dependence, perhaps even ‘over-reliance’ on pre-structured decision-support represents the lack of independent critique of prescribing decisions that could be offered by a pharmacist. Instead, there appears to be a critique that operates characteristically ‘through’ the formulary with pharmacists largely in the capacity of passive 'enforcers' rather than active practitioners. Pharmacists typically described the need for “paperwork” or the “online Prescribing Guide” to “back them up” instead of ‘senior colleagues’ as is the case with doctors (SP7 Interview No.29). Indeed, we have seen almost all pharmacists in QRE1 indicate that the Prescribing Guide helps them 'decide' what should be prescribed.

Thus, local decisions on drug-related priorities seem to empower pharmacists in their routine professional work. In this context pharmacists are, in practice, very much localised, deriving much of their contributions to prescribing practice 'directly' from pre-structured decision-support tools. The concept of 'monopoly of knowledge' as outlined in Larson’s ‘professional project’ appears to be at the
very least limited perhaps even absent since pharmacists rely on guidance that has been previously compiled by others (for example national or local drug reviews).

This apparent lack of 'indeterminacy' as depicted by Jamous and Peloille's I / T ratio (Taylor et al, 2003), and simultaneous increase in codification and 'technicality' (due to adoption of pre-structured decision-support) indicates a potentially weak claim to professional status and ultimately a cause for dissatisfaction for the supposed 'professional'. We have seen in Chapter 2, in order for professions to maintain their 'privileged' position in society, their work must not become rationalised or routinised. However, this is what appears to be happening with pharmacists at the Trust. Weber's concept of the ever increasing rationalisation of society is certainly observable here, in the 'lived experiences' of pharmacists, perhaps to a greater degree than with doctors.

It could be argued that Merton's definition of bureaucrats seems – to some extent – analogous to aspects of pharmacists' routine work, that is, the tendency to adhere to predefined rules and procedures, essentially practising 'rigidity' and lacking any encouragement to use their own judgement (Giddens, 2009). Although individual pharmacists at the Trust did not articulate frustrations in such 'academic' terminology, as members of a 'professional group' there is certainly evidence among pharmacist participants of an inherent regard for professional expertise and the discomfort of being confined to codified, rationalised and predefined guidelines. Furthermore, this 'discomfort' seems even more pronounced when these guidelines are perceived to be primarily cost-motivated rather than patient-focused suggestive of the 'altruistic trait' often noted to be a key characteristic of professions (Macdonald, 1995).

During semi-structured interviews, pharmacists did frequently imply a claim to expert knowledge specific to the confines of drug therapy. Theme 53 for example, demonstrated pharmacists' ability to subject doctors' prescribing decisions to a level of scrutiny without the immediate need for decision-support mechanisms. It is such descriptions that suggest the pharmacy profession may actually possess 'theoretical indeterminacy' but lacks the widespread practical manifestation of it; we can call this 'practiced indeterminacy'. Britten (2001) similarly highlights that although pharmacists exert less professional discretion
than doctors, they are responsible for the appropriateness of medication supplied to patients. In particular, Britten mentions the ability of pharmacists to “monitor” doctors’ prescribing.

The dominant narrative expressed by pharmacists included varying degrees of frustration and resentment about being excessively involved in the 'supply' of medicines instead of being encouraged to engage in more clinically oriented activities. Although the importance of patients correctly receiving their medication was at no point trivialised, the resentment was nevertheless widely pervasive amongst all grades of pharmacists. Most aggrieved by a perception of excessive focus and time spend on ‘supply function’ were junior pharmacists. They often complained about the 'knock-on' lack of clinical development. Indeed with JP4 (Interview No.32), there was a sense of resignation and a succumbing to current practices by being involved in "just ordering drugs, checking lockers". Theme 59 highlights how the emphasis on supply is considered "soul destroying" (SP7 Interview No.29) for junior pharmacists. Once again, using the I / T ratio, the alleged extensive supply-oriented workload represents a second highly 'technical' component to the work of pharmacists and further supports the notion of a potentially weak professional claim.

Section 2.3.2 explored George Ritzer's concept of 'McDonaldisation' and its key dimensions: efficiency; predictability; calculability; and control (Taylor et al, 2003). Along these lines, the 'corporatisation' of community pharmacy has been widely debated before (Bush et al, 2009; Taylor et al, 2003), but there are aspects of this study’s findings that indicate such principles are being applied to hospital pharmacy. Pharmacists in this study have voiced frustrations about managers being more concerned about time keeping and ensuring the allocated shifts in the dispensary are adhered to, ensuring the "primary focus...dispensing and checking" (the supply function), are maintained. As Novek (2000) states, hospital administrators support initiatives that improve labour efficiency and reduce costs and not necessarily professional aspirations.

Statement 8 describes this aspect of the ‘lived experience’ of pharmacists as the 'continued subjugation' of the pharmacist within local prescribing practice. In addition to this, as we have seen in the previous section, is the resistive stance taken by doctors towards pharmacists ultimately resulting in the isolation of the
pharmacy profession even further from frontline clinical care where decisions such as drug selection are made.

In this way, through various threats to its status and the nature of its routine activities, the pharmacy profession has been described as victim of “both incomplete professionalisation and deprofessionalisation” (Bush et al, 2009, page 305). Guest et al (2008) conducted a survey of 1,996 pharmacists and revealed that certain issues concerning pharmacists' careers became more important as their careers progressed. Table 30 shows three ‘career anchors’ (or “aspirations” as the authors clarify) in particular and how their perceived importance seems to have shifted over the course of time. The three ‘anchors’, in the light of the above discussion, reflect issues of a professional nature. In particular, anchor two refers to the management of complex situations where, perhaps, professional judgement and abstract, indeterminate knowledge would be applicable. Anchor three clearly refers to the restrictions to practice freely, particularly freedom from management, echoing the attitudes held by pharmacist participants in the present study. Incidentally they resonate with attitudes held by those of the medical profession described above.

** Content removed for copyright reasons **

Reference:

**Table 30.** Importance of career anchors when embarking on career and now (adapted from Guest et al, 2008b).

Pharmacists both in the present study and in the literature (Waterfield, 2010; Cavell, 2009) demonstrate an ‘inherent’ claim, at the very least, to ‘expert knowledge’ and a 'monopoly' on this knowledge derived from extensive training during university and pre-registration years. Using the prism of wider political
discourse, the apparent use or 'exploitation' of pharmacists’ expertise is further elucidated.

While an array of official government publications concerning the pharmacy profession have all highlighted the 'expertise' that this group possesses, there are clearly significant cost-oriented objectives expected of it. An independent watchdog, the Audit Commission, set up to protect the public purse, cites pharmacists as pivotal to reducing the costs in the NHS (Audit Commission, 2001). In Section 2.3.1 we saw that the government can only achieve its priorities if it develops ways to influence clinical decision-making concerning issues such as lengths of patient stay and drug expenditure (Klein, 1990). It is therefore arguable that any legislation supported by the government that introduces changes to professional workings should be critiqued and examined in order to understand its true motives. For example, granting independent prescribing privileges to pharmacists can now be seen to serve political agendas rather than fulfil professional aspirations. Hence, no longer is the 'mutual dependency', mentioned before (Section 2.3.1), confined between the government and the medical profession alone, now the pharmacy profession (along with others) is also empowered to "run" the NHS (Klein, 1990, page 700). While the need to ration is far more explicit that it was in the past, today, under the banner of ‘empowerment’, the means by which professions such as pharmacy might be being exploited to serve primarily cost-motivated aims remain implicit (DH, 2010; Chemist and Druggist, 2011).

8.3.7 Reflections on the ‘lived experiences’ of NMPs in prescribing practice

In many regards, during the semi-structured interviews, the most revealing disclosures have come from NMP participants. The unique perspectives from this cohort of practitioners provided a new and distinct insight of local prescribing practices. As Statement 13 outlines, NMPs demonstrated that they had 'evolved' as healthcare professionals and on some level experienced a 'shift' in their thinking towards aspects of patient care as well as towards local medicines management strategies such as the formulary.
In Theme 62 we saw how the one pharmacist-NMP in the study described the transition process of becoming a prescriber as "you slowly start to break your own rules" (NMP1 Interview No.18). She described a departure from the original "pharmacy", "formulary" and "cost" focused approach to one that is more "clinical" and able to legitimise going against Trust guidelines. Clearly the implication is that pharmacists 'and' formularies are inherently rigid in practice and unable to acquire the 'clinical' insights that prescribers have access to. Compared to the previous discussion on pharmacists' 'lived experiences', where they have essentially been described as 'passive-enforcers', it would appear that NMP1 has introduced a greater degree of 'practiced indeterminacy' in her routine work, although built on a pharmacist-foundation.

All NMPs supported the view that every patient is unique and does not "fit into a box and into standard procedures" (NMP2 Interview No.33). Just as doctors appeared to reject the confines of local guidelines, policies and the formulary's restrictions, NMPs all displayed similar sentiments often emphasising the need to reject guidelines instead favouring autonomous practice and applying clinical judgement. Themes 61 and 62 outline the claim that both doctors and NMPs make about being able to manage 'uncertainty' and call upon expert, clinical judgement rather than rely on pre-structured, codified decision-support.

In this way, a number of parallels can be drawn between how doctors practice with an evident discomfort for restrictive policies and how NMPs have adopted a similar 'anti-bureaucratic' stance. NMPs indicate a perception of conflict with 'pharmacy'. They implied that pharmacists represent "research" and prescribers represent "expertise, knowledge and practice" (NMP3 Interview No.34). We have seen now that Larson's 'professional project' underlines the desire to attain 'social closure'. It would appear that NMPs attempt to create, at the very least, 'social distance' from pharmacists by aligning 'non-medical' prescribing practice with that of 'medical' prescribing practice. In terms of the 'split' identified in local prescribing practice (Statement 5), it can be reasonably argued that NMPs perceive themselves to practice counter to pharmacists.

A particular point of frustration expressed by all NMPs was the need to adhere to a prescribing 'list' (Theme 14). Although NMPs were legally permitted to prescribe any drug that they felt was in their area of competence, the Trust's
DTC had enforced a restricted list to which they were able to add more drugs only through formal submissions pending reviews. Their lists were effectively 'virtual-formularies' for NMPs. The characteristic frustrations observed in doctors’ ‘lived experiences’ towards the hospital drug formulary were clearly evident with NMPs towards their 'list'. Notably, during the rhetoric towards the local hospital drug formulary, amongst both NMPs and doctors there was an implied 'confidence' in their 'own' drug selections independent of decisions made by the local DTC.

Therefore, the NMP in the prescribing arena represents an interesting and relatively new practitioner. While there 'is' an appreciation of previous non-medical insights (acquired from previous pharmacy or nursing careers) there is also a new embrace of 'abstraction' and 'indeterminacy' in healthcare. The instability observable within NMPs towards perceived restrictive policies demonstrates the evolution of a more 'humanised' practitioner, particularly noticeable with NMP1 – the only pharmacist-NMP in the present study.

Statement 13 also portrays an apparent opposition to the introduction of 'decision-making' NMPs. One NMP described an incident in which her drug selection was rejected by a senior doctor. The NMP speculated that the doctor felt she was "treading on his ground" (NMP3 Interview No. 34) clearly indicating that jurisdictional attitudes do exist. In addition, a number of doctors had expressed only 'theoretical' support for non-medical prescribing often accepting the prescribing of only 'simple' medication. Interestingly, pharmacist participants made similar statements about nurse NMPs, but remained supportive of non-medical prescribing with a pharmacy background.

8.3.8 The Prescribing Guide and the role of healthcare professionals

Statements 3 and 4 focus on the nature of the 'relationships' that doctors and pharmacists had developed with the Prescribing Guide. While Statement 3 outlines an enthusiastic, determined and in many cases prompt uptake of the Prescribing Guide into routine practices by pharmacists, Statement 4 instead depicts doctors' apathetic and somewhat reluctant embrace of the new service.
These contrasting perspectives are also evident from the quantitative findings. Most telling is the response rate to the frequency of using the Prescribing Guide. In QRE1, less than a fifth of responding doctors indicated that they accessed the Prescribing Guide 'frequently' (compared to approximately 80% of pharmacists responding). This figure improved to just under half of all doctors responding to QRE2 following the implementation of modifications made to the Prescribing Guide however remained significantly lower than pharmacists.

Doctors did show evidence of embracing the utilitarian function seen through significant improvements to perceptions of the Prescribing Guide's 'importance', as well as through improved response rates concerning the Prescribing Guide's ability to improve 'professional autonomy' and 'helping decide what to prescribe'. Conversely, only approximately half of doctors in QRE1 agreed that the Prescribing Guide supports evidence-based medicine and similarly just less than half of all doctors considered the Prescribing Guide to be 'patient-focused'. These findings suggest that subsequent to the modifications phase, although the Prescribing Guide's 'utilitarian' function appeared to be more readily accepted by doctors, their underlying attitudes towards the Prescribing Guide and the formulary concept remained the same.

Further divergences are also noted concerning specific features of the Prescribing Guide. Almost all pharmacists in both questionnaires agreed that the Prescribing Guide was 'user-friendly' and 'easily accessible' compared to approximately half of all doctors. During semi-structured interviews doctors consistently expressed the need for more training on how to use the Prescribing Guide and for its inclusion in doctors' induction programmes. Such training was therefore arranged as part of the modifications, the apparent increases in response rates (observed in QRE2) concerning the aforementioned two features were not significant. Time constraints and limited resources (such as computer terminals) may have contributed to doctors’ lack of engagement, however it is attitudes towards influences that are perceived to restrict and rationalise doctors’ decisions that are now considered as perhaps more formidable 'restraining forces'. It would appear from both qualitative and quantitative findings in the present study that for doctors at the Trust, the Prescribing Guide is certainly considered as such an influence. The views that
participants expressed about the formulary concept appear to be translated across and applied instinctively to the Prescribing Guide.

Rucker and Schiff in 1990, showed that doctors hold a number of views that ultimately work against the essential thrust of the formulary concept. The findings from this early study, as well as those from the present study indicate an inherent distrust for the formulary. There are implications in both studies, for instance, that the formulary ‘sacrifices patient care to cost control’ or doctors express a clear discomfort with their ‘clinical freedom’ being restricted. Neither Rucker and Schiff (1990) nor other authors exploring the impact of formularies (Sutters, 1990; Crowe, 2002; Feely et al, 1990; Furniss; 2000; Hemeryck et al, 1996; Khan, 2002) make any attempts to gather any deeper insights of the 'users' or key stakeholders. The present study points to a sociological rationale for the (apparent) opposition to the local Prescribing Guide.

During interviews, doctors often alluded to the Prescribing Guide as equivalent in purpose and remit to pharmacists. Indeed Khan (2002, page 159) states that capturing pharmaceutical advice within formularies is "probably the most effective way of improving prescribing practice". Furthermore, generalised Statements 3 and 7 in this study imply a similar notion, that is, formularies and pharmacists maintain a close working remit. The Prescribing Guide is therefore likely to be opposed on the grounds that it is a practical manifestation of both the local formulary as well as pharmacists.

Previous authors have outlined the different drug selection philosophies of doctors and pharmacists (Tugwell et al, 1984). This study corroborates such statements and further reveals that the approach to resource management (typically the prescribing budget) is also a point of divergence between the two professions (Statement 5). While the advice of pharmacists is occasionally incorporated into prescribing practice, there is also evidence of outright defiance of local drug decisions. The quantitative arm of the study illustrates volumes of non-formulary drug prescribing in Figures 18 and 19 indicating the nature of prescribers' choices. While the 'red trend line' may indicate instances in which the prescribers may not have been aware of formulary alternatives, the 'blue trend line' is certainly evidence of prescribers consciously insisting on external,
non-formulary drug choices for the benefit of patient care. The implication is that the formulary, in such instances, needs to be flexible for the sake of the patient.

Doctors 'do' consider available prescribing guidance but as one doctor stated "in the end it's my decision more than anybody else's" (RD5 Interview No.23). This sense of 'ownership' over the final 'drug decision' and ultimately the 'knowledge' is clearly of paramount importance to doctors. The Prescribing Guide in effect 'demystifies' this knowledge. The 'inferential activity', outlined in Section 2.2.3 as the "purely professional act" (Macdonald, 1995, page 164), is perceived to be under threat and considered to be under rationalistic, bureaucratic control. Through the implementation of the Prescribing Guide, prescribers are alerted to the fact that the domain of drug therapy is 'contestable' ground. Doctors in particular feel aggrieved because they have traditionally been in the position of 'paternalistic' care providers where only their recommendations are upheld. The Prescribing Guide attempts, in effect, to remove this traditional prerogative.

Using Larson's 'professional project', the impact of the Prescribing Guide can be illustrated diagrammatically as in Figure 22. Since 'monopoly of knowledge' is central to the professional pursuit for eventual achievement and subsequent maintenance of 'social closure' we can see that the Prescribing Guide currently threatens the centrality of the medical profession's 'professional project'. Therefore since the Prescribing Guide does not aid or contribute to the 'professional project' and in fact distorts and destabilises it, the Prescribing Guide is, on this higher professional level, rejected. The diagram shows how such an influence can lead to 'knock-on' effects weakening relationships with the state and diminishes another important aspect of professionalism, 'trust' (Figure 22).
Pharmacists' experiences with the Prescribing Guide were distinctly more positive in nature as discussed in Section 8.2.1. A large proportion of pharmacists agreed with all statements presented to respondents in 'Question 5' of the self-completion questionnaires. For example, almost all pharmacists found the Prescribing Guide to be 'easily accessible' corroborating statements made in the interviews. Also pharmacists considered the Prescribing Guide to support evidence-based medicine and, similarly approximately 80% of pharmacists responding to QRE1 considered it to be 'patient-focused'.

Ultimately, the Prescribing Guide appears to support pharmacists' prescription interventions and retrospective checking of drug decisions. Where doctors would rely on their senior colleagues, pharmacists tend now to refer to the Prescribing Guide in the first instance before resorting to other sources of

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*Figure 22.* The impact of the Prescribing Guide on the medical profession's 'professional project' (adapted from Macdonald, 1995 p32).
information. Indeed, it could be argued that any 'impact' the Prescribing Guide has had on prescribing practices is through its use by pharmacists rather than other practitioners. However this is not to say that pharmacist participants did not identify faults with the Prescribing Guide. To the contrary, some pharmacists implied that the Prescribing Guide is 'incomplete' and requires more guidance and information for each drug listed (Themes 33-35).

Pharmacists portrayed in many instances a somewhat deflated and defeatist attitude to their role in medicines management – in which they described feeling increasingly marginalised and perceived their primary duties concerned with the physical 'supply' function rather than the more 'clinical' drug selection. Drawing on the findings of this study, for pharmacists to have the sort of impact that they aspire to, it would be reasonable to assume that they need to: (a) be aware of all local drug decisions and availabilities; (b) possess the confidence to approach prescribers (based on adequate drug knowledge) and challenge deviant prescribing; (c) maintain enough motivation and enthusiasm to routinely engage in drug therapy ‘at the point of drug selection’.

