

Inappropriate hospital admission and
length of inpatient stay: patients with long
term neurological conditions

Christina L Walding

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Abstract

Introduction

Studies have shown that a proportion of patients admitted to hospital do not require the intensity of services they provide. Also, the admission of patients can be for an inappropriate duration.

Methods

Three studies were conducted. The first study was a record review to determine the appropriateness of patient admissions and inpatient stays. The second examined the wider causes of inappropriate admissions/inpatient stays as perceived by clinicians, and identified interventions to reduce such admissions/stays. Data were collected using focus groups. The final study explored barriers to service use from the perspectives of clinicians and patients. Data were collected from clinicians via an online questionnaire and from both clinicians and patients using semi structured in-depth interviews.

Results

Of 119 patients, 32 were admitted inappropriately and 83 were admitted for an inappropriate duration. Risk factors for an inappropriate admission included living in the community compared to a nursing/residential home, and for an inappropriate length of stay included the number of presenting complaints, number of long term neurological conditions and whether the participant lived alone in their own home or with others. In the second study, the limited knowledge and a lack of health and social care resources in the community, were perceived as causes of inappropriate admission/lengths of stay. Interventions to prevent inappropriate admissions/lengths of stay included: sub-acute care facilities and patient held summaries of specialist

consultations, among others. The final study found that the main barriers to use of services were out of hour's access and unfamiliarity of clinicians with local service provision.

Conclusions

The causes of inappropriate admissions/lengths of stay related, in main, to communication problems and accessibility of services. Interventions to improve transference of information and knowledge regarding long term condition management and service provision may be warranted.

List of published papers

1. Hammond, C., Phillips, M., Pinnington, L., Pearson, B., Fakis, A. Appropriateness of acute admissions and last inpatient day for patients with long term neurological conditions. *Biomed Central Health Services Research Journal*, 2009, Vol 9, Issue 41.
2. Hammond, C., Pinnington, L., Phillips, M. A qualitative examination of inappropriate hospital admissions and lengths of stay. *Biomed Central Health Services Research Journal*, 2009, Vol 9, Issue 44.

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TABLE OF CONTENTS

ABSTRACT	II
LIST OF PUBLISHED PAPERS	IV
ACKNOWLEDGEMENTS	V
GLOSSARY OF TERMS	XIII
1 INTRODUCTION, AIMS AND OBJECTIVES	1
1.1 INTRODUCTION	2
1.2 AIMS AND OBJECTIVES	4
1.2.1 Overall aim	4
1.2.2 Objectives	4
1.3 STRUCTURE OF THE THESIS	5
2 REVIEW OF THE LITERATURE	8
2.1 INTRODUCTION	9
2.1.1 The UK health care context	10
2.1.2 The Derbyshire population and health care context	15
2.1.3 Long term neurological conditions	16
2.2 METHODOLOGICAL APPROACHES TO APPROPRIATENESS STUDIES	18
2.2.1 Defining inappropriate admissions and lengths of stay	18
2.2.2 Data collection	26
2.3 THE APPROPRIATENESS OF ACUTE ADMISSIONS	34
2.3.1 Prevalence of inappropriate admissions/lengths of stay	35
2.3.2 Factors associated with inappropriate admissions/lengths of stay	39
2.4 THEORETICAL FRAMEWORK	42
2.4.1 Selection of a theoretical framework	42
2.4.2 Social systems theory	44
2.4.3 Application of social systems theory	49
2.5 APPROPRIATENESS OF ADMISSIONS/LENGTHS OF STAY FOR PATIENTS WITH LONG TERM MEDICAL CONDITIONS: A FOCUSED REVIEW	53
2.5.1 Research question	55
2.5.2 Inclusion criteria	56
2.5.3 Results	56
2.5.4 Study design and population	57
2.5.5 Inappropriate admissions	58
2.5.6 Inappropriate length of stay	61
2.5.7 Critical appraisal	62
2.5.8 Overview of findings	65

2.6	APPROPRIATENESS OF ADMISSIONS/LENGTHS OF STAY: A NARRATIVE REVIEW	66
2.6.1	Older adults	66
2.6.2	Neurological patients	69
2.6.3	Actions to reduce inappropriate admissions and lengths of stay	70
2.6.4	Implications of inappropriate admissions and inappropriate lengths of stay	75
2.7	A DISCUSSION OF LITERATURE FINDINGS	78
2.7.1	Conceptualisation of appropriateness	78
2.7.2	Key causes of inappropriate admissions and lengths of stay	80
2.8	GAPS IN THE LITERATURE	88
2.8.1	Examination of those with long term conditions neurological/conditions	88
2.8.2	Exploration of the wider causes of inappropriate admissions and inappropriate lengths of stay	
2.8.3	The patient perspective	90
2.8	CHAPTER SUMMARY	92
3	PHASE 1 - APPROPRIATENESS OF ACUTE ADMISSIONS AND LENGTHS OF STAY	92
3.1	INTRODUCTION	94
3.2	METHODS	94
3.2.1	Aims and objectives	94
3.2.2	Sample size calculation	95
3.2.3	Participants	96
3.2.4	Setting	97
3.2.5	Assessment of appropriateness of admission and length of stay	98
3.2.6	Definition of appropriateness	98
3.2.7	Composition of the expert panel	99
3.2.8	Data collection	101
3.2.9	Procedure	105
3.2.10	Analysis	109
3.3	RESULT PART ONE: ASSESSMENT OF APPROPRIATENESS OF ADMISSIONS AND LENGTH OF STAY	112
3.3.1	Recruitment	112
3.3.2	Reliability of expert panel decisions	114
3.3.3	All participant characteristics	115
3.3.4	Differences between those admitted appropriately and those admitted inappropriately	120
3.3.5	Differences between those who experienced an appropriate length of stay and those who experienced an inappropriate length of stay	127
3.3.6	Modelling inappropriate admissions and lengths of stay	140

3.4	RESULTS SECTION TWO: CASE SERIES OF PARTICIPANTS INAPPROPRIATELY ADMITTED	143
3.4.1	Case study one	143
3.4.2	Case study two	147
3.4.3	Case study three	151
3.5	DISCUSSION	155
3.5.1	Quantitative examination of appropriateness of admission and length of stay	155
3.5.2	Qualitative examination of appropriateness of admission and length of stay	159
3.5.3	Limitations of the study	163
3.6	CHAPTER SUMMARY	169
4	PHASE II - CLINICIAN PERCEPTIONS OF INAPPROPRIATE ADMISSIONS AND LENGTH OF STAY	170
4.1	INTRODUCTION	171
4.2	METHODS	172
4.2.1	Aims	172
4.2.2	Participants	172
4.2.3	Data collection	172
4.2.4	Procedure	174
4.2.5	Analysis	175
4.3	FINDINGS	175
4.3.1	Causes of inappropriate admissions and delayed discharges	175
4.3.2	Strategies to prevent inappropriate admissions and delayed discharges	184
4.4	DISCUSSION	190
4.5	CHAPTER SUMMARY	194
5	PHASE III - BARRIERS TO SERVICE USE	195
5.1	INTRODUCTION	196
5.2	METHODS	197
5.2.1	Aims	197
5.2.2	Participants	197
5.2.3	Data collection	199
5.2.4	Procedure	202
5.2.5	Analysis	205
5.3	RESULTS PART ONE: FINDINGS FROM AN ONLINE QUESTIONNAIRE	205
5.3.1	Recruitment	205
5.3.2	Participants	206
5.3.3	Service use	207
5.3.4	Service prevention inappropriate admissions	208