Using the ‘positioning tool’ introduced in Section 8.2.2, Figure 23, now shows how each category of participants can be represented. This diagram is based solely on the findings of the present study and discussions thus far. Each healthcare profession is portrayed by a corresponding shaded area. An 'ideal' characterisation of the Prescribing Guide is also depicted in the diagram (yellow) incorporating both the perspectives that the Prescribing Guide ‘improves autonomy’ and is ‘utilitarian’. It is particularly noteworthy to see that pharmacists and this ‘ideal' appear to overlap. Although the diagram is purely conceptual and based largely on subjective accounts made by participants, it is nevertheless grounds on which to build on to optimise both the hospital formulary ‘and' the pharmacy profession to which we now turn to.
8.4 Implications for pharmacy practice

8.4.1 The 'virtual dystopia' in which pharmacists operate

As Giddens (2009, page 788) states: "one of the major weaknesses of bureaucracy is the difficulty it has in addressing cases that need special treatment and consideration". This quote resonates with much of what doctors stated about the ability to 'handle uncertainty' and exercise judgement (Theme 61). The Prescribing Guide in such a context needs to avoid becoming what George Ritzer calls an "irrationality of rationality" (Giddens, 2009, page 782). Although the rationalisation observable in prescribing practices affects all associated stakeholders, from the findings in the present study it can be argued that it is evidently far more pervasive and penetrating in the work of pharmacists.
(through a ‘stepwise’ and structured approach to drug decision-making and a perceived disproportionate focus on ‘supply function’). In this ‘extreme’ sense, pharmacists operate in a ‘virtual dystopia’ characterised by continued subjugation, isolation and marginalisation from frontline patient care and are perceived to be conducting the work of bureaucrats.

Pharmacists risk ‘self-deprecating’ the content of their professional work through the over-reliance on such pre-structured support. The frustrations that pharmacists expressed about the apparent lack of pragmatism that plagues the pharmacy profession along with the negative perceptions that prescribers have expressed, one could argue there is now an apparent ‘dehumanising’ element to the pharmacy profession itself. The Prescribing Guide arguably works towards the fulfilment of administrative ends rather than accommodate underlying professional aspirations echoing Merton's concerns. According to such theorising, tools such as the Prescribing Guide essentially further ‘de-professionalise’ the pharmacy profession.

Mykhalovskiy and Weir (2004, page 1062) outline the 'humanist' stance which in one argument views evidence-based medicine as a form of rationalisation that is "done in the name of cost-cutting and efficiency". Even Sackett et al (1996, page 71) who constructed the original and widely quoted definition of the concept warned that "practice risks becoming tyrannised by evidence". There appears to be an apparent call for evidence-based medicine to maintain 'holism' and reject the progression towards the "fragmentation and reification" of the patient. In describing the relationship between the formal rationality of evidence-based medicine and the management of 'uncertainty' in practice, Timmermans and Angell (2001, page 342) describe the development of "evidence-based clinical judgement" – described by the authors as "a combination of evidence and clinical experience requiring epidemiological knowledge and interpersonal skills".

While the Prescribing Guide may have been relegated to a mere 'bureaucratic tool' or as May et al (2005, page 1022) describe, an example of "technogovernance", its future evolution may lie in embracing similarly 'humanising' strategies and incorporating such strategies into both the Prescribing Guide’s content and its underlying philosophical approach to
prescribing practices. Although, as defined in Section 4.3, the Prescribing Guide was designed to 'guide' not 'direct', it would appear that most doctors as well as notable voices within the pharmacy profession also view the Prescribing Guide as a 'control' measure.

Through analysis of the interpretations of study participants, the present research confirms the close alignment of pharmacists and hospital drug formularies. In relation to this ‘union’, the ‘overlap’ depicted in Figure 23 can, potentially, be exploited in order to serve continuing professional aspirations for the pharmacy profession as well as facilitate the formulary's underlying goals of ensuring prescribing is safe, clinically effective and cost-effective.

The Prescribing Guide (and hospital drug formularies in general) may benefit from attempting to alter the nature of 'bureaucracy' itself, essentially working towards a 'humanised-bureaucracy' or a 'profession-conscious-bureaucracy'. The recognition of the pharmacy 'profession' is crucial to this conceptualisation since the professions' liberation from excessive bureaucratic shackles could facilitate pharmacists' more complete clinical involvement in frontline care. It is ultimately an attempt to mobilise 'theoretical indeterminacy' which, as we have discussed previously pharmacists evidently possess despite the current lack of its 'practical' manifestation.

8.4.2 Proposing a new philosophical model for change

Oxman et al (1995, page 1427) notably stated that there are "no magic bullets' when attempting to improve professional practice. This has been confirmed in the present study. For example, the study involved the implementation of a number of relatively small-scale modifications based on recommendations and discussions from users and key stakeholders of the service. Little overall benefits materialised. The transition from the 'virtual dystopia' to a far more optimised working environment may in fact necessitate broader philosophical adaptations to the way pharmacy is practiced. Three mechanisms by which the formulary and the pharmacy profession can be more 'humanised' are outlined in a theoretical model below.
Firstly, the involvement of 'all' pharmacists (in the Pharmacy department) to contribute to the clinical content in the local hospital formulary is pivotal. In this way an unprecedented level of ownership in the formulary could be encouraged, exploiting the already 'closely bound' relationship between pharmacists and the formulary that has been presented in this study. Where we have seen doctors relying upon senior colleagues within their teams, pharmacists can utilise their colleagues' 'expertise' captured in the local formulary.

Secondly, the notion of 'personal formularies', introduced in Chapter 3 (Section 3.2.5), has a renewed relevance to the proposed model. By incorporating Robertson et al's (2001, page 333) definition of the personal formulary, the hospital drug formulary may be more accepted and its guidance adopted if it is "shaped by patients, colleagues and experience" symbolising a significantly 'humanised' framework by which to construct and understand formularies. Doctors in this study frequently stated that the Prescribing Guide was utilised in order to check only local availabilities yet continued to resist the underlying guidance offered, implying that doctors had in fact already made the drug selection by 'cognitively' accessing their own 'personal formularies'. Drawing from this, the hospital formulary can be constructed based on a compilation of pharmacists' 'experiences' with drug therapy in practice combined with critical appraisals of "the best available external clinical evidence from systematic research" (Sackett al, 1996, page 71). It is important to note that this approach to future formulary development, although rejecting excessive bureaucratic dehumanisation, ultimately accepts the reality of Weber's prediction, that is, rationalisation is ever more pervasive in all aspects and sectors of society.

This leads to the third factor. The pharmacy profession (to whom the formulary in this proposed model is now inextricably linked) needs to adopt a more confident, 'competitive' stance in order to establish its place in frontline care. It is proposed that a more optimised pharmacy profession in which 'practiced indeterminacy' is realised may reconfigure the formulary into providing more significant clinical contributions. Chapter 2 introduced ‘Game Theory’ as a rationale for an explicitly 'self-interested' approach to professional assertiveness particularly in 'conflict' scenarios (typically between pharmacists and doctors)
where the monopoly of drug-knowledge is contested ground. In summary, the most rational strategy for the pharmacist is to maintain a competitive stance in which they assert their profession's dominance and demonstrate ownership on the monopoly of drug-knowledge. In Section 2.3.3 it was noted that if the pharmacist chooses to unassertively mention a case of perceived 'deviant' prescribing, and the doctor instead asserts a more competitive defence of his/her drug decision (in Figure 2 this combination 'C,D'), according to Game Theory the pharmacist subsequently looses the 'game'. This is because the 'pay-off', that is 'monopoly of drug-knowledge' can be seen to 'belong' to the healthcare professional who 'fights' or 'competes' for it (Appendix 17). This particular pair of strategies is the worst possible scenario for the pharmacist and underpins the 'virtual dystopia' contributing to pharmacy's 'continued subjugation' and 'isolation' from frontline care (Statement 7).

8.4.3 The optimised ‘professional project’ for the pharmacy profession

In the light of a new philosophical union between the pharmacy profession and the local hospital drug formulary, the notion of a 'profession-conscious-bureaucracy' could support the enhancement of the profession. Figure 24 depicts a conceptual ‘professional project’ for the pharmacy profession in which the formulary is not regarded as a 'threat' to the monopoly of drug-knowledge (as in Figure 22, page 221) but instead it could become a significant component of pharmacists' practice. The model outlined calls for a genuine mix of: (a) 'abstraction' in the form of pharmacist-led 'practiced-indeterminacy', and; (b) 'concreteness' offered through justified rationalisation. Critically, the diagram depicts the immediate sequence of 'events' and relationships that are affected by such an optimised ‘professional project’. The Weberian concept of ‘social closure’ – for the pharmacy profession – is a more realistic scenario.

As we have seen, the state can act powerfully and in many ways covertly in order to realign professional priorities to help deliver a fiscal agenda consisting of targets and standards. Perhaps this has contributed to ‘continued subjugation’ of the pharmacy profession outlined Statement 8. Rather than have its monopoly on drug-knowledge ‘displaced’ or minimised by various threats, the
profession in fact may never have truly acquired it in the first place precisely because of government dictates. There is a case to lobby the government to liberate pharmacy from excessive bureaucratic demands and permit the introduction and exercise of judgement based on the specialist knowledge that pharmacists have obtained through training. Additionally, and now closely related, is the case for pharmacists to lead in the development of formularies in the 'humanised' manner described.

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**Figure 24.** The professional project for the pharmacy profession resulting from a new philosophical integration of future hospital drug formularies with the pharmacy profession (adapted from Macdonald, 1995 p32).
Chapter 9
Final recommendations and conclusions

9.1 Specific recommendations to improve the Prescribing Guide at East and North Hertfordshire NHS Trust

The underlying action research strategy employed by this study advocates outlining a new context-specific action-reflection-cycle (Figure 6, page 88) in order to ‘move in new directions’. The discussion has outlined only a conceptual model in which the pharmacy profession and future formulary projects may operate more effectively. It is acknowledged that such a paradigm can be achieved only through gradual, incremental change. Therefore recommendations that are more tangible and feasible for immediate application to the Prescribing Guide at East and North Hertfordshire NHS Trust are provided below. Changes will need to involve members of the Pharmacy department as well as to the Prescribing Guide itself.

Changes to the Pharmacy department:

Essentially these initiatives are all aimed at liberating pharmacists so that they can have a greater presence in frontline clinical care while ‘technical’ duties (involving repetitive codified tasks) are minimised, and where pharmacists can engage in more ‘professionally competitive’ activities.

- Reconfigure the Pharmacy department empowering technicians to perform supply-oriented (technical) duties on the ward level. Encourage more technicians to enrol on to Accredited Checking Technicians (ACT) programme freeing up pharmacists from 'checking' responsibilities in the dispensary. Greater interactions between senior and junior colleagues needs to be promoted particularly on the wards.

- Senior management (including the formulary team, Chief Pharmacist and Chief Executive) should work towards a renewed philosophical approach to formulary operation. The notions of 'humanised-bureaucracy' and 'practiced-indeterminacy' should be incorporated into this philosophy. At first this should involve re-examination of the concept of 'clinical
judgement' and establish a broad departmental understanding of how to approach clinical scenarios in which the 'formulary list' can be overridden. Regular training should be provided focusing on how to tackle 'deviant cases' in prescribing and to developing assertiveness and confidence in applying specialist knowledge when challenging prescribers.

Changes to the Prescribing Guide:

- Engage all (as many as possible) pharmacists in the clinical compilation of the Prescribing Guide. This will result in more pharmacists acquiring advanced critical appraisal skills thus facilitating the development of informed decision-makers who can exercise 'judgement' in clinical scenarios (practiced-indeterminacy).

- Prescribing Guide is currently lacking guidance for many drugs in each chapter. Therefore need a wide ranging campaign that allocates sections (or chapter) to 'groups' of pharmacists consisting of senior pharmacists to oversee inclusion of clinical content and, junior pharmacists who benefit from experience, knowledge and decision-making skills of the senior.

- Encourage the inclusion of guidance that does not merely 'hyperlink' to external information (such as NICE guidance or clinical trial data) or local guidelines but incorporates pharmacists' critical appraisals that outline the entire review process. This will serve to improve transparency as well as educate other pharmacists about sections of the Prescribing Guide that they have not been involved in.

- Need a more comprehensive training programme that clarifies the traffic light system to all pharmacists who are encouraged to provide similar education to doctors.
9.2 Future directions for formulary research

The results of this study suggest that neither the local hospital formulary nor pharmacists function optimally and are in fact the subject of negative perceptions and marginalisation. Although a conceptual model of practice has been outlined, further research needs to be carried out to investigate how such a model may be practically implemented. Studies should test for feasibility, particularly the reconfiguration of the Pharmacy department, as well as preliminary quantitative data showing potential impact of this model on drug selections and associated interventions. Additionally, since attitudes have been shown to constitute formidable restraining forces to the formulary’s complete realisation, future studies should investigate stakeholders’ attitudes to individual elements of the proposed model.

A somewhat controversial approach portrayed in the proposed model calls for a ‘competitive’ stance to be taken during all drug-related interactions with doctors. There is a call to embrace and demonstrate ownership over the monopoly of drug-knowledge. A qualitative study exploring a small group of pharmacists explicitly adopting such a stance could provide revealing insights about the consequences for the pharmacy profession. Since such a study would explore participants’ subjective accounts, it would benefit from a similar phenomenological approach taken in the present study to analyse the qualitative data produced.

In keeping with the action research method, the findings from this study are contextually specific but since information rich data has been produced readers can assess the degree of transferability themselves in order to apply aspects of the findings to their own practice settings. Having said this, the present study was carried out at a DGH where the resources needed for practitioners were limited contributing to various degrees of frustration. A repeat of this study in a larger teaching hospital or a Foundation Trust may reveal different insights. Bearing in mind the differences in the underlying infrastructure of support available between these two settings, it would be interesting to compare the attitudes and perceptions of users and key stakeholders towards a service such as the Prescribing Guide.
9.3 Final conclusions

This study has demonstrated the manner in which attitudes and perspectives held by users and key stakeholders towards local hospital drug formularies are critical to the influence formularies can have on prescribing practices. Furthermore it has been revealed that the 'structure' of these attitudes have clear sociological themes. Much of this sociology concerns 'professionalism' for which a significant body of work exists in the literature. However such concepts have not previously been applied to the multidisciplinary healthcare environment in order to specifically investigate formularies.

It has been shown that such underlying sociological constructs appear to operate on a deeper, subconscious level, one in which practitioners are often unable to articulate their existence directly. Instead, by applying a phenomenological analysis to the participants' accounts and 'lived experiences', such profession-oriented perspectives have been extracted.

The local formulary is regarded by many participants as a manifestation of excessive bureaucracy where its rationalised approach to drug therapy threatens the autonomy of prescribers. Sociologists have long established the view that bureaucracy may in fact be antithetical to professionalism. It is considered that for this reason doctors have expressed significant discomfort with the Prescribing Guide.

Larson's 'professional project' has been in many ways pivotal in understanding the overarching professional goal of 'social closure' and the centrality of professions claiming a monopoly on specialist knowledge. Along these lines, this study has demonstrated that the monopoly on 'drug-knowledge' is particularly contested ground. Both pharmacists and doctors have a claim to this important aspect of patient care. The findings from this study support the view that the pharmacy profession should assert a renewed and more determined claim on this monopoly.

Pharmacists at the Trust are currently thwarted in their attempts at laying claim to such a monopoly. Their daily work is instead seen to comprise perpetual routinisation and codification. Pharmacists have expressed accounts of frustration due to perceived excessive supply-oriented roles. In addition,
prescribers (as well as some pharmacists themselves) have described the advice and guidance provided by pharmacists to lack pragmatism. Pharmacists have been deemed primarily cost-motivated, in effect constituting passive enforcers of rationalised, pre-structured guidelines and policies.

This study has shown that rationalisation adversely affects the pharmacy profession to a far greater extent than the medical profession. The sheer volume of ‘technicality’, along with minimalistic exercise of clinical judgement or ‘indeterminacy’ potentially reduces the pharmacy profession to the status of mere ‘occupation’. While pharmacists ‘do’ possess specialist knowledge, acquired through an extensive university degree programme and a postgraduate training period, ‘practiced-indeterminacy’ is rarely seen. This study recommends a radical change to the way pharmacy is practiced including a significant embrace of the monopoly on drug-knowledge.

The proposed model defines a unique conceptual integration of the local hospital drug formulary with the Pharmacy department. Measures to adopt a more ‘humanised-bureaucracy’ in which clinical judgements are permitted are crucial to this model. In addition the liberation of pharmacists from supply-oriented roles must now be a key priority if the profession and the formulary are to operate more optimally. Furthermore, the proposed model also advocates a greater ‘competitive’ stance in all drug-related interactions with doctors, involving a concerted effort to assert ownership over the monopoly of drug-knowledge. Perhaps in the spirit of collaborative, interprofessional working, ‘both’ doctors and pharmacists should possess such a monopoly on drug-knowledge, however individual professional groups inherently strive for ‘social closure’ and it is in such ‘functionalist' modes that they perceive themselves to do well for patient care.

As a ‘true’ profession, pharmacy has a lot to contribute to patient care. However as a mere ‘agent of bureaucracy’ where it would justifiably be only an ‘occupation' it will have little impact on clinical care but may continue to rationalise drug therapy with cost-minimisation remaining a foremost priority.
REFERENCES


BMA. (2012). *About the BMA.* [Accessed 23/02/2012].


Charlton BG. (2006). Lectures are such an effective teaching method because they exploit evolved human psychology to improve learning. Medical Hypotheses. 67:1261-1265.


DH. (2010). Empowering nurses to make a difference.


Medical Sales. (2005). *Formularies not always the key*. 


NICE. (2012). *Key therapeutic topics – Medicines management options for local implementation*. London. NICE.


http://www.psnc.org.uk/pages/murs_the_basics.html [Accessed 05/01/2012].

http://www.pulsetoday.co.uk/particle-content/-/article_display_list/12270627/focus-on-prescribing [Accessed 01/08/2011].


Tugwell C. (2000). Taking pharmacy services to a new level with the intranet. Hospital Pharmacist. 7: 158-162.


APPENDICES
# APPENDIX 1  \textbf{PRELIMINARY EXPLORATION OF CURRENT APPROACHES TO FORMULARY DEVELOPMENT}

<table>
<thead>
<tr>
<th>Site</th>
<th>Type</th>
<th>Formulary</th>
<th>Description of formulary development</th>
<th>Feedback</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A †</td>
<td>DGH</td>
<td>PDF on Intranet</td>
<td>Preferred-list of drugs categorised according to BNF structure; restricted drugs; prices included; no EBM guidance; FP contacted consultants from each therapeutic area for opinions; 2 years to complete; newsletter produced monthly (if possible) with updates</td>
<td>“restricted” / “reassured” / positive feedback from those involved in development</td>
<td>No formal research conducted</td>
</tr>
<tr>
<td>Hospital B</td>
<td>DGH</td>
<td>Web-enabled BNF</td>
<td>Joint formulary in agreement with PCTs, GPs and hospital consultants / £10,000 cost / outsourced production to RPSGB / can be customised to local use e.g. monitor non-formulary drug usage and adding new chapters / newsletter to regularly promote formulary / head of each section periodically attends DTC</td>
<td>“quite limited” / “only one document per drug link” / feedback given via PCTs</td>
<td>Hit counters indicate main users are pharmacists for screening</td>
</tr>
<tr>
<td>Hospital C</td>
<td>DGH</td>
<td>Web-based</td>
<td>Preferred-list of drugs categorised according to BNF structure / coloured coded to indicate restriction status / IT department assisted in development of web-based version / non PDF version available</td>
<td>“Supports our pharmacists, but not too sure about doctors”</td>
<td>No formal research conducted</td>
</tr>
<tr>
<td>Hospital D †</td>
<td>Large teaching</td>
<td>Web-based</td>
<td>Highly interactive, algorithms-based formulary / through series of questions the user is assisted in making a clinical decision / belief that prescribers require guidance rather than simply having restrictions imposed / each drug hyperlinked to corresponding page on Internet BNF / 18 months to put together / FP had special interest in IT and designed web site without help / specialist pharmacists (working with consultants) were allocated sections who developed algorithms and associated prescribing guidance / monthly Pharmacy Bulletin for updates</td>
<td>“Only positive feedback has been received”</td>
<td>Hit counters and small-scale surveys to understand usage</td>
</tr>
<tr>
<td>Hospital E</td>
<td>Large teaching</td>
<td>PDF on Intranet</td>
<td>Joint formulary for Leicestershire / previously available in a ring binder but now been made available as PDF electronically to reduce cost of production / aimed at junior doctors and specialists (outside of their field of expertise) / all drugs categorised according to BNF structure / desire to move away from list-based design to inclusion of EBM</td>
<td>“GP’s use most frequently” / generally positive reviews from hospital doctors / maintaining cost information is difficult</td>
<td>Small-scale surveys (conducted by preregistration pharmacists) assess extent of adherence</td>
</tr>
<tr>
<td>Hospital F</td>
<td>Large teaching</td>
<td>PDF on Intranet</td>
<td>Joint formulary / preferred-list of drugs with colours and shapes to represent restrictions / some algorithms and prescribing guidance / each section was reviewed and finalised through meetings with senior pharmacists and consultants and GPs with a special interest / all sections were approved by ADTC / recently introduced a GP-only “eFormulary” in which inputting a diagnosis leads to formulary choices / monthly ADTC bulletin with updates</td>
<td>“Acceptance has been very good because its development has included widespread stakeholder consultation throughout”</td>
<td>Compliance routinely monitored in primary care by hospital pharmacists</td>
</tr>
<tr>
<td>Hospital G</td>
<td>Large teaching</td>
<td>Web-based</td>
<td>Joint formulary / preferred-list with prescribing guidance statements / structure based on BNF / drafts for each section originally prepared by FP, then discussed with Working Groups (WG) consisting of specialist pharmacist and consultant doctors and GPs / Working Groups reconvene in the light of new evidence or when revision is due /</td>
<td>“Very good acceptance across both primary and secondary” attributed to multidisciplinary approach in development</td>
<td>Audits measuring adherence. Improvements reported.</td>
</tr>
<tr>
<td>Hospital H</td>
<td>FT</td>
<td>PDF on Intranet</td>
<td>Joint formulary / £0.5 million grant for formulary development and medicines management / “new approved prescribing list” / aim was to simplify the formulary, previously operated a paper-based formulary consisting of numerous guidelines and algorithms to assist decision making / 3000 paper-based copies printed as well / “subcommittees” for each section and specialty / senior pharmacists heavily involved / traffic light system of availability / 3 page newsletter published every three months with updates</td>
<td>“Initial shock because no guidelines, initially detrimental, but problem with old one was there was so many things to continuously revise it was not feasible in the long run”</td>
<td>No formal research carried out but audits will be carried in near future to streamline the service</td>
</tr>
</tbody>
</table>

ADTC = Area Drug and Therapeutics Committee  
BNF = British National Formulary  
DGH = District General Hospital  
DTG = Drug and Therapeutics Committee  
EBM = Evidence-based medicine  
FP = Formulary Pharmacist  
FT = NHS Foundation Trust  
GP = General Practitioner  
PDF = Portable Document Format  
RPSGB = Royal Pharmaceutical Society of Great Britain  
† = Site visits arranged
APPENDIX 2

USER GUIDE (LEAFLET) DESIGNED FOR PHASE II OF PRESCRIBING GUIDE

How to use the Prescribing Guide

NOW available on the Trust Intranet

This leaflet provides an overview of the main functions of the Prescribing Guide with simple instructions for use.

Key benefits of the Prescribing Guide

- Instant access to eBNF
- Links to Trust Guidelines
- Evidence-based guidance
- NDF decisions for new drugs
- Links to NICE guidance, NPSA alerts, MHRA / CSM warnings
- Drug Traffic Light System
- Health Topics section

How is the Prescribing Guide structured?

The structure as seen in the British National Formulary (BNF) has been adopted owing to its widely accepted and familiar style. You will see the same 15 chapters with all the same subcategories.

- 1. Drugs by BNF Chapter
  - Index
  - Gastro-intestinal system
  - Cardiovascular system
  - Respiratory system
  - Central Nervous System
  - Infectious
  - Endocrine system
  - Obstetrics, gynaecology and urinary tract disorders
  - Metabolic disorders and immunosuppression
  - Ophthalmics
  - Skin
  - Musculoskeletal and joint diseases
  - Ears
  - Eye, nose, and throat
  - Skin
  - Immunological products and vaccines
  - Anaesthetics

Each chapter will house all its drugs on a single web page. Simply click on a subcategory in the Chapter content box or scroll down to view drugs in a chapter.
What is the Traffic Light System?

Each drug has been allocated a traffic light to reflect the level of availability or restriction:

- **Restricted use** (e.g., for specific indications or specific consultants as outlined by the New Drugs & Formulary (NDF) Committee, high cost, special cautions etc.)
- **Second-line** (i.e., alternative agents for cases in which first-line drugs have failed or are contra-indicated)
- **First-line** (these drugs can be prescribed without any specific restrictions)

Prescribers should exercise greater caution when prescribing *amber or red* drugs.

What are Guidance buttons?

See example below:

- **Consultant**
- **Pharmacist**
- **Health Topics**

Click on these buttons to reveal evidence-based prescribing guidance developed by a consultant or pharmacist. The guidance will be presented in the following format:

**Summary Statement, Background and Reference** (see below).

These buttons will link you to the Health Topic in which your drug appears (see below).

How do I use the Health Topics section?

This section has been designed to group together formulary approved drugs for specific conditions or disease, also known as Health Topics.

See example overleaf.
1. Click on the Health Topics link from the homepage (or from the top of any chapter)
2. Click on a Health Topic e.g. Heart failure
3. You then arrive to the ‘Heart Failure Health Topic’ web page. Here you will find local / national guidance (guidelines, algorithms etc.) as well as all formulary approved drugs commonly used for this condition.

Click on any drug to link to the chapter in which it appears where you will find its designated traffic light, a link to the BNF and possibly a Consultant or Pharmacist button for more guidance.

---

**How do I search for drugs?**

To search for a drug, there are three methods:

1. **Use Quick Index bar** (this is present on every page)
2. **Use Health Topics**
3. **Use Chapters** (if you are familiar with BNF structuring)

When you see this icon, read the text beside it. It is designed to help you navigate more efficiently.

**How can I give feedback?**

- We welcome any feedback or recommendations to help improve this service
- Contact Sandeep Bagga (Senior Pharmacist – Formulary)
  - Email: sandeep.bagga@ehs.net
  - Extension: 4796 (Listing)
  - Bleep: 1477

---

**WHERE TO FIND THE PRESCRIBING GUIDE**

The Prescribing Guide is accessible via the Trust Intranet. From the Intranet’s homepage click on Old Intranet, then click on Quiet Links, then Prescribing Guide.

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PRESENTATION SLIDES FOR TEACHING SESSION ACCOMPANYING THE LAUNCH OF PHASE II OF THE PRESCRIBING GUIDE (JANUARY 2009)

East & North Hertfordshire NHS Trust
Prescribing Guide
Launch of Phase II
January 2009

Sandeep Bagga
Senior Pharmacist - Formulary

Contents
1. Background
2. Definition
3. Development
4. Traffic light system
5. Clinical content
6. Drivers & barriers to change
7. Implementation
8. Where to find it?
9. Key features and benefits
10. Demonstration
11. Q & A
In 2007, medicines issued in hospital represented 25.7% of the total cost of medicines, which was £11.2 billion

- Cost of drugs used in hospitals rose by 12%
- Cost of drugs used in primary care rose by 2.1%
- Cost of drugs prescribed in hospital but dispensed in community rose by 4.6%

**↑ DRUG COSTS  ↑ DRUG PRESCRIBING**

† The Information Centre. Hospital Prescribing, 2007: England (NHS)

"Hospital pharmacists are responsible for ensuring medicines are used **safely, effectively and economically**..."

"In hospital pharmacy, best practice is characterised by optimal use of **skill mix, information technology**, enabling pharmacists to devote the **bulk of their time to direct patient care**..."

"...active engagement with improving patient **safety**, the implementation of **clinical guidelines** and **NICE** guidance, and managing the **economics** of hospital prescribing..."

† A Vision for Pharmacy In the New NHS (2003) Department of Health
Formulary –
is a continually revised compilation of the drugs of choice, specifically chosen after careful evaluation of safety, efficacy, and cost effectiveness, serving as a prescribing tool to rationalise drug therapy in clinical practice

MISCONCEPTIONS...

- Too restrictive
- Only about cost
- Widespread use equals drugs of choice!
- Interferes with clinical freedom
- The specialist knows best!

‘Prescribing Guide’

Prescribing Guide’s basic objectives:

1. Specify drugs of choice [OPEN]
2. Include and identify clearly 2nd line agents
3. Minimise therapeutic duplication [RESTRICTIVE]
4. Maximise cost effectiveness without compromising patient care
**Phase I – Basic structure**

- List of approved drugs
- Design and structure
- Traffic lights system
- Links to electronic BNF

**Phase II – Adding the guidance**

- Developing each chapter further – justifying traffic lights
- Identifying guidance available
  - Trust Guidelines, NICE, NPSA, SPCs, NDF Committee etc.
- Consultant buttons, Pharmacist buttons
- Health Topics

---

**Think ‘NDF’ – what was approved?**

- On formulary! But – NDF had approved *with* restrictions e.g. to be used by specific consultants or specific indications (or high cost drugs, or unlicensed etc)

- On formulary – 2nd line / alternative to the approved 1st line agent e.g. side effects, contra-indications

- On formulary – accepted 1st line. NDF had accepted this on to the formulary for its licensed indication and has no ‘restrictions’
- eBNF
- Evidence-based guidance (clinical trials)
- Trust Guidelines
- NICE guidance
- SIGN Guidelines
- Summary of Product Characteristics (SPC)
- Clinical Knowledge Summaries
- NPC / MeReC guidance
- NDF Committee decisions
- IV Medusa Guide
- Guidance from specialist organisations (European Glaucoma Society, British Society of Gastroenterologists)
- NPSA
- Cost bars

-- Driving forces --

- Government standards
- ‘Dissatisfaction’
- Pharmacists expertise
- IT support
- Extensive marketing & promotion
- Those who consider it as externally-generated change

-- Restraining forces --

- Resistance from doctors (‘misconceptions’?)
- Skilled workforce
- Time
- Budget
- ‘Drug reps’
- Those who consider it as internally-generated change

**Equilibrium**

Triggers for change
- Articles
  - Trust Bulletin (regular)
  - Grapevine
- Posters & Leaflets
  - Wards, corridors, lifts, doctor’s mess!
  - Computer monitors
- Desktop icons on ward computers
  - Let nurses & doctors know
- Trust Screensavers
- ‘Word-of-mouth’
  - Approach ALL doctors
- Presentations
- Identify ‘champions’
Where to find it?

Welcome to the Prescribing Guide

Please click on the icon below to access the Prescribing Guide

For any queries or problems using the Prescribing Guide, please contact Sandeep Bagga on LBB's Ext 1507 or e-mail: sandeep.bagga@bbh.nhs.uk

To create a second copy on your computer, which opens the Prescribing Guide directly, please click here.

Click to exit.
1. Gastro-intestinal system

1.1 Dyspepsia and gastro-oesophageal reflux disease

Guidance

2.9 Antiplatelet drugs

2.10 Myocardial infarction and fibrinolysis
Guidance (cont.)
NDF Committee decisions
Evidence-based guidance with links to reference used
Index bar

Summary Statement
NICE guidance recommends the use of abciximab as an
adjunct to PCI for all patients undergoing complex
procedures.

Abciximab

NICE guidance recommends the use of abciximab as an
adjunct to PCI for all patients undergoing complex
procedures.

Background
It is recommended that a Ca(II) channel blocker (diltiazem)
should be used as an adjunct to PCI for all patients
undergoing complex PCI, and that for patients undergoing
simple PCI and those who have previously undergone PCI,
human calcitonin should be used.

Reference
NICE guidance on the use of abacavir in HIV infection in the
treatment of newly symptomatic antiretroviral therapy.

Health Topics
Allows user to search by clinical condition or 'Health Topic'

Health Topics
Central Nervous System
Cardiovascular System
Respiratory System
Infections
Musculoskeletal & Joint Diseases
Skin Disorders
Gastro-intestinal System
Endocrine System
Obstetrics & Gynaecology
Eye Disorders
Ear, Nose & Oropharynx
Renal and Urology Disorders
Microbiological

Sandeep Bagga | Doctor of Pharmacy Practice 2012
## APPENDIX 3  SUMMARY OF LITERATURE REVIEW

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Location</th>
<th>Literature type / study design</th>
<th>Discussion / Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen and Harkins, 2005</td>
<td>Too much guidance?</td>
<td>UK</td>
<td>Letter to Lancet with results of a survey of one acute medical take in a hospital</td>
<td>Complains 'critical mass' of guidelines may be reached where sheer volume of documents produced will make it impossible for them all to be applied or even read properly. If this was the case, then guidelines will cease to be of any use to clinicians. Survey revealed: in an acute medical take in hospital, doctors saw 18 patients with a total of 44 diagnoses. Guidelines that the on-call doctor should have read, remembered and applied correctly for those conditions came to 3679 pages (incl NICE, Royal Colleges and major societies). Takes 2 minutes to read each page, physician on-call will have to spend 122 hours reading to keep abreast of guidelines. The PLURALITY of advice is unhelpful and can lead to confusion.</td>
</tr>
<tr>
<td>ASHP, 2000</td>
<td>Principles of a Sound Drug Formulary System</td>
<td>US</td>
<td>ASHP 'Endorsed Document' - outlines principles that have been endorsed by a number of organisations that have a stake in medicines management in the US</td>
<td>Primary goal of the coalition (Academy of Managed Care Pharmacy; American Society of Health-System Pharmacists; Dept of veterans Affairs; US Pharmacopeia; National Business Coalition on Health) was to provide a greater understanding to people about 'formularies'. These parties defined as having a stake in designing a formulary system that ensures patients have access to &quot;rational, clinically appropriate and cost-effective therapy&quot;. Lists set of principles for organisations to adapt and adopt which concerns the US drug benefit plans. 'Drug formulary' defined as &quot;a continually updated list of medications and related information, representing the clinical judgement of physicians, pharmacists and other experts in the diagnosis and / or treatment of disease and promotion of health.&quot;</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Study Title / Description</td>
<td>Country</td>
<td>Study Type / Methodology</td>
<td>Research Findings / Summary</td>
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<td>Armstrong et al, 1996</td>
<td>A study of general practitioners' reasons for changing their prescribing behaviour</td>
<td>UK</td>
<td>Qualitative analysis of semi-structured interviews. 18 GPs in South East London interviewed. Objective: to explore GPs' reasons for changes in their prescribing behaviour.</td>
<td>Research strategy was to define the nature of the problem before starting to evaluate solutions. Instead of a hypothesis-testing experimental design, this approach required hypothesis-generating qualitative methods; allowed clinicians' own understandings and explanations of their changes in clinical behaviour to become the focus of the research. 18 GPs took part and interviewed by trained interviewers. Three models of change were identified: accumulation model, in which volume and authority of evidence were important; challenge model, in which behaviour change followed a dramatic or conflictual clinical event - rather than a slow accumulation of cues, here it was the very lack of preparedness that caused the rapid reassessment of prescribing policy; continuity model in which change took place against a background of willingness to change. Behaviour change was reinforced and sustained by experiences with individual patients. Multiple factors are involved in GPs decisions to change their prescribing habits. Three models for change can be identified which have important implications for the design and evaluation of interventions aimed at behaviour change.</td>
</tr>
<tr>
<td>ASHP, 1978</td>
<td>ASHP Guidelines for Hospital Formularies</td>
<td>US</td>
<td>Guidance document for formulary operation (working definition, format, content etc.) outlined</td>
<td>Guidelines on the following: formulary content and organisation (drug lists approved by PTC, basic therapeutic information, hospital policies, extra supporting information); format and appearance; distribution; how to keep the formulary current. Largely outdated advice because concerns 'printed' formats. The definition of a formulary (provided as &quot;primary objectives&quot;) they provide is partially relevant to today.</td>
</tr>
<tr>
<td>Barber, 2004</td>
<td>Designing information technology to support prescribing decision making</td>
<td>UK</td>
<td>Discussion paper</td>
<td>The IT system should slot into (be congruent with) a wider vision of 'good prescribing' not conflict with it. Good prescribing - what the patient wants; the technical / rationale (area of scientific measurement of the drug); the greater good (encourages some consideration of societal good - i.e. cost reduction e.g. generic substitutions / use of a formulary). Barber also outlines what is meant by 'decision support' - widest possible conception of the term i.e. anything which stops bad decisions being enacted or improves the quality of decisions. Provides useful definition and discussion regarding 'prescribing decision support systems' i.e. target high risk and patients first; work to a patient focus; make it so doctors want to use it etc.</td>
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<tr>
<td>Author(s)</td>
<td>Title and Summary</td>
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<td>Bochner et al, 1996</td>
<td>Discusses the issue of rationing and scarcity and the increasing demands / pressures within healthcare environments - Australian perspective but relevant to UK debate. Highlights that &quot;therapeutic substitution&quot; (defined as dispensing of a particular drug entity in place of a therapeutically similar, but chemically different drug product) could be as contentious an issue as embracing the notion of rationing. Also discusses the role of the DTC and formulary in managing scarcity and rationing. Presents (briefly) guidelines on formulary operation and highlights the formulary process can be more 'educational' rather than concerned with 'regulation'.</td>
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<tr>
<td>Brown et al, 1999</td>
<td>Survey tool designed and mailed to all medical (non-surgical) doctors and clinical pharmacy staff at two university teaching hospitals. Two clinical scenarios were presented to which responses were collate. Scenario 1: greatest weighting given to: efficacy, compliance, tolerability, adverse effects then cost and duration of therapy. Scenario 2: efficacy, illness severity, drug familiarity and guideline concordance, then cost. Frequency of administration was considered less important to prescribers. Therefore prescribing patterns appeared to follow expected patterns (e.g. efficacy more important than costs).</td>
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<td>Cribb and Barber, 1997</td>
<td>Looks at the kind of criteria that are relevant to evaluating prescribing. Outlines the components of 'good prescribing' - (1) the right technical properties; (2) what the patient wants; (3) the greater good. As a consequence of the above three, the authors define the debate around 'good prescribing' to do with technical expertise, professional ethics and health philosophy / policy and highlights the significant degree of overlap between the three.</td>
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<tr>
<td>Crowe, 2002</td>
<td>Primary Care Organisation developing joint formularies to rationalise prescribing at primary / secondary care interface but also to lower costs. Interface Prescribing Group (IPG) was set up to help develop the joint formulary. Draft chapters circulated to GPs for comments. Editorial committee set up. A5 ring binder format made available to all GPs. Electronic version developed for local hospital intranet. The ability to be able to liaise across primary and secondary was considered to be particularly valuable.</td>
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<tr>
<td>Cutts and LaCaze, 2003</td>
<td>Academic detailing outlined as the method of education that uses the principles of 'social marketing' to engage a doctor in a one-to-one discussion. Evidence based exists supporting the impact of academic detailing on behavioural change esp. prescribing behaviour. Article shows that pharmaceutical industry are thinking about employing sophisticated ('evidence based') strategies to impact on prescribing behaviour.</td>
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<tr>
<td>Author(s)</td>
<td>Title</td>
<td>Location</td>
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<tr>
<td>Denig and Haaijer-Ruskamp, 1992</td>
<td>Therapeutic decision making of physicians</td>
<td>Netherlands</td>
<td>Literature review</td>
<td>Literature review of 'therapeutic decision-making of physicians' - Netherlands. Drug choice process = two steps: (1) generation of a small set of possible treatment options - an 'evoked set'; (2) selection of a specific therapy for an individual patient from this evoked set. The evoked set may only 'contain' one treatment option for a condition so the choice process is then reduced to one step which can be taken without further active thinking. A therapy unknown / unfamiliar to the physician will not belong to his / her evoked set. As obvious implications for local formulary adoption / adherence.</td>
</tr>
<tr>
<td>DeVito and John, 1985</td>
<td>Effect of Formulary Restriction of Cefotaxime Usage</td>
<td>US</td>
<td>Intervention study</td>
<td>Cefotaxime first assigned to open formulary then placed on formulary restriction. Postrestriction use of cefotaxime increased. Cefotaxime was prescribed appropriately in 85% of cases during both periods. Findings showed that 'appropriateness of use' was independent of formulary restriction.</td>
</tr>
<tr>
<td>DH, 2003</td>
<td>Medicines Management in NHS Trusts: hospital medicines management framework</td>
<td>UK</td>
<td>Official government publication</td>
<td>Rosie Winterton (Minister of State) launched the 2nd wave of the Medicines Management Framework (MMF) - focus on clinical and cost-effective use of medicines in secondary care. (1st wave of MMF gave trusts opportunity to review their MM systems and put remedial action plans in place). Standard 1 (S1) - Chief Executive responsible for provision of regular / updated assurances of strategic plan for MM; S4 - DTC has multidisciplinary input (outlines compulsory members); S8 - a pharmacist should be identified for and integrated into each local clinical structure (directorate) to lead on MM; responsibilities should include the production of at least quarterly financial reports at directorate, speciality and consultant level; S9 prescribers and pharmacists should work together to ensure effective horizon scanning / identify future cost pressures; S10 - Chief Executive and Chief Pharmacist consider business cases for automated dispensing and upgrading of legacy computer systems to ensure integration with electronic patient records; S11 - CE through CP should ensure adequate formulary management stems are in place. Formularies should not be lists of drugs stocked but working documents incorporating national and locally agreed prescribing policies and guidelines. Where possible, formulary systems should be developed to promote therapeutic consistency across the local health economy; S29 (re. 'Influencing Prescribers') - IT solutions including 'decision support' should be sought where possible to provide all healthcare staff with timely and accurate information on the use of medicines.</td>
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<tr>
<td>Duerden and Walley, 1999</td>
<td>Prescribing at the Interface Between Primary and Secondary Care in the UK - Towards Joint Formularies</td>
<td>UK</td>
<td>Discussion paper</td>
<td>Managing prescribing between primary and secondary care in UK arise from separate budgetary arrangements. Joint formularies argued as approach to improving overall care and raising awareness of the need to consider overall costs within a unified NHS. Written in 1999 - paper acknowledges that local decisions around availability and use of drug therapies will increasingly be superseded by national decisions emanating from 'newly formed' NICE. Duerden and Walley defined formulary as restricted lists of medicines to which prescribers are encouraged or 'required' to adhere - this is then handed down to junior doctors as a &quot;managerial tool&quot;. &quot;In practice, doctors work to a formulary i.e. a list of 'favoured medicines' whether it is written down or not - perhaps developed as a matter of habit without clear rational thought. the problem is that drs have difficulty working with a jointly defined list of drugs.&quot;</td>
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<tr>
<td>Reference</td>
<td>Description</td>
<td>Country</td>
<td>Study Type</td>
<td>Summary</td>
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<tr>
<td>FAME, 2005</td>
<td>The FAME Manual, 2005 - Working towards efficient management systems in primary and secondary care</td>
<td>UK</td>
<td>Summarised guidance from national forum for Formulary Pharmacists and Medicines Information Pharmacists</td>
<td>Topics discussed: prescribing issues; the wider NHS environment; survey of formulary personnel (what is expected of a Formulary Pharmacist etc.); nature and function of a formulary; operational issues; professional and personal skills; evidence-based decision-making and critical appraisal; health economics.</td>
</tr>
<tr>
<td>Feely et al, 1990</td>
<td>Hospital formularies: need for continuous intervention</td>
<td>Republic of Ireland</td>
<td>Intervention study</td>
<td>Study to investigation the effects of introducing a new hospital formulary (1) alone and (2) another with 'active intervention' (feedback on prescribing habits; peer comparison; and information on drugs). In intervention group, generic prescribing rose by 50%; inappropriate prescribing and overall use of 3rd generation cephalosporins fell; compliance with recommended list of drugs was good. Drug costs fell (compared to projected). During the next year, when no intervention took place, previous gains were eroded and drug costs rose.</td>
</tr>
<tr>
<td>Fitzpatrick et al, 2001</td>
<td>A comprehensive system for managing medicines in secondary care</td>
<td>UK</td>
<td>Broad spectrum article</td>
<td>Paper describes a 'comprehensive' medicines management system set up to improve prescribing practice. In 1991 after the hospital became a trust, the drug budget was devolved to clinical directorates and expenditure on medicines became part of each directorate's budget reporting system. Trust management hoped that devolving the budget to directorates would encourage ownership of the issue and lead to more cost-effective prescribing. Four key components of 'comprehensive' strategy = (1) Managed entry of new drugs; (2) Pharmaceutical advice i.e. pharmacists were now interacting at ward level with doctors and nurses to promote safe and ration prescribing however ward pharmacists did not see cost-related interventions as part of their remit; (3) effective purchasing; (4) Close managerial attention based on improved information. The paper claims that as a result of this raft of measures it has been possible to control prescribing costs within the trust without compromising quality.</td>
</tr>
<tr>
<td>Author</td>
<td>Title</td>
<td>Country</td>
<td>Type</td>
<td>Summary</td>
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<tr>
<td>Furniss, 2000</td>
<td>Formularies in primary care</td>
<td>UK</td>
<td>Broad spectrum article</td>
<td>Important statistic: 40% of primary care prescribing may be influenced by secondary care. Outlines that the evidence that quality of prescribing improves after the introduction of a formulary is limited but there are a number of studies that show cost savings. Formulary has traditionally been a way of attempting to rationalise the large number of drugs available and to help control costs. Discusses advantages and disadvantages of formularies. Pharmacist is ideally placed to coordinate development of a local formulary. &quot;Rationalisation of drug choices may enable disinvestment in one therapeutic area so that resources may be deployed in another.&quot;</td>
</tr>
<tr>
<td>Goodwin, 2003</td>
<td>Impact of Formularies on Clinical Innovation</td>
<td>US</td>
<td>Discussion paper</td>
<td>Argues that the initial step in the development of a new area in psychopharmacology has historically relied in large part on individual clinicians who pursued unconventional methods of treatment. When a set of guidelines such as a formulary (&quot;a list of drugs eligible for reimbursement compiled by a managed care organisation&quot;) becomes restrictive it decreases clinician innovation. Restricted formularies are based on a naive interpretation of therapeutic equivalence may slow the advance of medical science without even achieving the only goal that could possible justify such restrictions - cost-control (points to cases in mental health where 'managed care' systems e.g. formulary have been penny-wise but pound foolish). If innovation is to flourish, formularies must be flexible and advisory not restrictive.</td>
</tr>
<tr>
<td>Gosalakkal</td>
<td>Hospital formularies restrict evidence based practice</td>
<td>UK</td>
<td>Letter</td>
<td>Argues drug approvals are often based on budgets rather than deeper consideration for individual patient needs particularly in obscure specialist areas.</td>
</tr>
<tr>
<td>Authors</td>
<td>Title</td>
<td>Country</td>
<td>Methodology</td>
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<td>Greenfield et al, 2005</td>
<td>Factors influencing clinicians' decisions to prescribe medication to prevent coronary heart disease</td>
<td>UK</td>
<td>Quantitative study of clinicians responses to postal questionnaire</td>
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Used free-text sections of a postal questionnaire to identify what level of pretreatment risk clinicians would offer treatment. Clinicians' concerns centred on 5 key themes: the risks and benefits of treatment; the patient's role in treatment decisions; patient characteristics; costs to patients; costs to the health service. Concludes by saying: In addition to the use of risk assessment tools and guidelines, clinicians' actual prescribing behaviour may be influenced by more subjective factors. Advises there are also inter-professional variations. It is therefore important to identify and understand the influences and constraints which affect clinicians' recommendations. This study does not attribute 'professional' attitudes or a professional dimension to reflections on results but does point out the subjectivity of medical decision-making.

| Groves et al, 2002 | Why physicians start or stop prescribing a drug: Literature review and formulary implications | US | Literature review |

Drug 'product life cycle' - affected by factors that influence the diffusion of a new drug into medical practice and its rate of adoption / relinquishment by individual physicians. These influences have 4 categories: (1) perceived attributes of new drug innovations; (2) communication channels; (3) nature of the social system; (4) physician characteristics. This was a literature search identifying studies that have assessed these factors' influence on diffusion, adoption and relinquishment. Discusses how these studies can help formulary 'managers' better align prescribing behaviour with their formulary objectives. Outline the evoked set (or 'therapeutic armamentarium'). Discusses how knowledge of the evoked set and how it is accessed and what influences it can be exploited in order to achieve formulary objectives i.e. the adoption of formulary-approved drugs. E.g. "opinion leaders can be targeted to start the diffusion process, since they can help to create the local consensus that may be needed for acceptance...formulary managers should regularly meet with these individuals." Explains how pharmaceutical industry's strategy has generally been to try to incorporate a drug into the evoked set at an early stage in its life cycle, attain top-of-mind physician awareness, and ultimately maintain the product's first-choice status within the group of therapies to which physician regularly refers.
The best medicine. The management of medicines in acute and specialist trusts  

Formulary = preferred lists of medicines - contains medicines that the trust has identified as being necessary to meet the clinical needs of its patients. This contains medicines that the trust has identified as being necessary to meet the clinical needs of the patients. The trust builds up a knowledge-base of medicines in its formulary and where possible negotiates competitive prices for them. 173 trusts review - 152 had a formulary - 86 paper formulary (updated every 14 months) 111 trusts store in electronic format (updated every 5 months). Diagnosis-based guidance which supports the selection of medicines (i.e. clinical guidelines that link to the formulary) should drive best practice in prescribing and it is important that trusts’ guidelines support effective prescribing. It is important that those who prescribe comply with the formulary. The more medicines the formulary contains the easier it is to comply with but the benefits in terms of budget control and consistent clinical care lessen.

Aim was to determine the utilisation and perceived value of formularies amongst 104 non-consultant hospital doctors (NCHD). BNF (formulary) investigated. Structured interviews carried out over a 3 month period. 58% NCHDs carried the formulary. After distribution of ‘free’ BNFs, significant improvements in quality of prescribing occurred in surgical wards albeit, shortlived benefits.

Definition of local formulary is provided. Development process and operation discussed. The author quotes a Formulary Pharmacist stating that although the formulary has been successful in terms of influencing prescribing practices, the further measures should be assessed. "we need to look at factors such as the impact on patient care and drug expenditure although these are difficult to measure."

Drug data extraction used to audit prescribing practice in order to determine impact of local formulary. "Creating a drug formulary takes considerable time, but merely adopting one lacks local perspective and ownership". Found that prescribing of formulary approved drugs increased and that costs significantly fell.
<table>
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<tr>
<th>Study Authors</th>
<th>Title</th>
<th>Country</th>
<th>Methods</th>
<th>Findings</th>
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<tr>
<td>Humphries et al, 1997</td>
<td>Audit of opioid prescribing: the effect of hospital guidelines</td>
<td>UK</td>
<td>Audit of prescriptions for opioids before and after implementation of hospital prescribing guidelines</td>
<td>Opioid prescriptions collected by pharmacy department over a two week period. Following initial audit, analgesic prescribing guidelines were introduced. Statistically significant increase achieved in number of prescriptions that were correct for both dose and frequency according to both the BNF recommendations and local Acute Pain Service Guidelines. The use of accessible prescribing guidelines promotes demonstrable improvements in opioid prescribing.</td>
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<tr>
<td>ISMP, 2005</td>
<td>The truth about hospital formularies - Survey shows many myths STILL exist 15 years later</td>
<td>US</td>
<td>Quantitative study to explore comments made by Pharmacy and Therapeutic Committee members (postal survey)</td>
<td>All 11 of the original 'myths' (that were considered to thwart the full realisation of the potential of formulary to guide clinicians in choosing the safest, most effective drugs - the work of Rucker and Schiff, 1990) had been encountered by 19% of respondents to a survey. Concludes that formulary deliberations today may still be centred less on the critical evaluation of scientific data, and more on misconceptions about formularies.</td>
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<tr>
<td>Jenkins and Barber, 2004</td>
<td>What constitutes evidence in hospital new drug decision making?</td>
<td>UK</td>
<td>Qualitative ethnographic study of Drug and Therapeutic Committee meetings.</td>
<td>DTCs at two general hospitals were observed, tape-recorded and analysed to determine what was considered evidence and how it was used in decision making. DTC meetings were attended by a non-participant observer and audio-recordings were made. Array of issues were discussed. Often this evidence was either inadequate or insufficient. EBM, while used in decision making was supplemented by local knowledge, although decisions were accounted for in the language of scientific rationality. Both abstract and scientific rationality and the local rationality of practical healthcare provision were present in the decisions of the DTCs on the adoption, or otherwise of new drugs into local formulary and healthcare. Authors suggest the coming together of local and abstract in local decision-making needs to be taken into account when formulating policy and providing decision support.</td>
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<tr>
<td>Joshi et al, 1994</td>
<td>Hospital formularies in 1993: Where, why and how?</td>
<td>UK</td>
<td>Quantitative study (postal questionnaire) to obtain an overall perspective on the management of hospital drug formularies in the UK</td>
<td>Out-of-date paper but shows that in 1993 there were formularies operating in 90% of hospitals responding. Insights into DTC membership; reasons for the existence of the formulary and the basis for drug selection; type and format; content; distribution and introduction; policies; revision, monitoring and interventions. Some information also provided on “prescribers’ attitudes and compliance” but this is vague.</td>
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<td>Author, Year</td>
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<td>Khan, 2002</td>
<td>Using Medicines Wisely - The place of the formulary in medicines management</td>
<td>UK</td>
<td>Feature article</td>
<td>Good introduction to hospital formularies (including some history). Article focuses on how best to develop and operate a formulary system locally.</td>
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<tr>
<td>Kwan, 2005</td>
<td>Hospital formularies restrict evidence based practice</td>
<td>UK</td>
<td>Letter</td>
<td>Complains of his own local prescribing practice being &quot;governed&quot; by a &quot;strict hospital formulary&quot;. Formulary has a limited number of drugs and is often determined &quot;not by evidence but by cost per tablet&quot;. Critical of the drug approval process.</td>
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<tr>
<td>Lanser, 2002</td>
<td>What should your formulary look like?</td>
<td>US</td>
<td>Feature article</td>
<td>This is more relevant to US formularies and the insurance based drug benefit plans although the open / closed definitions of formularies has some application to UK conceptualisation of formularies. Main goal of formulary is to encourage physicians to use the most efficient drugs from a therapeutic and cost perspective. Based on the degree of inclusiveness of the PTC decisions, formularies tend to be grouped into two categories: open and closed. Open formularies - allow doctors to prescribe most medicines without penalty and place few limitations on adding new drugs to the list. Such formularies are viewed as guides to prescribing practice. Closed formularies - 'restrictive formularies' limit the number of drugs stocked and available to be dispensed; while drugs not on formulary can still be prescribed they are usually more costly (this is to do with the insurance system).</td>
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<tr>
<td>Malson and Wang, 2009</td>
<td>How Stoke-on-Trent is keeping its prescribing budget under control</td>
<td>UK</td>
<td>Feature article</td>
<td>Incentive schemes are being used to change prescribing behaviour. The HoMM at NHS Stoke-on-Trent believes that the drug budget needs to be broken down into manageable chunks to allow practices to deliver the most cost-effective prescribing. He says &quot;overspending in one therapeutic area can be masked by underspending in another...so a lot can be hidden if you're dealing with a single figure like £60 million&quot; (local budget it the region).</td>
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| Maxwell, 2005 | Evidence based prescribing (Editorial)                                | US      | Feature article | Good discussion around 'EBM' (or evidence-based prescribing): "Few areas of medical practice have felt the effects of this movement more clearly than prescribing. Until recently doctors could prescribe medicines without worrying that their choices might be judged against evidence accumulated in the world's literature. Now, prescribers are increasingly expected to back up their decisions with evidence. Enthusiasm for evidence based prescribing is welcome... But it also poses some real problems for prescribers. He suggests that one solution is to provide modern information technology systems in the consulting room or at the bedside...but even these may deliver too much unfiltered information including some original research, some guidance derived from research, and some unsubstantiated opinion"
| May et al, 2005 | Technogovernance: evidence, subjectivity, and the clinical encounter in primary care medicine. | UK      | Discussion paper | Technological solutions to problems of knowledge and practice are routinely used in healthcare. Systems are being employed as intermediaries in interactions between clinicians and patients. Identifies the apparent conflict between two important ways of organising ideas about practice in primary care - (1) a shift away from the objectification of the patient and towards patient-centred clinical practice in which patients' heterogeneous experiences / narratives of ill-health are qualitatively engaged in decisions about the management of illness; and (2) the mobilisation of evidence about large populations of experimental subjects revealed through an impetus towards evidence-based medicine, in which quantitative knowledge is engaged to guide management of illness mediated through clinical guidelines. Both impulses are embodied in new technological solutions to the management of heterogeneity of the clinical encounter. Technological solutions bring a new array of practices - 'technogovernance' in which the heterogeneous narratives can be restituated. This paper appears to support the 'measured' (rational) use of 'technogovernance in the healthcare arena.
<p>| Miller, 1973     | Prescribing habits of physicians                                      | US      | Literature review | Early paper that recognises the need to influence the adoption and relinquishment of drugs from doctors' own personal formularies. Describes in depth the process of adoption (adopting a new innovation e.g. drug). Although old paper, still relevant for a theoretical approach to understanding this aspect of prescribing practice. |</p>
<table>
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<tr>
<th>Reference</th>
<th>Title</th>
<th>Country</th>
<th>Type</th>
<th>Summary</th>
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<tbody>
<tr>
<td>Oxman et al, 1995</td>
<td>No magic bullets: a systematic review of 102 trials of interventions to improve professional practice</td>
<td>US</td>
<td>Literature review</td>
<td>Objective - to determine the effectiveness of different types of interventions in improving health professional performance and health outcomes. Literature analysis. Dissemination-only strategies such as conferences or mailing of unsolicited materials, demonstrated little or no change in healthcare professional behaviour or health outcome when used alone. More complex interventions e.g. use of outreach visits or local opinion leaders range from ineffective to highly effective but were most often moderately effective. Conclusions: &quot;no magic bullets&quot; for improving the quality of healthcare but there are wide range interventions available that if used appropriately could lead to important improvements in professional practice or patient outcomes.</td>
</tr>
<tr>
<td>Pearce and Begg, 1992</td>
<td>A Review of Limited Lists and Formularies</td>
<td>New Zealand</td>
<td>Literature review</td>
<td>Historical overview of formularies and models of formulary operation e.g. DTC advisable etc.</td>
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<tr>
<td>Petrie and Scott, 1987</td>
<td>Drug formularies in hospitals</td>
<td>UK</td>
<td>Feature article</td>
<td>Authors writing in support of formularies (letters in response to this article offer insights in sentiments from doctors). Strong support for the utilisation of formularies to save money e.g. &quot;operating a formulary will save 17% or more on overall drugs costs&quot;. Provides useful definition of formularies.</td>
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<tr>
<td>Study</td>
<td>Title</td>
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<td>Methodology</td>
<td>Summary</td>
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<td>Plumridge et al, 1984</td>
<td>Improving patient care and pharmacy management: The effect of hospital formularies</td>
<td>Australia</td>
<td>Quantitative study using postal questionnaires to investigate the organisational features and implementation procedures associated with formularies.</td>
<td>Outdated - useful now for historical overview and also for the philosophy / rationale behind formulary implementation. Study of organisational features and implementation procedures associated with formulary use in major acute care hospital throughout Australia. Data collected via qre mailed to 57 directors of pharmacy - 86% response rate. A high proportion of formularies was found to rate poorly in terms of organisation features (content; compilation; methods; format) and process variables (effectiveness as a communication document; prescribing aid; management tool). Methods of improving formulary effectiveness are outlined in the context of practical and normative research, incl improving the quality of drug therapy, use of formulary in cost control and improving user acceptance. Confirms that methods of improving features and implementation procedures are neither widely applied or widely known. Urgent need to reassess the usefulness of formularies and improve their effectiveness by adopting recommendations.</td>
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<tr>
<td>Robertson et al, 2001</td>
<td>Personal formularies</td>
<td>Australia</td>
<td>Prescription data extracted and analysed</td>
<td>Aim was to determine the extent to which Australian GPs restrict the number of agents they prescribe within a drug class (personal formularies) and to assess concordance of these drug choices with standards based on established guidelines or recognised good prescribing practices. Conclusion: Australian GPs use 'personal formularies'. Formulary size varies with the drug class, can change over time as new agents become available, and its content can be influenced by promotional activities. Prescribing standards based on numbers of drugs used may not always reflect rational prescribing choices. Criteria based on specified drugs provide more rigorous prescribing standards but may give a misleading picture of prescribing quality in the absence of information on patients and indications for treatment. Personal formulary measures are potentially useful prescribing indicators but need to be carefully defined and interpreted. GPs should be encouraged to identify their personal formularies and review the drugs included in them.</td>
</tr>
<tr>
<td>Rucker, 1982</td>
<td>Superior hospital formularies: a critical analysis</td>
<td>US</td>
<td>Descriptive analysis exploring the content of 8 &quot;superior hospital formularies&quot;</td>
<td>Outdated and US-orientated. US definition of formulary useful. This is a study that looked at where 8 different formularies</td>
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<td>Rucker and Schiff, 1990</td>
<td>Drug Formularies: Myths-In-Formation</td>
<td>US</td>
<td>Quantitative study investigating comments made at Pharmacy and Therapeutic Committee meetings</td>
<td>Full realisation of formularies' potential has been hampered by insufficient comparative data on drug efficacy / safety and local resources for formulary development. Authors suggest that 'misconceptions' concerning fundamental formulary concepts pose even more formidable obstacle. This paper identifies statements illustrating formulary misconceptions: (a) made by doctors attending PTCs during 3 yr period; (b) appearing in published sources. Critique assesses the role of opinions in influencing formulary construction. Statements compiled are assertions made by doctors attending PTC meetings as they debated the merits of adding drugs to or deleting them from the formulary at a large public hospital during a three year survey period. Claim that the discussions centred less on critical evaluation of scientific data and more on the purpose, design and need for the formulary per se. Rather than debating the relative merits of the drug being proposed the formulary concept itself was often subject to review. This lack of shared assumptions existed both within the Committee and in its interactions with staff physicians who came to a support addition / retention of a particular drug.</td>
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<tr>
<td>Sacket et al, 1996</td>
<td>Evidence based medicine: what it is and what it isn't</td>
<td>UK / US / Canada</td>
<td>Discussion paper</td>
<td>Original definition and philosophy behind 'evidence-based medicine' outlined. Without clinical expertise, practice risks becoming tyrannised by evidence, for even excellent evidence may be inapplicable for an individual patient.</td>
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<td>Schumock et al, 2004</td>
<td>Factors that Influence Prescribing Decisions</td>
<td>US</td>
<td>Quantitative study to describe and compare the opinions of doctors, pharmacists and formulary committee members</td>
<td>&quot;Strategies to control the quality and cost of medication use are largely dependent on the ability to alter selection of medications&quot; (useful quote). Accepts that in hospital setting clinical pharmacists and formulary committee members are also key players. Authors state differences between doctors and pharmacists and formulary committee members have not been compared. Knowledge of these differences could have importance in predicting the effectiveness of strategies designed to influence drug use in this setting. Trained interviewer to administer a standardised questionnaire designed to elicit opinions of participants regarding importance of factors thought to influence drug prescribing. 150 participants recruited to participate. Safety, effectiveness of drug, formulary status, restrictions on prescribing were all considered highly influential by all participants. Doctors rated personal experience higher (more influential) than clinical pharmacists. Pharmacists consider recommendations by fellow pharmacists and prescribing guidelines and cost comparisons more influential than prescribers. Conclusion - should recognise and employ factors that are most influential in decision making process.</td>
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<td>Author and Year</td>
<td>Title and Details</td>
<td>Country</td>
<td>Type of Contribution</td>
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<td>Sutters, 1990</td>
<td>The management of a hospital formulary</td>
<td>UK</td>
<td>Discussion paper</td>
<td>Paper describes the stages taken to set up a local hospital formulary. Following is discussed: philosophy behind the formulary project is outlined; mode of operation of DTC (membership etc.); contents and presentation; compilation of a formulary; operation of the formulary; integration of the formulary management system within pharmacy (i.e. working closely with pharmacy educators); internal marketing and publicity campaign.</td>
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<tr>
<td>Tan et al, 2005</td>
<td>Perspectives on DTC policy implementation</td>
<td>Australia</td>
<td>Qualitative study exploring the opinions of stakeholders with respect to DTC</td>
<td>Focus group investigation of (1) the perceptions of barriers to DTC policy implementation and (2) ways to improve DTC policy implementation. Issues discovered were: lack of resources; lack of follow-up; lack of ownership; low DTC profile within the organisation; overreliance on pharmacy to implement policy. Highlights important considerations for formulary development / implementation in resource-constrained NHS.</td>
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<tr>
<td>Tugwell et al, 1984</td>
<td>Design and preparation of a formulary - Guide to the prescribing of medicines</td>
<td>UK</td>
<td>Discussion paper</td>
<td>Paper describes the stages taken to set up a local hospital formulary.</td>
</tr>
<tr>
<td>Tugwell, 2001</td>
<td>Taking pharmacy services to a new level with the intranet</td>
<td>UK</td>
<td>Broad spectrum article</td>
<td>Discusses the rise of information technology and pharmacy departments (centred around medicines information and formularies) can take advantage of this new innovation to help provide pharmacy services &quot;faster and more comprehensively&quot;. In particular discusses: prescribing guidelines (including formulary); IV monographs; Pharmacy Bulletins; pharmaceutical care.</td>
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<tr>
<td>Vickers, 1987</td>
<td>Drug formularies in hospitals</td>
<td>UK</td>
<td>Letter</td>
<td>Expressing frustrations around formulary restrictions. Claims the &quot;delusion&quot; that drugs always account for such a large proportion of NHS expenditure, is actually a flawed rationale behind which new departments are being built in which specialists have to work with manufacturers (supporting their research) in order to get additional funding. Complains about the diminishing clinical freedom all this brings.</td>
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<td>Walker et al, 2006</td>
<td>Evidence Based Drug Formulary</td>
<td>UK</td>
<td>Feature article</td>
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<td>Authors state, intuitively a formulary is considered beneficial and thought to improve the quality of prescribing, the quality of pt care and promote cost-effective prescribing. The evidence base for achieving any of these benefits is limited but this should not be surprising given the vagaries of prescribing, drug selection, drug budgets and the wishes of patients themselves. Discusses the application of a tool to promote rational formulary decision-making called SOJA (System of Objective Judgement Analysis) - includes thinking about clinical endpoints, safety, tolerability, dosage freq, drug interactions, costs, and a panel of 'experts' each given the drug a percentage for 'ideal properties' for each criterion.</td>
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<tr>
<th>Williams and Bryan, 2007</th>
<th>Cost-effectiveness analysis and formulary decision making in England: Findings from research</th>
<th>UK</th>
<th>Literature review</th>
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<td>Authors claim little is known about the information and processes used when making decisions on the inclusion of new treatments. The paper reports research on the use of economic evaluations in technology coverage decisions in England, although the findings have a relevance to other health care systems with devolved responsibility for resource allocation. It reports a study of four local formulary committees in which both qualitative and quantitative data were collected. The main research finding is that it is an exception for cost-effectiveness analysis to inform technology coverage decisions. Barriers to use include access and expertise levels, concerns relating to the independence of analyses and problems with implementation of study recommendations. Further barriers derive from the constraints on decision makers, a lack of clarity over functions and aims of local committees, and the challenge of disinvestment in medical technologies. The relative weakness of the research-practice dynamics in this context suggests the need for a rethinking of the role of both analysts and decision makers. Authors claims the research supports the view that in order to be useful, analysis needs to better reflect the constraints of the local decision-making environment. Also recommend that local decision-making committees and bodies in the National Health Service more clearly identify the 'problems' which they are charged with solving and how their outputs contribute to broader finance and commissioning functions. This would help to establish the ways in which the routine use of cost-effectiveness analysis might become a reality.</td>
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APPENDIX 4

INTERVIEW TOPIC GUIDE

Title: Grade:

Note: This interview will be conducted using a semi-structured format based upon the questions shown below. The interviewer will encourage the pharmacist to describe their perceptions or experience and will use prompts to discuss specific issues only if the pharmacist has not already volunteered this information. The interviewer will use discretion with regard to the precise order of questions. The following is only a suggested order.

Impressions of the Prescribing Guide

Can you describe your views / perceptions of the Prescribing Guide?
(prompt: convenience, relevance, evidence-based, ‘outside’ influence, perceived purpose)

In your opinion, what is the purpose of a hospital drug formulary?
(prompt: positive or negative view, necessary?)

Does the Prescribing Guide meet your expectations of a formulary?

Can you describe your experience of using the Prescribing Guide?

Can you describe features of the Prescribing Guide you feel are working particularly well?
(prompt: Health Topics – diagnosis-based, and why do you think that is?)

How do you feel about the traffic light system of directing drug use?

What features have you had difficulty with or do you feel are not useful?

In terms of benefit to you, what features and / or information would you like to see on the Prescribing Guide?

In your opinion does / will the Prescribing Guide have any impact or influence on prescribing practice?

Influences on prescribing practice

Can you describe the most influential forces on your practice of managing drug therapy?
(prompt: senior colleagues, websites, personal experience, what makes them ‘influential’ for you)

On this spectrum (of influences), where do you feel the Prescribing Guide is placed?
What is your opinion of NICE guidance?

Are you aware of the New Drugs and Formulary (NDF) Committee and its purpose?
(prompt: what do your feel are its objectives?)

**Relationships with other healthcare professionals involved in drug therapy**

What are your perceptions of other healthcare professionals’ role in drug therapy?
(prompt: doctors, NMPs)

Can you describe any conflicts you may have had with another healthcare professional about prescribing?
(prompt: and / or are there any experiences where you feel their contribution has been productive?)

How do you feel about non-medical prescribing?

**Thank you for participating in this evaluation.**
APPENDIX 5

RESEARCH PARTICIPANT INFORMATION SHEET (COVERING LETTER)
FOR PARTICIPANTS TAKING PART IN SEMI-STRUCTURED INTERVIEWS

[East and North Hertfordshire NHS Trust headed paper]

Dear Colleague,

You are being invited to take part in a research project. Before you decide, it is important that you fully understand the purpose of the research and exactly what it will involve from you.

The purpose of this research is to evaluate the recent development and implementation of the new online Prescribing Guide and ensure that it is developed in a manner that meets the needs of prescribers and other users within the Trust. The impact and influence of the Prescribing Guide on prescribing practice will be explored through semi-structured interviews, questionnaires and by analysing formulary adherence. Participants will include doctors, pharmacists and non-medical prescribers (NMP).

You are therefore invited to discuss your views and perceptions related to drug therapy and the Prescribing Guide and any experiences you may have in using this service. The interview, lasting approximately 30 minutes, will be audio-taped. It will be on an individual and once-only basis. I would, therefore, be grateful for your participation. Please inform me of your decision by replying to this letter (or see contact details below) by [2 week deadline]. You will be given a consent form to sign just prior to the start of the interview.

The results of the research will be published in a scientific peer-reviewed journal and an internal report will also be produced. You will be notified of this with more details nearer the time.

All information about you and the audio-recording arising from the interview will be kept strictly confidential and will not be shared with a third party. Similarly, any of your opinion statements that may be published or included in the internal report will have your name and other details removed so that you cannot be recognised from it.

In the meantime, if you have any questions please do not hesitate to contact me by email (sandeep.bagga@nhs.net) or on Tel. 01438 314333 (ext. 4796).

Many thanks for your assistance.

Yours faithfully,

Sandeep Bagga
Senior Pharmacist – Formulary
(Chief Investigator)
APPENDIX 6

CONSENT FORM FOR SEMI-STRUCTURED INTERVIEWS

Consent Form

Title of project:
Evaluation of the Impact and Influence of the Prescribing Guide on Prescribing Practice

Name of Chief Investigator:
Sandeep Bagga

[ ] I confirm that I have been given and have read and understood the information sheet (covering letter) for the above research project and have asked and received answers to any questions raised

[ ] I understand that my participation is voluntary and I am free to withdraw at any time

[ ] I understand that the Chief Investigator will hold all information and data collected in strict confidence and will not be shared by any third parties and every effort will be made to remove my name and other details so that I cannot be recognised and I give permission for the Chief Investigator to hold this data in their care

[ ] I agree to take part in the above research

Name of participant | Signature | Date
---|---|---

Name of person taking consent (Chief Investigator) | Signature | Date
---|---|---
APPENDIX 7

AGENDA SHEET FOR STAKEHOLDERS MEETINGS

Agenda Sheet for Stakeholders Meetings

First Stakeholder Meeting (Week 1)

- To determine the aims and objectives as perceived by the stakeholders.
- To discuss which groups of drugs to target for the analysis of formulary adherence (non-formulary prescribing) and on-formulary prescribing trends.
- To provide feedback on content and structure of draft self-completion questionnaires.

Second Stakeholder Meeting (Week 10)

- Chief Investigator to present emerging themes and provisional findings from the evaluation.
- To discuss the findings with all stakeholders.
- To discuss potential modifications to the Prescribing Guide in order to overcome any recognised difficulties or problems identified with the delivery of the service.

Third Stakeholder Meeting (Week 24)

- Chief Investigator to present final provisional findings from the evaluation.
- To discuss the emerging themes and any recommendations to further improve the service to inform report.
APPENDIX 8 - ONLINE SELF-COMPLETION QUESTIONNAIRE

### Prescribing Guide Questionnaire

<table>
<thead>
<tr>
<th>Title:</th>
<th>Speciality:</th>
</tr>
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</table>

**Question 1**

Please indicate below how frequently you use the prescribing guide (tick ONE box only).

- [ ] More than once daily
- [ ] Daily
- [ ] Weekly
- [ ] Monthly
- [ ] Not at all (but previously aware of Prescribing Guide)
- [ ] Not at all (NOT previously aware of the Prescribing Guide)

If you have NOT used the Prescribing Guide please answer the next question, otherwise skip to Question 3.

**Question 2**

Do you know how to access the Prescribing Guide from the Trust Intranet (Knowledge Centre)?

- [ ] Yes
- [ ] No

**Question 3**

Using the following rating scale, please indicate how important you consider the following factors in affecting your role in optimising drug therapy and medicines management:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior members of your profession</td>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>NICE guidance</td>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>Pharmaceutical industry</td>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>New Drugs &amp; Formulary Committee</td>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>Prescribing Guide</td>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>Personal experience</td>
<td>3</td>
<td>-3</td>
</tr>
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Sandeep Bagga | Doctor of Pharmacy Practice 2012 295
### Question 4

Using the following rating scale, please circle the number nearest the term that most closely matches your views about the Prescribing Guide:

<table>
<thead>
<tr>
<th>The Prescribing Guide is simple to use</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>The Prescribing Guide is complicated to use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Prescribing Guide is user friendly</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>The Prescribing Guide is NOT user friendly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Prescribing Guide is easily accessible</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>The Prescribing Guide is difficult to access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Prescribing Guide helps me decide what to prescribe</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>The Prescribing Guide is unhelpful in deciding what to prescribe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Prescribing Guide improves my professional autonomy</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>The Prescribing Guide damages my professional autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I find the Prescribing Guide confirms my own preferences</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>I find the Prescribing Guide contradicts my own preferences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I think the Prescribing Guide supports evidence based medicine</th>
<th>😊</th>
<th>😐</th>
<th>😞</th>
<th>I think the Prescribing Guide contradicts evidence based medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

### Question 5

The Prescribing Guide is a continuously evolving service. The views and recommendations of users like yourself, are crucial in shaping the service to better meet the needs of both users and the Trust. Please comment, in the box below on any aspect of the Prescribing Guide.

We are particularly interested to learn of any problems or difficulties you may be experiencing or improvements you feel could be made.

---

Thank you for completing this questionnaire.
APPENDIX 9

COVERING EMAIL FOR ONLINE QUESTIONNAIRES

Email from Clinical Audit and Pharmacy Department

At East & North Hertfordshire NHS Trust we are continually trying to improve the quality of care and service we provide for our patients.

We now wish to look at the recently launched Trust Prescribing Guide to see if it is meeting the needs of both prescribers and the Trust and whether any changes are required to improve the service.

Please click on the link below to access the short questionnaire. It is designed to be very easy to complete, so this should only take a few minutes.

[Link placed here]

The data collected will be accessible only to the Clinical Audit Team and the project lead. All completed questionnaires will be treated in strict confidence and anonymity will be preserved.

Thank you in advance for your co-operation

Clinical Audit
Clinical Governance
East & North Hertfordshire NHS Trust

Sandeep Bagga
(Chief Investigator)
Senior Pharmacist – Formulary
East & North Hertfordshire NHS Trust
Lister Hospital
Ext 4796     Bleep 1477
APPENDIX 10

LETTER FROM HERTFORDSHIRE RESEARCH ETHICS COMMITTEE (HREC)

** Content removed for copyright reasons **

Reference:
Hertforshire REC
East of England REC Office No 3
9th Floor, Terminus House
The High
Harlow
Essex
CM20 1XA
** Content removed for copyright reasons **

Reference:
Hertforshire REC
East of England REC Office No 3
9th Floor, Terminus House
The High
Harlow
Essex
CM20 1XA
** Content removed for copyright reasons **

Reference:
Hertfordshire REC
East of England REC Office No 3
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The High
Harlow
Essex
CM20 1XA
Reference:
Hertforshire REC
East of England REC Office No 3
9th Floor, Terminus House
The High
Harlow
Essex
CM20 1XA
APPENDIX 11

REFLEXIVE ACCOUNT

As Section 5.10.1.1 outlines, this reflexive account is an attempt to explicitly discuss the researcher’s views and attitudes towards aspects of the subject area. It is hoped such an approach can account for objectivity and impartiality. Additionally, this account was written prior to the phenomenological analysis and therefore contributes to the 'bracketing' of presuppositions and preconceptions required for such a philosophical approach.

At the East and North Hertfordshire NHS Trust, my role as Senior Formulary Pharmacist was concerned with the entry of new drugs to the local hospital drug formulary; challenging non-formulary prescribing and; the development and implementation of the Prescribing Guide.

A routine aspect of my work inevitably consisted of various forms of communication with doctors. In most of these cases, I liaised with senior doctors, typically consultants or specialist registrars. Responding to ‘one-off’ requests for non-formulary drugs, or to ‘formal submissions’ for a non-formulary drug to be added to the local formulary, I was required to conduct reviews on evidence-base behind the drug applications and evaluate the cost-implication to the Trust budget. In some instances these drugs were approved however in the majority of cases they were found to be unjustified since there was either an available formulary-approved drug that the doctor could have prescribed or there was a cheaper non-formulary drug that could be sourced for the ‘one-off’ scenario. Another common reason for rejection is that the drug has been deemed to be unsafe.

In such scenarios, doctors often expressed frustration and resentment. In many cases the frustration was expressed in a few words and the communication came to an end, in other cases, doctors often insisted on the Pharmacy department making arrangement to buy the product and supply it to the patient. This was a point of varying degrees of divergence, often outright conflict. In these instances, my stance has never been to also adopt a similarly resistive attitude. Instead I made attempts to explain the rationale behind such decisions.
Therefore I would not categorise my approach to such circumstances as 'intrinsically' aggressive, unnecessarily dictatorial or conflict-oriented.

However, when 'conflict' scenarios as described above reach a point that I feel warranted a more assertive technique I would often adopt this approach and enforce the decision made to reject the drug in question.

Similarly interactions have also occurred during my daily ward visits. On most occasions, doctors and I have managed to agree on suitable alternatives to challenges I have made to original drug selections. However there are also a number of incidents in which juniors have notably cited the authority of the senior doctor (consultant or registrar) and attempted to dismiss my advice. I have been conscious of such attempts and have attempted to see the challenge through by contacting the relevant 'authority'-figure. Once again I would not characterise my approach as 'aggressive' but view myself as the drug expert, certainly more so than junior doctors. In the capacity of Formulary Pharmacist, I acknowledge an authority also based on the fact that my input (based on drug reviews) ultimately contributed to requested drugs being approved or rejected.

Therefore, in summary I would consider my professional demeanour to be well-balanced. In terms of formulating any solidified attitudes or perspectives towards such scenarios, I feel I have yet to develop final conclusions. The principle reason for this is that I have been in my current post for three years and compared to many of my pharmacist and doctor colleagues who are also involved in similar communications, I feel I have a lot more to experience. In addition, my ward responsibilities as well as liaisons with senior doctors have become significantly more limited since I have been involved in the development of the Prescribing Guide.
## MODIFICATIONS MADE TO THE PRESCRIBING GUIDE

<table>
<thead>
<tr>
<th>Modification</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Create new section on non-formulary drugs</td>
<td>List of all drugs that have been discussed at the DTC and been subsequently rejected with rationale for decision</td>
</tr>
<tr>
<td>Add DTC minutes</td>
<td>Create a new section to house DTC minutes – increasing ‘transparency’ of the review process</td>
</tr>
<tr>
<td>Re-jig homepage</td>
<td>Make the length narrower as users have missed that there is an ‘Index Bar’ and add a new ‘Notice board’</td>
</tr>
<tr>
<td>Link 'all' drug-related Trust guidelines / policies to drugs</td>
<td>Precedent set for all newly approved Trust guidelines and policies to be communicated to the Formulary Team in Pharmacy (Clinical Audit secretary staff involved)</td>
</tr>
<tr>
<td>Regular emails with links to junior doctors</td>
<td>Precedent set for ‘regular’ emails to be sent to all junior doctors (relevant medical secretaries involved)</td>
</tr>
<tr>
<td>Pharmacists to promote Prescribing Guide</td>
<td>Pharmacists reminded regularly at department meetings to promote Prescribing Guide beyond the Pharmacy department</td>
</tr>
<tr>
<td>Develop new extensive ‘How To Use’ section</td>
<td>More explanations included along with ‘worked’ examples of how to use specific features on the Prescribing Guide. Links provided to the sections discussed. Prominent link inserted on homepage to ‘How to use’ section</td>
</tr>
<tr>
<td>Bedford-PG discrepancy</td>
<td>System put in place to communicate discrepancies between Pharmacy computer and Prescribing Guide to Formulary team</td>
</tr>
<tr>
<td>Add search bar</td>
<td>Simple search bar (simple HTML code) inserted on Index page</td>
</tr>
<tr>
<td>Pharmacy Bulletin</td>
<td>To inform all users of changes to Prescribing Guide as well as other important updates e.g. drug safety bulletins, DTC decision updates, common Medicines Information queries etc.</td>
</tr>
<tr>
<td>Desktop icon</td>
<td>To liaise with IT department regularly about possibility of placing an icon on the desktop screen of all Trust PC in clinical areas. In meantime, Pharmacy department reminded to manually create temporary icons when they attend their wards.</td>
</tr>
<tr>
<td>Prescribing Guide leaflets (new)</td>
<td>Original leaflets amended to include new changes and distributed.</td>
</tr>
<tr>
<td>Posters</td>
<td>New poster campaign to coincide with introduction of new junior doctors. Prominent locations discussed with Stakeholders (e.g. wards, doctors’ mess etc).</td>
</tr>
<tr>
<td>Doctors induction</td>
<td>Designated section of induction training (provided by pharmacists) to extensively cover Prescribing Guide. Demonstrations were key addition to existing content.</td>
</tr>
<tr>
<td>Workshops / Stalls at Grand Rounds</td>
<td>Arranged by coordinating effort with Stakeholders (particular consultant) at both hospital sites at the Trust. Using Trust laptop with wireless Intranet connection, four demonstrations made at Grand Rounds.</td>
</tr>
<tr>
<td>Leaflets explaining DTC and formulary purpose</td>
<td>Content of leaflet agreed with senior staff and members of DTC and distributed to all junior doctors and at induction training.</td>
</tr>
<tr>
<td>Prescribing Guide screensaver</td>
<td>Amended to include new changes. Booked in advance for August and September to coincide with arrival of new junior doctors.</td>
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### APPENDIX 13

**CLUSTERS OF 368 CODES GENERATED FROM QUALITATIVE ANALYSIS**

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<td>NMP-RESORT</td>
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| CONS-ALL-AW | CON-OFF-REG |
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| CON-UNAFF | JD-AUTO |
| CON-UNAFF | JD-DIFF-CONS |
| CON-UNAFF | JD-H-CONS |
| CON-UNAFF | JD-L-CONFID |
| CON-UNAFF | JD-N-CONFID |
| CON-UNAFF | JD-STRUCTURE |
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| CON-UNAFF | Px-Avaut |
| CON-UNAFF | Px-Diff |
| CON-UNAFF | Px-Ex |
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| CON-UNAFF | Pxr-EBM |
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| CON-UNAFF | Pxr-FRUSTR |
| CON-UNAFF | Pxr-INSIGHT |
| CON-UNAFF | Pxr-JUDGE |

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| F-ADAPT | F-APPRO |
| F-AWARE | F-BUREAU |
| F-BEC | F-CEP |
| F-COMM | F-CONSIS |
| F-CONTROL | F-DESID |
| F-COST | F-DEMOCRAT |
| F-DRUGS | F-EBM |
| F-FIGHT | F-HIGHER-A |
| F-LESS | F-LIMIT |
| F-LOCAL | F-MULTI |
| F-NATION | F-NATIONAL |
| F-N-EDUCAT | F-N-EDUCAT |
| F-N-INEFFIC | F-N-OP |
| F-NOT=NIC | F-NOT=NICE |
| F-NOTIDEAL | F-NOTMOT |
| F-OP | F-P-BIAS |
| F-PH | F-PH-ME |
| F-PH-ME | F-P-PHARMAT |
| F-P-TO-F | F-P-TO-F |
| F-P-TO-F | F-RATION |
| F-RATION | F-REPRESENT |
| F-REPRESENT | F-NICE |

| F-NICE | F-NCOST |
| F-NCOST | JP-STRUCT |

Sandeep Bagga | Doctor of Pharmacy Practice 2012
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</tr>
<tr>
<td>PG-SUPPORTIVE</td>
<td>Pxr-PEERS</td>
<td>F-RESTRICT</td>
<td>M-INFO</td>
</tr>
<tr>
<td>PG-THREAT</td>
<td>Pxr-PROBSOLVE</td>
<td>F-RIGID</td>
<td>M-RECOG</td>
</tr>
<tr>
<td>PG-TOOMUCH</td>
<td>Pxr-PT</td>
<td>F-SAFETY</td>
<td>M-BLACK</td>
</tr>
<tr>
<td>PG-UNFIN</td>
<td>Pxr-R-Q</td>
<td>F-SKEPTIC</td>
<td>M-NDFLEAFLET</td>
</tr>
<tr>
<td>PG-USAGE</td>
<td>Pxr-R-STRUCT</td>
<td>F-START</td>
<td>M-NDFMINS</td>
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<tr>
<td></td>
<td>Pxr-TRUST</td>
<td>F-T-FAILURE</td>
<td>PH-OUT-ADV</td>
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<td>Pxr-SUPER</td>
<td>F-UNDERM</td>
<td>PH-UPHOLDING</td>
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<td>F-UTD</td>
<td>PH-N-PT</td>
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<td>RES-AMBIG</td>
<td>F-WIDE</td>
<td>SP-COST</td>
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<td>RES-EXP</td>
<td>LFC-UNFAM</td>
<td>PH-N-INFLU</td>
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<td>RES-NEWUND</td>
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<td>PH-OBSTR</td>
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<td>RES-Q</td>
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<td>PH-NEED?</td>
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<td></td>
<td>RES-RELUCT</td>
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<td>PART-GRIEV</td>
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### APPENDIX 14

**THE CONSTRUCTION OF GENERALISED ‘STATEMENT 5’**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Formularies ensure management of constrained financial resources</td>
<td>12. Pharmacists tend to justify the need for the DTC process</td>
<td>23. Access to Prescribing Guide thwarted by IT issues</td>
<td>34. Practitioners are interested in local DTC’s drug decisions</td>
<td>45. Formulary recognised as a restrictive and largely unwanted influence on doctors prescribing practices</td>
<td>56. Pharmacists are considered to be obstructive in prescribing practice</td>
</tr>
<tr>
<td>2. Pharmacists more likely to speak about formularies in terms of clinical benefits to patients</td>
<td>13. The formulary perceived as a threat to prescribing autonomy</td>
<td>24. Access to Prescribing Guide thwarted by time constraints</td>
<td>35. Recommendations to improve functionality of Prescribing Guide</td>
<td>46. Pharmaceutical industry is considered highly biased and untrustworthy</td>
<td>57. Doctors attempt to limit the prescribing powers of NMPs</td>
</tr>
<tr>
<td>3. Doctors insistent on formulary being adaptable</td>
<td>14. NMPs feel restricted by their own lists</td>
<td>25. Prescribing Guide not appropriate for specialists (use value)</td>
<td>36. Recommendation to increase training and awareness</td>
<td>47. Junior doctors and pharmacists often adopt ‘stepwise’ approach to drug therapy</td>
<td>58. Pharmacists are too algorithm-driven</td>
</tr>
<tr>
<td>4. Pharmacists unaware of restrictive language</td>
<td>15. Prescribing Guide widely welcomed and praised as a new service</td>
<td>26. Prescribing Guide praised for its comprehensive inclusion of a wide range of information sources within one local website</td>
<td>37. Doctors highly influenced by their senior colleagues</td>
<td>48. Pharmacists operate independently therefore more likely to require decision-support tools</td>
<td>59. Pharmacists are too preoccupied with the supply function</td>
</tr>
<tr>
<td>5. Doctors perceive formulary as restrictive</td>
<td>16. Managers concerned with impact data</td>
<td>27. Prescribing Guide on occasion supplanting advice of colleagues</td>
<td>38. Pharmacists less influenced by senior colleagues</td>
<td>49. Doctors recognised as open to collaboration provided it is on their terms</td>
<td>60. Pharmacists lack clinical expertise and opportunity to further cultivate a more clinical understanding</td>
</tr>
<tr>
<td>6. Formulary restrictions generate opposition and resistance</td>
<td>17. Vague conjecture regarding a perceived impact of the Prescribing Guide</td>
<td>28. Prescribing Guide provides an awareness of local availabilities and priorities</td>
<td>39. Doctors more likely to access primary sources of evidence-based medicine compared to pharmacists in routine practice</td>
<td>50. Junior doctors more likely to adopt a collaborative approach than senior doctors</td>
<td>61. Prescribers claim unique ability to deal with unusual and uncertain patient cases</td>
</tr>
<tr>
<td>7. Prescribing practice should include being able to experiment with drugs and gain experience</td>
<td>18. Resorting to the Prescribing Guide needs to become ‘habit’</td>
<td>29. Prescribing Guide has educational value</td>
<td>40. Through experience pharmacists are more likely to develop an understanding of drug usage rather than individual clinical outcomes</td>
<td>51. NMP expertise is recognised in multidisciplinary environment</td>
<td>62. NMPs claim an evolution in clinical understanding that equips them with ability to manage ‘uncertainty’ in complex patient cases</td>
</tr>
<tr>
<td>8. Only pharmacists and DTC members able to elaborate on DTCs’ importance and role</td>
<td>19. Prescribing Guide is currently more supportive to junior doctors rather an immediate source of drug information</td>
<td>30. Traffic light system causes confusion</td>
<td>41. Doctors develop experience of individual clinical outcomes</td>
<td>52. Pharmacists feeling marginalised by prescribers</td>
<td>63. Doctors claim to be the only party who is entirely patient-focused</td>
</tr>
<tr>
<td>9. Doctors regard DTC as primarily concerned with cost-containment</td>
<td>20. Prescribing Guide now primary source of drug information for most pharmacists</td>
<td>31. Prescribing Guide contains more information than is needed</td>
<td>42. NICE useful in time constrained scenarios for pharmacists and junior doctors</td>
<td>53. Prescribers are subject of pharmacists’ scrutiny</td>
<td></td>
</tr>
<tr>
<td>10. Pharmacists tend to justify the cost-motivation behind the DTC</td>
<td>21. Pharmacists and doctors differ in consideration of formulary status of drug</td>
<td>32. Doctors concerned with patient’s impression of them using the Prescribing Guide</td>
<td>43. Prescribers feel restricted by NICE because it impacts local decision-making</td>
<td>54. Conflicts between pharmacists and prescribers centre around guidelines and experience / judgement (respectively)</td>
<td></td>
</tr>
<tr>
<td>11. Doctors regard the DTC as excessively bureaucratic</td>
<td>22. Prescribing Guide facilitates pharmacists’ retrospective challenging of prescribed drugs</td>
<td>33. Recommendation to ensure more up-to-date links to local and national guidelines</td>
<td>44. Formulary regarded as a supportive influence for pharmacists</td>
<td>55. Participants reinforcing traditional divides and segregated working arrangements</td>
<td></td>
</tr>
<tr>
<td>Statement 5 - The local formulary symbolises a 'critical split' in approaches to resource management and patient care. The formulary is therefore central to many of the conflicts that take place within prescribing practice where the opponents take varying degrees of either a supportive or opposing view of the formulary decisions.</td>
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APPENDIX 15

SUMMARIES OF DISCUSSIONS DURING STAKEHOLDER MEETINGS

<table>
<thead>
<tr>
<th>Stakeholder Meeting 1 (i)</th>
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<tbody>
<tr>
<td><strong>Attendees:</strong> Senior Formulary Pharmacist and Senior Pharmacist</td>
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<tr>
<td><strong>Date:</strong> May 2009</td>
</tr>
<tr>
<td><strong>Venue:</strong> Senior Pharmacist’s office</td>
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<tr>
<td><strong>Summary:</strong></td>
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Study's proposed aim and objectives presented and agreed. This Stakeholder was particularly interested in the focus on 'attitudes' and 'perspectives' and was looking forward to the results.

Design structure and content of online questionnaires discussed with Stakeholder. In particular, Job Title and Clinical Speciality for 'pharmacists' were checked and finalised.

Wide-ranging discussion took place regarding the class of drugs to be targeted from 'formulary-adherence' quantitative data extraction. Pharmacist-Stakeholder recommended selecting drugs that were 'contentious' and would reveal information about expenditure of second-line, third-line (and more restricted drugs) compared to first-line options as a means to understand formulary deviance. Recommended in particular: Movicol (and other laxatives); statins; PPIs; antibiotics (in particular macrolides); and analgesics (later discussed Controlled Drugs such as oxycodone and Fentanyl and also commonly prescribed anti-inflammatories) (final list in Table 18).

The pharmacist-Stakeholder also warned against the likely time-consuming nature of the data extraction process particularly the non-formulary data. After a brief discussion of how this may be possible using various functions within 'Beford' (the Pharmacy computer system), he advised seeking the help of the IT Directorate Pharmacist at the Trust or an external individual who had originally setup 'Bedford' in the Pharmacy Department and routinely made visits to carry out updates to the system.

Discussing potential participants for the semi-structured interviews (avoiding 'names' and referring to 'category' of pharmacist e.g. "a Directorate Pharmacist or "a Junior Pharmacist who is currently doing a medical ward" in order to maintain confidentiality). The Stakeholder insisted on pursuing the Chief Pharmacist for interview as he believed that she could provide particularly interesting insights into the way 'managers' function and whether there was a visible difference between pharmacists who were 'practicing' on the wards and "in the field".
Stakeholder Meeting 1 (ii)

**Attendees:** Senior Formulary Pharmacist and Consultant Doctor

**Date:** May 2009

**Venue:** Consultant Doctor’s office

**Summary:**

Study’s proposed aim and objectives presented and agreed.

Design structure and content of online questionnaires discussed with Stakeholder. In particular, Job Title and Clinical Speciality for ‘doctors’ were checked and finalised.

Since this doctor-Stakeholder was an Elderly Care consultant, he initially proposed anti-parkinsonian drugs and ‘drugs that cause renal failure’. However, the pharmacist-Stakeholder’s recommendations of selecting more widely ‘contentious’ drugs appealed to this Stakeholder therefore similar recommendations were made (final list in Table 18).

Made recommendations about other consultants, registrars and junior doctors to interview.
Stakeholder Meeting 1 (iii)

**Attendees:** Senior Formulary Pharmacist and NMP

**Date:** May 2009

**Venue:** NMP’s office

**Summary:**

Study's proposed aim and objectives presented and agreed.

Design structure and content of online questionnaires discussed with Stakeholder. In particular, Job Title and Clinical Speciality for 'NMPs' were checked and finalised. NMP-Stakeholder also provided email address list of all NMPs at the Trust since, unlike with doctors and pharmacists, there were no administrative staff to facilitate the dissemination of online questionnaires (via email).

Since this NMP-Stakeholder was a specialist 'Pain Nurse' and part of the Trust's 'Pain Team', she was particularly interested in the use of Controlled Drugs. Since both the doctor- and pharmacist- Stakeholders expressed interest in this area, four Controlled Drugs (morphine, diamorphine, oxycodone and fentanyl) were specifically chosen with NMP-Stakeholder. She further discussed PPIs and anti-inflammatories since they were also drugs very familiar to her. She was not able to elaborate as readily as the doctor- and pharmacist- Stakeholders about other drug classes but agreed with the original list recommended by the pharmacist-Stakeholder.

The NMP-Stakeholder stated that she understood the reason to have only one NMP in the interview list (sample population should correspond as closely as possible to the actual population) however she added that nurse NMPs would also provide useful insights and recommended having two instead of one NMPs interviewed in the next phase of semi-structured interviews. She also recommended particular nurses who had been qualified as 'prescriber' for some time.

This Stakeholder also echoed the pharmacist-Stakeholder's advice to pursue the Chief Pharmacist for interview.
Stakeholder Meeting 2

**Attendees:** Senior Formulary Pharmacist, Senior Pharmacist, Consultant Doctor and NMP

**Date:** July 2009

**Venue:** Consultant Doctor’s office

**Summary:**

All Stakeholders expressed disappointment at lack of use of Prescribing Guide by doctors. Doctor-Stakeholder stated "I'm not surprised" and explained that often others at the Trust are unable to understand the time-constraints that doctors are under emphasising junior doctors are particularly "stressed" and often do find the time to use it. The pharmacist-Stakeholder asked why doctors would not use a service designed to "help" them. The doctor-Stakeholder clarified "formularies are not thought to help them but help you" referring to the Pharmacy department and cost-saving priorities.

The NMP-Stakeholder clarified that she has no need to refer to it because she has a small list of drugs that she adheres to and has become proficient at prescribing those drugs. She said she is aware of how to use it and "had a play around when it was launched" and found it very useful. She said she can see where doctors might benefit from using it and stressed that it should be "hammered home" to them.

All Stakeholders were interested in the insights obtained from NMP1. In particular the clear transition from pharmacist to prescriber was a particular point of interest. The doctor-Stakeholder discussed the lack of patient-insight that some pharmacists (making the effort to exclude the pharmacist-Stakeholder and acknowledging is specialist regard at the Trust and experience) inherently have especially when they do not make the effort to become involved in the process. The NMP at this point agrees that there are some pharmacists who seem as if they just want to make the supplies then "run off the ward". The doctor-Stakeholder resumes his original line of thought and states that NMP1 has demonstrated the development the ability to "think of the patient first" before "things like the drug budget or stock availabilities". The pharmacist-Stakeholder appeared to concede to this perspective, albeit reluctantly. He added though, that pharmacists "want" to do more "clinically" but have too many pressures of needing to be "down in dispensary for this slot" and expressed concern and empathy for junior pharmacists not receiving the training they need and he wants to provide because he himself is frequently having to cover extra wards and barely gets time to complete his "paperwork" for DTC meetings and his antimicrobial department commitments. Notably, both the NMP- and the doctor-Stakeholder refer to "prescribing powers" and the fact that the acquisition of this can lead to different "mode of thinking" as stated by
doctor-Stakeholder. All Stakeholders agreed (based on NMP-Stakeholder's suggestion) to increase the number of interviews with NMPs from one to two for the next phase of the data collection and recommended some names.

Stakeholders contributed to the development of a list of potential modifications. Some suggested changes were immediately rejected (by the Formulary Pharmacist-Stakeholder) because they were deemed unrealistic or unachievable for example: the development of new features on the Prescribing Guide such as links to drug interactions, information on renal impairment caused by drugs. The modifications that were agreed to and were eventually implemented are listed with explanations in Appendix 12. Stakeholders helped to facilitate some of these modifications for example, the "Workshops / Stalls at Grand Rounds" were arranged by the doctor-Stakeholder and further offered to make regular presentations at Grand Round events (once a week for a month).
### Stakeholder Meeting 3

**Attendees:** Senior Formulary Pharmacist, Senior Pharmacist, Consultant Doctor and NMP

**Date:** January 2010

**Venue:** Consultant Doctor’s office

**Summary:**

After presentation of provisional findings, the notable 'emerging themes' discussed were:

**Prescribing Guide 'is' useful:**

All Stakeholders expressed praise for the Prescribing Guide focus on various different aspects of the final product. Particular attention was given to praise the "educational value" (doctor-Stakeholder) that it has for "juniors". It was also praised for its comprehensiveness and links to various different guidance. The availability of cost information was also considered useful, particularly emphasised by NMP-Stakeholder. However, doctor-Stakeholder mentioned that this could give doctors the impression that the Prescribing Guide is "actually to make prescribing cheaper". Pharmacist-Stakeholder added that "it is" to reduce the cost of drug prescribing but that the emphasis is on being "cost-effective" so that there is still high quality prescribing based on "robust clinical trial data" but also to ensure that an expensive drug is not being used when a cheaper drug could do the same thing.

**'Critical split':**

Pharmacist-Stakeholder stated there is "definitely a split" in views on the Prescribing Guide and more widely in prescribing practice. Stakeholders discussed the different approaches to resource management (drug budget) and patient care. Essentially Stakeholders agreed that doctors and NMPs are more likely to think about cost as low priority (with doctor-Stakeholder clarifying that junior doctors will probably not think about cost at all).

**Pharmacists appear to be 'subjugated':**

Pharmacist-Stakeholder and Formulary Pharmacist-Stakeholder discussed the various time-constraints that frustrate pharmacists and agreed that they impact on both junior and senior ward pharmacists. Pharmacist-Stakeholder stated that there is little that can be done about the concerns pharmacists have raised about supply-function because there are current staff-shortages which mean that often he has to ask all pharmacists to do additional ward rounds. He is concerned about the impact that this can have on the quality of clinical care given by pharmacists to patients i.e. not checking ward charts as accurately as they could.
A noticeable discrepancy between qualitative and quantitative findings in relation to senior colleagues as influence was specifically raised and discussed by Stakeholders. According to the results of Question 4 in the self-completion questionnaires, pharmacists indicated that seniors were 'important' influences to their role in drug therapy. However during the semi-structured interview, while discussing influences most pharmacists listed senior colleagues either very late or not at all. The pharmacist-Stakeholder attempted to provided a rationale for this discrepancy. He stated pharmacists invariably carry out their ward duties alone (unlike doctors who work in teams) and so although pharmacists certainly regard their senior colleagues as 'important' as indicated in the quantitative data, "they do the best they can on their own". Since he was often involved in educating junior pharmacists he also added that when pharmacists were unable to resolve an issue independently then they "always come up to me or whoever for direction". Therefore regarding this issue of senior colleagues, rather than the two sets of data conflicting or being discrepant, it would appear that in fact they provide a more comprehensive interpretation of pharmacists' regard for their senior colleagues. The NMP- and doctor- Stakeholder agreed with this rationale.

**Formulary regarded as a control measure / bureaucracy / cost-motivated:** Extensive conversation about formulary being regarded as a control measure. All Stakeholders agree that ultimately it cannot be denied and does remove the autonomy from doctors and that this must cause frustrations. In particular doctor- and pharmacist-Stakeholder discussed the potential implications this has for doctor-pharmacists relations (pharmacist-Stakeholder mentions "strained" relationships at time).

**Pharmacists regarded as agents / supporters of restrictive practices:** Notably NMP-Stakeholder agreed with participants making such statements. She claimed to have been in situations in which she was unhappy about the stance taken by a pharmacist. She stated she was often concerned by the delays caused by pharmacists because they were "following protocol rather than thinking of the sick patient in the hospital bed". There was a loose consensus that pharmacists (in general) follow and try to implement pre-structured and algorithm-driven guidelines (often carried out by others) and lack the exercise of clinical judgement whereas doctors and NMPs are focused on the patient.

**NMP's experience an evolution of clinical thought process:** The doctor-Stakeholder notably reminded the group of NMP1 "transformation" and stated that many pharmacists would benefit from getting a "closer look" at how patients are "really" managed instead "just phoning the doctor and saying oh no you can't have this".
APPENDIX 16

FIGURES (A-H) SHOWING PRESCRIBING INFORMATION
Figure A. PPI usage at E&N Herts NHS Trust (July '08 to June '09)
Figure B. Laxatives expenditure at E&N Herts NHS Trust (July '08 to June '09)
Figure C. Statin usage at E&N Herts NHS Trust (July '08 to June '09)
Figure D. Analgesics usage at E&N Herts NHS Trust (July ’08 to June ’09)

DIAMORPHINE ISSUES
MORPHINE ISSUES
OXYCODONE ISSUES
FENTANYL ISSUES

DIAMORPHINE COST
MORPHINE COST
OXYCODONE COST
FENTANYL COST
Figure E. Macrolide usage at E&N Herts NHS Trust (July ’08 to June ’09)
Figure F. Drugs for urinary frequency at E&N Herts NHS Trust (July ’08 to June ’09)
Figure G. NSAIDs usage at E&N Herts NHS Trust (July '08 to June '09)
Figure H. Prostaglandin (ED) usage at E&N Herts NHS Trust (July '08 to June '09)
APPENDIX 17


Two people are arrested and charged with being involved in a serious crime. They are being held in isolated cells with no contact with each other. Since the police have insufficient evidence to convict them they seek incriminating information from the prisoners. Therefore each prisoner has a choice: (C) indicates 'concealing' information thereby 'cooperating' with the other prisoner; (D) indicates the prisoner 'defects' or 'discloses' the information to the police thereby demonstrating non-cooperation with the other prisoner. It is customary to use the (C) and (D) for 'cooperate' and 'defect' respectively. At this point the strategies that each prisoner can make can be described along with any consequent 'pay-offs' (benefits to the prisoner). If only one prisoner discloses the information, then that prisoner will be acquitted with a reward for helping the police (best possible scenario) and the other prisoner will receive a large prison sentence (worst possible scenario).

The 'Nash equilibrium' is a pair of strategies that are the best replies to each other. Tarrant et al (2004) clarify the best reply is the strategy that produces the best possible outcome given the other prisoner's strategy. In the Prisoner's Dilemma, the Nash equilibrium is joint defection (D, D), that is, both prisoner's disclosing information. In other words, there is overall stability if both prisoners opt 'not' to cooperate. This can be rationalised by considering that choosing (D)
(to disclose) is the best option for both prisoners regardless of the other’s strategy (to disclose or to conceal). Although both prisoners would be better off if they 'both' choose to conceal (in effect cooperating with each other) but since they do not know what the other will choose the safest option is to defect (disclose). Crucially by choosing to conceal incriminating information, the prisoner 'exposes' himself to the risk of the worst possible scenario (C, D), that is, the other prisoner being tempted to disclose information. Therefore in this way game theory shows that cooperation is never a rational strategy.
**APPENDIX 18**

**EXAMPLE OF A TRANSCRIPT FROM A SEMI-STRUCTURED INTERVIEW**

**Interviewee:** CD2  
**Duration of interview:** 00:36:42  
**Venue:** Consultant's office  
**Date:** June 2009

<table>
<thead>
<tr>
<th>Interviewer:</th>
<th>Okay so let me start with the hospital drug formulary, what do you think, or what is your perception of its purpose and its objectives?</th>
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<tbody>
<tr>
<td>Consultant:</td>
<td>To have a hospital drug formulary is, basically is for you to try and have a more limited supply of medication based on sort of local and regional priorities and therefore make, I'm sure logistically it makes sense to have a limited thing for the pharmacy to run because if you umm, if you run a service with the whole of the BNF then I'm sure logistically it's much more difficult so where there are two or three different drugs which are of similar efficacy and stuff, it makes sense to have one which is the preferred agent again based on local priorities. So I understand the concept of having a hospital formulary and umm, you know I think that it’s a good idea so I don’t see any problems with that.</td>
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<tr>
<td>Interviewer:</td>
<td>And moving forward, just talking about the Prescribing Guide, what are your opinions of it, you know, what’s your general perceptions of it, as a final sort of product?</td>
</tr>
<tr>
<td>Consultant:</td>
<td>I think it’s umm, as all guidances, it has the value that when especially inexperienced juniors, especially if I’m doing a ward round and I tell them that I want a bronchodilator or I want an antibiotic or want something and then they ask okay sort of what dose, what drug, what and I say okay look it up. You know we have a formulary, we have a local Prescribing Guide, look it up and choose according to the preferences. So at least they have an understanding of where the drug stands and can do that. As far as my own practice is concerned, I know what drugs are on that so I don’t tend to look at it regularly unless someone tells me oh you said that and that is not in the formulary or something of that sort and I have to go back and look at it but I wouldn’t use it normally but that’s only because I know of the content of it as far as the drug I would prescribe. But obviously if I was going to prescribe a drug I don’t normally prescribe in my practice, I would say yeah like a newer form of insulin or something which I don’t normally prescribe I would look it up and look at the you know, current availability. Something outside my speciality would be very important for me to look up because I wouldn’t be fully aware of the latest preferred drugs in that area but within the drugs I would normally use, I don’t need to use it.</td>
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</table>
Interviewer: Hmm, and when you originally saw the Prescribing Guide, did it meet you perceptions of a hospital formulary, did it meet you expectations?

Consultant: I think it’s an excellent device umm, to have, an excellent tool to have especially the Intranet availability of it. The only downside of it that the Intranet availability on the wards or in work areas is very limited and you know one computer and your fighting with radiology and pathology and all that they also deal with lack of time and to be able to go from the bedside back to the one computer on each ward which is available for hundreds of different purposes and including catering and admin stuff and nurses and other staff too is the main stumbling block. Say if we had, like in some areas in the hospital, you know you go on a ward round you have a laptop with you and, and you know you do your work on that and that’s much easier. So we can have these trolleys which have these laptops on them and can take them on the round and that makes life easier otherwise for me during a ward round from a bedside to go back to look at it is just practically impossible so I can’t say that it will make a big difference in day to day practice because of the lack of availability but when I send somebody away and say look you go and look it up now and then bring it back, that’s okay.

Interviewer: I see, and when you do send one of your juniors away to look something up, what’s the feedback you’ve receive, are they satisfied with the Prescribing Guide?

Consultant: Yes, they, they do get all the information they need from that.

Interviewer: Okay and what about your own experiences of using it, I know you said you sometimes use it as well...

Consultant: Oh yes.

Interviewer: Can you perhaps describe your most successful attempt at using it?

Consultant: I mean, at present I would say it still needs work. Because what I would be very interested in personally would be that, especially if it’s an area that I’m not particularly familiar with the literature and I don’t use it on a day to day practice and I see something in the formulary I would want it backed up by some national level or international level guidelines and I would also want links to the additional, you know the actual key papers in that area which would support the inclusion within the guideline within that, that formulary, and I don’t know, I haven’t sort of explored this very much in other areas where I don’t know the literature but that would be what I’d be looking for. Without that backing I would find it difficult to choose and prescribe a drug knowing that it’s on the formulary. Knowing that it’s on the formulary doesn’t automatically give it the evidence
guarantee that I would want to seek, you know for my own practice.

**Interviewer:** Yes, okay. Okay what about the features that you feel might be working well, or elements of the Prescribing Guide you feel are particularly useful?

**Consultant:** I think the simplification of medication down to the preferred agents is useful. I’m not sure the adverse events, because I’m sure there’s a BNF link, so that would be useful because, you know, when your prescribing a drug that you’re not normally aware of or not in your practice you want to know a couple of things, you want to know whether there are any contraindications, you want to know whether there are any adverse effects that you should make the patient aware of and you should be aware of and also whether there are any particular interactions and those are the typical bits that you would look up in a BNF. So we would want a formulary to provide what an eBNF would do, but in a much more, sort of, user-friendly way and locally what’s there otherwise the eBNF itself is there.

**Interviewer:** Yes, that’s right. And do you feel with the Prescribing Guide as it is currently, do you feel that it has the potential to have a lasting, sort of sustained impact on prescribing practice?

**Consultant:** I think to influence prescribing practices, you know you have to keep it updated at the frequency that the BNF is updated so almost three or four times a year and it would also have to believe in more evidence and especially more links to particular papers and other things where anybody who doesn’t know everything about a particular thing would want to be updated on and I think unless that is kept up-to-date which I’m sure involves a lot of work, will involve a lot of work, it would lose its impact. You know for me if I knew that it wasn’t updated more than once each year then I wouldn’t want to look at it again because you know that if I go on to any of these evidence-based websites or speciality college websites you can get to evidence which is much more advanced or recent and I like to, or we all like to sort of keep abreast of the developments in our areas so in order for it to be relevant in the future and not just a good idea in the beginning I would want it continuously updated. And the other feature…

**Consultant:** Yes the bit I was going on to is that umm, you know if you open each section of the formulary, if on that section you had a, an alert, either alert or an update or change, say the NICE guidelines in that area had been updated or changed or current recommendations or there’s been an NPSA alert in that particular area, if that comes up as a, an item, you know, somewhere on that page, umm, that also gives it a sort of real time advantage. You see instead of being a repository of information that you refer to when in doubt, to make it more interactive or make it more reliable with something like if I log
in to it or if I open a page I would get an update of what’s happened in the last sort of couple of months in that particular area. So basically new evidence or new guidelines maybe new, I don’t mean new research but new sort of updates.

**Interviewer:** So, not anecdotal things.

**Consultant:** No not anecdotal.

**Interviewer:** So do you mean finalised, approved and ratified guidelines whether that’s NICE then?

**Consultant:** Yeah, could be NICE, could be speciality guidelines like the British Hypertensive Society, umm, other things like that. You know, every guideline has a page at the front which says you know, summary of changes which just highlight to you the bits you need to know about. So if the guidelines have changed, instead of me having to go through the whole guideline to understand what changes there are, if there’s a box on that page which says you know, asthma guidelines update, NICE and you know one, two, three four, these are the changes that are there. So you have to make it relevant you see, otherwise I would seek that information elsewhere.

**Interviewer:** Right I see. So just going back to your earlier point, you’re saying that you want to know that it has evidence, umm, because that drug appears, even if it has a Pharmacist button, and you’ve seen those haven’t you, you click on those and they link to NICE guidelines and abstracts or summaries of meta-analyses for example?

**Consultant:** Yes, I have seen those.

**Interviewer:** But even if it didn’t have that, the drugs that appear on the formulary, they’ve been subjected to you know, evidence-based review so would…

**Consultant:** Where, where would that evidence-based review have been done?

**Interviewer:** Well, it would have been done by the formulary department with the New Drugs and Formulary Committee, so my question is, and just by seeing the drug on the formulary that would not…

**Consultant:** I would not, I wouldn’t. I mean I have, seen nothing up till now in my practice that would give me the confidence that each drug, by appearing on the formulary is evidence-based. See, the problem is even NICE which has a very transparent process of approving, so everything NICE does, you can see and even there you will see that the amount of controversy that the NICE guidelines generate in different speciality areas when it comes down to it, because there are stakeholders in NICE compared to a meta-analysis which is pure evidence, scientific evidence, NICE fits in other factors like stakeholder factors so economy, logistics umm, management you
know other issues which, and affordability <<emphasis and use of hands as speech marks>> and other things which are not, so if you showed me a meta-analysis which is published in a front line journal, a top line journal, that would be pure evidence, that wouldn't take in accounts of local people and their budgets so I would have a great trust in that, in a good journal obviously.

**Interviewer:** So do you mean, you would have more trust in that than in NICE?

**Consultant:** Oh yes, for sure <<emphasis, leaning forward>>. Because I know that the NICE process involves the logistics and economic factor. And the economic factors are thresholds which are set arbitrarily. So it not based on, it based on affordability and it's not based on effectiveness.

**Interviewer:** Okay, so is that perhaps how you feel about the New Drugs and Formulary committee?

**Consultant:** I don’t know. What I feel about the New Drugs and Formulary Committee is that I don’t see any transparency, umm NICE I can see the transparency, NICE guidelines are published, NICE evidence and discussion is published, you can see it, the NDF Committee’s discussions there is no transparency, there is no publication of minutes of NDF Committee discussions on a website or somewhere everyone can see it and that doesn’t give me confidence in the process, you see, so I need you know, what I’m trying to say is even if NICE, you know NICE have their own set criteria for approval which is published for people to see, even that generates a huge amount of discussion and debate when NICE comes up with a guidelines. So how can you expect the, us, you know without any transparency, without any evidence being produced, if the NDF Committee comes up with something which I would believe not to be evidence-based based on my review of the literature which may not be a meta-analysis but you know I have to make a personal decision on that sort of thing, so I have to base it on my understanding of the literature, I have to base it on published reviews and, and other things like and, and international guidelines so from there the NDF Committee is like a black box, so doctors just don’t like black boxes, umm, you know I just can’t have a black box. You know, because we are continuously supposed to be evaluating and updating our decision making process and the decision making process depends on you know literature, depends upon your patient’s you know benefits, depends on your understanding of the literature and all that so, umm, it's a diffuse process but my main contention is the lack of transparency, the lack of publication of minutes, I, I, don’t see why minutes are not published or if minutes are not published for everybody to see, they should be available internally you know within the Trust website, that would give me confidence, if I knew why the decision was taken if I knew what discussion actually happened, if there were minutes you could actually refer to which were then concrete and sent out, I would
have a trust in that system, without that, I don’t know what happens. I just can’t trust a black box.

*Interviewer:* Okay, before we move on, you mention your views about hospital formularies and the Prescribing Guide, do you feel its patient focused?

*Consultant:* I don’t see that formularies need to be patient focused.

*Interviewer:* Right, are you saying they don’t need to be or that they are not?

*Consultant:* You see, everything we do is patient focused. I don’t know what you mean by patient focused, like in research if I say patient focused I would include lay members or patients’ representatives within our decision making process. Umm, the problem here, is that you need to have pharmaceutical guidelines or formulary stuff depends on hard evidence, not only hard evidence on effectiveness, but also hard evidence of you know half-lives, and clearance and others, and that, I don’t see how patient focused comes in here. It’s all for patients, it’s all for the benefit of patients but beyond that I don’t know what else you mean.

*Interviewer:* Well, I guess what I’m trying to get to is, do you feel the NDF decisions prioritise the patient or not?

*Consultant:* I don’t know about that really. The problem is that I don’t know very much about what actually happens there because I just don’t see anything. So I wouldn’t want to judge it, but I would, umm, from my personal experience is that I find umm, practices or drugs which are licensed or evidence based and good practice units, big units around the world and around the country are not having the same treatment locally and umm, I cannot see why. I cannot see that it is down to evidence, umm, or the lack of it, because the evidence, we have supplied. But that’s a different issue, my main contention would be that would I trust everything that the NDF Committee approves as gold standard evidence, not at present. I would want to verify and check and verify again each of those information independently or from independent sources before I actually accepted that.

*Interviewer:* Okay, I’ll move on to talking about prescribing practice in general and the influences on practice. What do you think are the main, or the top say few influences on prescribing for doctors?

*Consultant:* I would say that the first, umm, I can’t, I can’t tell you one two three four five but I would say the most important are and I’ve looked at this before in my research and I found that peers, umm, or umm, it’s not called peer-pressure but it’s peer-usage, so if I knew of the drugs that are used by my peers in different parts of the country and by especially peers in tertiary centres where they are at a cutting edge of research, that make, that would be my sort of, I would rate it
as one of my highest reasons, umm, which would influence my practice so, which is why I always look at things like the Royal Brompton and all others, so whatever those units are doing umm, at the cutting edge I would consider that influential and when we looked at it for doctors that is one of the important factors. Second is obviously evidence from publications so the, we, all of us, we can produce a small list of publications that are key to our own area of practice and anything that comes up there for example the N-acetylcysteine paper in the New England Journal of Medicine, now that's a key paper and that's a very good quality paper for umm, good quality evidence and that would change my practice so clear evidence in prime journals which we would be scanning regularly would make an influence. The third thing would be recommendations or new data presented at conferences and we all do one or two international conferences a year where you go and attend the sort of year-in review or update and sessions which is basically a synopsis of what the latest evidence is in the last year so I would be sitting there in asthma, and COPD and sleep and other areas then listening to you know the key presentations in those areas and I take back from there the key areas of development in, in that. So those are the three most important, umm influences. And then patient preferences always umm, come into this picture, say if a patient is on aminophylline, I know aminophylline does a great jobs but I know that patients hate it, so I would have to, I would encourage people but I would have to tailor my practice to that sort of thing. And after that I would put down representatives, umm, representatives coming and pushing...

**TELEPHONE CALL – INTERVIEW PAUSED**

**Consultant:** Sorry about that. So, yeah what I was saying about representatives, you know there are drugs where you have a lot of pressure from representatives visiting, it has a, it has an effect of bringing that particular drug to the top of your list.

**Interviewer:** Sorry, do you mean medical representatives?

**Consultant:** Yes. If a medical representative of a particular drug that I don’t normally use for instance, comes along and umm, tries to tell me the advantages of that particular drug and all, it has an effect although you know, we never take that on face value and unless it’s supported by good quality evidence. It has the effect of bringing it to the top of your list in my, and you know, I’m sure this has been researched before. Umm, and the way to balance that like we all individuals do is by making sure that you have exposure to the whole range, rather than one particular agent and umm, you know, then sometimes as busy consultants do, and you know I personally don’t do it, but I know others do, which is to say that well if you think this particular drug is better than the other well present that information to the alternative representative and say well you know, produce the evidence. So you know, when I see somebody, I
always say you know, send me the actually papers which the medical information bits of the, generally send them and I like to read them and often you have access to some papers which you wouldn't have otherwise, through our NHS system, so it's an advantage in getting to look at the evidence.

**Interviewer:** Okay, that's interesting, you've mentioned quite a few influences there, where would you say the Prescribing Guide might slot in and have an impact?

**Consultant:** I don't think the Prescribing Guide would influence initiation of prescribing, I mean I don't see it that way so I wouldn't look at the Prescribing Guide as something to find out what I would do in this area, I wouldn't look at it that way umm, I would look at it purely to see, okay I know, I need this particular drug let us see the offers from the family of drug, is available in this thing. So I would look at it at that step.

**Interviewer:** So, because we have first line, second line, third line…

**Consultant:** I would not look at it that way, you know which one is first line second line here, having made a decision about the family of drugs or the class of drugs previously but that decision of the class of drugs like say using an ACE inhibitor in somebody with hypertension, I wouldn't get to that decision by looking at the formulary guide, that decision would come from the evidence base. I would just only purely look at that to see which particular agent we have on formulary.

**Interviewer:** Let's say for example, keeping with your example, say you've been to a conference and you've looked at papers and you've made your decision that out of all the ACE inhibitors you would like to use perindopril but our formulary says it's amber and ramipril is first line, what would you use first?

**Consultant:** I mean it depends on how good the evidence is, if the evidence shows that there is a clear advantage and that is a view that is held by my peers, you know and by the speciality society that you know, I belong to, the British Thoracic Society, if the BTS thinks that one is particularly better than the other then I, my view would be that I don't care whether it's there or not, I'll prefer this agent because you would want to use the one that is best but if there was no sort of, set of clear guidelines from the speciality societies or the peers, so you know, the professors I bump into at the conferences or at presentations, umm, are not showing clear evidence or benefits for the other then I will choose the one that is available on the formulary.

**Interviewer:** Okay, so have you ever requested a drug from formulary and hasn't been approved?
**Consultant:** I can name you six, or seven umm or eight or ten <<laughs while shaking head>>.

**Interviewer:** So the outcome with all these was that they were not approved?

**Consultant:** Yes. I mean, that is always <<emphasis>> the case, it is always <<heavier emphasis>> the case and I’m sure this applies to other departments too.

**TELEPHONE CALL – INTERVIEW PAUSED**

**Interviewer:** So I suppose we were touching on the issue of conflicts…

**Consultant:** It’s, its’ not conflicts, I, I umm, I don’t think it’s a conflict, I think it’s just a hurdle you know, umm, and umm, and the difficulty is that the hurdles are not transparent and that makes it transparent. You see, so if it was an open process whereby evidence was presented, minutes were recorded, minutes which I could review, and umm I would have an opportunity to refute or support the application either in person or in writing and then it would be fine but because it’s a closed door system and perhaps it’s not intended to be, it just so happens that there is a lack of clarity in the process and that not sort of understanding why and when you talk to your colleagues in your speciality nobody can understand why, so that's umm, umm, one factor. I mean, more recently, if I just take an example about one particular drug, the umm, say tiotropium and the latest advice from the NDF Committee was that tiotropium and combination drugs in patients with moderate to severe COPD should not be used together. Now, that’s come from our NDF Committee, in a letter from the Chief Pharmacist to me saying that is the NDF Committee’s view. Now, I would be alarmed by that view because internationally, COPD guidelines, evidence based guidelines, national guidelines, NICE guidelines all say something which our NDF Committee are coming out and saying, no.

**Interviewer:** So why have the NDF Committee made this decision?

**Consultant:** I don’t know. I would be alarmed by that and I don’t know why. I, I know that the constitution of the NDF Committee doesn’t include a respiratory person at all and I would be very worried if a committee is countering, counteracting something which appears in national and international guidelines and locally, without any local representation. Now I would have very little confidence in that committee for that reason so that’s one sort of, sort of glowing example of something that I particularly don’t understand and if that meant that our COPD patients in this particular area do not get the benefit of tiotropium combined with combination inhaler I would say that they are getting a very poor service and I would want to take that up, take that forward because I would say that is contravening standard national and international guidelines. Now obviously such examples are not going to be many, but I worry about the
constitution, I worry about the process of the NDF Committee’s decision making and I’d like really to see how the decision making is done, how robust is the decision making process and what are the conflicts of interest of the constitution, of the members of that committee.

**Interviewer:** I understand, you said you wouldn’t class the Prescribing Guide in terms of influence, very highly, how do you feel about the NDF Committee in the same respect?

**Consultant:** I wouldn’t be influenced in my prescribing practice by the NDF Committee, no.

**Interviewer:** You feel it’s interfering with your practice?

**Consultant:** If it does, as it does in many cases, the GMC’s position is quite clear, that you have to bring it up, that the your primary responsibility for a doctor is to make sure that your patient gets the best, umm, best medicine or best practice now it doesn’t necessarily mean the most expensive one, it means the one that is the most evidence based or in your opinion the current best evidence. Now the problem with guidelines is that if they are four years old or three years old and there is more overwhelming new evidence available or something it is your duty as a doctor to keep yourself updated and also provide your patients with the current best practice. So that’s the GMC’s duty and I would fall back on that if there was a conflict in a situation.

**Interviewer:** But wouldn’t you assume, if there was a review carried out by the NDF Committee for a drug that you had requested which was to appear in a guideline that you feel was out-dated, and your saying that there is all this new, overwhelming evidence, wouldn’t you assume that the new evidence had been looked at and taken in to account?

**Consultant:** I would hope so but cannot say that I have confidence that it has been done that way and primarily because that evidence is never produced and you have an inherent mistrust of something you cannot see. Simple as that.

**Interviewer:** Okay, just want to know what your feelings are, your perceptions of other healthcare professionals involved in drug therapy, pharmacists and non-medical prescribers, what do you think about their role in drug therapy?

**Consultant:** I think the main limitation of non-medical prescribers, umm, and this applies to even junior doctors or early prescribers in, in doctors, so if you look at our foundation level doctors umm, is that umm, the application, the knowledge base which is necessary to make clinical management decisions or choose appropriate agents is not always that robust and it’s not robust for F1s, it’s not robust for F2s and I
would say from senior registrar onwards it would be a much more robust process, but umm, say in the first five years of passing out of medicine, I would consider them to be non-robust so they wouldn’t particularly have the breadth of knowledge necessary or the depth of knowledge necessary to make the right decisions and so I wouldn’t leave them unsupervised in their decision making process. Now the problem with umm, non-medical prescribers is that the courses, that the basic courses which underpin their qualification are not necessarily aimed at the same process so if you’re a pharmacist, yes you know everything, ins and outs of particular drugs but you’re you know, diagnostic ability or your pathophysiology umm, knowledge will not be up to the standard of a doctors because of the different courses and same with nurses, you know, nursing courses are designed to produce nurses, they are not designed to produce doctors.

**Interviewer:** What about pharmacists in general?

**Consultant:** Pharmacists in general, I would say the same thing. Pharmacists in general are not designed to be diagnosticians so they wouldn’t be designed to understand the diagnostic process umm, make a diagnosis, understand the pathophysiology and then choose a drug. They would have a very good understanding of what a drug does in a particular situation once that particular diagnosis has been made. So if I tell you this is tuberculosis, then you would know which drugs you would use for that, but to get the diagnosis of tuberculosis is the bit that I wouldn’t expect a pharmacist or a non-medical prescriber to be able to make.

**Interviewer:** In terms of advising on the right drug…

**Consultant:** Advising on the right drug for a pharmacist, yes, that is always there and that is always welcome and units which umm, like in my training period, there are units where a pharmacist is present on a ward round and that is a fantastic combination and I always want that because having that expertise on your, when you’re making your decision is very very good but unfortunately logistics would mean that we don’t get that information and when we don’t get that information we have to fall back on the BNF, so if I had <<pharmacist named>> on my ward round, which I’ve had one day I sort of would tell her, I’d turn to her and say okay you tell me what are the interactions here, what should we be watching out for and she would have her BNF out and she would look at that, so, it’s good you know, because that is what multidisciplinary is all about and I would welcome that and same thing you know, if there was a drug or an interaction that I wasn’t sure about I would put it down and want to pick up and ask one of your New Drugs and umm, your umm Medicines advisor, information to say look up and umm, what because there are things like umm, post hoc reports and post like umm…
**Interviewer:** Yes, post-marketing surveillance.

**Consultant:** Yes, which we don’t normally have in publications and I’ve often asked Medicines Information people or perhaps colleagues of yours, can you ring up the company and find out this post surveillance data and just tell me whether this is something that has changed so that is a useful tool to have.

KNOCK AT DOOR – INTERVIEW PAUSED

**Consultant:** Sorry about that. Yes, so it would be a significant advantage to have that and which is why I always prefer to have an interactive process rather than a pharmacist telling me that you can’t give this because it’s not approved by NDF Committee which then is designed to increase your blood pressure, a good banter, an interaction, evidence exchange, colleague to colleague is good which is why I always tell my, whenever I get a call from pharmacy I tell them please can you get one of your senior pharmacists to talk to me because that way I can have a conversation, I can’t have a conversation with a junior pharmacist because they’re understanding is very low and they are very restricted and it just makes a mockery of the whole process.

**Interviewer:** Okay, right, last question now. Could you describe a time when you experienced some, as you put it earlier, hurdles, somewhere when you felt your prescribing was limited and perhaps what could be done to improve the system?

**Consultant:** Well, there are two clear examples. The first example is modafinil and the second example is ropinirole. Now both of these drugs are licensed, umm, fully licensed from the indications that they are used for, both these drugs are available in the formulary, in this Trust to other users and umm, something which is evidence based which has got a clear marketing license, umm, clear license to usage is not available to use for me, umm, and that I find absolutely appalling and I find it completely, absolutely impossible to, to accept the situation like that. If it was a drug which had never been used before and I was wanting to introduce that, yes I would go through that whole process, you know that whole application process for that and I would produce the evidence, umm, in situations where a drug is fully licensed, and a drug is available for use by others and I’m not allowed to use it, three years or four years into running a sleep service for example in this particular area, umm, I find it appalling. Now, if you look at the amount of work I have to do, in terms of clinical work, actual patient work, the time I have available to sit down and produce a voluminous application process for things which are done and dusted by others around the world and internationally, I mean I just don’t have that time and umm, okay you can understand there is a process and there is a protocol and you try and do that, you know three or four times and then to come
back and firstly not give me an evidence based answer and to come back and say we have never looked at it or we have looked at it and the Committee didn’t approve it, for what reason we don’t know and stuff is very frustrating. So I would say those two are clear conflicts. Now if I was introducing a drug which had never been used before, I would understand the process but what I do not understand is something which is approved, licensed, available in the, the thing is but not for this indication and there the reluctance of the Committee to approve that drug and producing hurdles and making it four years into approving modafinil, I mean I have been doing a sleep clinic for four years and modafinil is till not approved. Ropinirole, licensed, the only licensed drug in umm, in restless leg syndrome, I still cannot use it but others can use it, I don’t understand this.

Interviewer: I think ropinirole has two licensed indications.

Consultant: It is licensed for restless leg syndrome.

Interviewer: Oh yes I know, but I think it’s only licensed for Parkinson’s here.

Consultant: Why would it not be licensed for restless legs, you know when, internationally and nationally it’s licensed for that use and there are clear guidelines for how it should be used, I don’t understand. So you see, just by creating these hurdles my understanding is that it delays the whole process and it has done it successfully, four years into a sleep clinic I can’t still prescribe the drug I would consider essential.

Interviewer: So do you mean that you actually requested this four years ago?

Consultant: I’ve requested for it about three times and I don’t know what’s happened. Three months later you discover that it hasn’t happened and then you get a request to put in another one, then you get a request to put in a fast-track one, then you do it again, and do it again and then three years later you’re still in the same place and I still cannot use it. Melatonin, modafnil and ropinirole, I cannot use and I see 600 hundred patients in a clinic, new patients every year, why? Don’t understand.

Interviewer: Hmm, I see, so umm do you maybe umm not feel it necessary for the formulary to rationalise the use of drugs…

Consultant: Well, I mean I don’t understand, you know, would you rationalise salbutamol in asthma? You know, and I don’t understand that, I mean what is the conflict? I mean are there five different drugs that are to be used in chrono-biological sleep disorders? No, it’s only melatonin. What other drug is available for day time sleepiness, okay there is modafnil and dexamphetamines they are available, but modafnil is the clear leader over the others because of side effects, do you understand and it is licensed and still
I can’t understand it. And I don’t know where it stands now, I don’t know, what is the procedure? Every three months or so, I will give it a go and after that see if it has been approved but then it comes back to me, you know, saying sorry, you know it hasn’t been approved.

**Interviewer:** So, are you saying that if there’s a drug you want to use and if it’s been licensed by the MHRA and whether it has…

**Consultant:** If it has a clear presence in national guidelines, it shouldn’t require, or there should be no hurdles. If it’s a drug which is not in national guidelines, which is something which is new, which is not licensed for use in this particular area I can understand the position. What I cannot understand is, when the drugs which are licensed, which are in national guidelines, evidence based national guidelines, I don’t see why those drugs have to be fought for locally and I would question the integrity of the Committee and it’s constitution to see why it’s happening, you know, so I can’t understand that process at all.

**Interview:** Right, Okay, I think I’ll leave it there, you’ve given me more than half an hour, thank you very much.