5.3.5	Service specific barriers	209
5.3.6	Experiences and view of inappropriate admissions	221
5.4	RESULTS PART TWO: FINDINGS FROM IN-DEPTH INTERVIEWS WITH CLINICIANS	224
5.4.1	Barriers to accessing services	224
5.4.2	Actions to improve access to services	237
5.4.3	Impact of inappropriate admissions	244
5.4.4	Commonalities and differences between primary and secondary clinicians	249
5.5	RESULTS PART THREE: FINDINGS FROM IN-DEPTH INTERVIEWS WITH PATIENTS	250
5.5.1	Characteristics	250
5.5.2	Symptoms experienced when admitted	251
5.5.3	Primary contact when ill	252
5.5.4	Alternatives to admission	254
5.5.5	Barriers to accessing services	254
5.5.6	Disadvantages of admission	258
5.6	DISCUSSION	258
5.7	CHAPTER SUMMARY	268
6	DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS	269
6.1	OVERVIEW OF RESEARCH CONDUCTED	270
6.2	KEY FINDINGS	275
6.2.1	Comparisons of study findings with patient populations reported in literature	275
6.2.2	A system model	285
6.2.3	Phase III	
6.3	LIMITATIONS	287
6.3.1	Expert panel method	287
6.3.2	Representativeness of patient sample	290
6.3.3	Findings from patient interviews	291
6.3.4	Scope of the research	293
6.4	RECOMMENDATIONS	293
6.4.1	Recommendations arising from phase I of the study	294
6.4.2	Recommendations arising from phase II of the study	297
6.4.3	Recommendations arising from phase III of the study	299
6.5	A REFLECTION OF STUDY CHALLENGES	300
6.6	UNIQUE CONTRIBUTIONS OF THE STUDIES	306
7	REFERENCES AND APPENDICES	310
7.1	REFERENCES	311
7.2	APPENDICES	333

LIST OF TABLES

Table 1: Skilled interview techniques	30
Table 2: The relative strengths of nominal group technique, the delphi process and focus groups.....	33
Table 3: Combined methodology: nominal group technique and delphi process.....	34
Table 4: Appropriateness study findings	40
Table 5: Differences between acute and chronic conditions	55
Table 6: Inappropriate acute admission and inappropriate length of inpatient stay of adults with long term medical conditions	60
Table 7: Critical appraisal of included studies	63
Table 8: Potential services offered by intermediate care	71
Table 9: Aims of emergency care networks.....	74
Table 10: Strength of agreement.....	111
Table 11: Factors preventing recruitment of patients	113
Table 12: Inter-rater reliability for appropriateness of admissions.....	114
Table 13: Intra-rater reliability for appropriateness of admissions.....	114
Table 14: Inter-rater reliability for appropriateness of length of stay.....	114
Table 15: Intra-rater reliability for appropriateness of length of stay.....	115
Table 16: Participant demographics	115
Table 17: Ethnicity of patients admitted with an existing neurological condition to Derby Hospitals NHS Foundation Trust 05-06	116
Table 18: Type and prevalence of long term neurological condition.....	117
Table 19: Presenting complaints.....	119
Table 20: Assessment of admission according to condition.....	122
Table 21: Alternative to an inappropriate admission.....	127
Table 22: Assessment of length of stay according to condition	130
Table 23: Appropriateness of length of stay – level of disability.....	131
Table 24: Appropriateness of length of stay - inpatient services	134
Table 25: Causes of inappropriate lengths of stay	136
Table 26: Unadjusted odds ratios for inappropriate admission.....	140
Table 27: Regression model one.....	141
Table 28: Final regression model	141
Table 29: Prevalence of LTNCs of patients admitted to Derby Hospitals NHS Foundation Trust 05-06.....	163
Table 30: Occupation and ID of each focus	173
Table 31: Clinician participant occupation and ID code	197
Table 32: Service specific questions.....	202

Table 33: Response rate.....	207
Table 34: Characteristics of questionnaire respondents	208
Table 35: Services used in the past	209
Table 36: Perceived importance of services in preventing	210
Table 37: Summary of responses to questions 8, 9 and10:	213
Table 38: Summary of responses to questions 8, 9 and 10:.....	218
Table 39: Responses questions 8,9,10 – specialist chronic disease.....	221
Table 40: Barriers to accessing services	223
Table 41: Actions to improve management of patients with LTNCs.....	225
Table 42: Characteristics of patient participants with multiple sclerosis and Parkinson’s disease.....	252
Table 43: Summary of Phase I, II and III aims and method.....	274

LIST OF FIGURES

Figure 1: Profile of hospital episode statistics over a decade	12
Figure 2: The NHS and social care long term conditions model	13
Figure 3: Example acute admission system model	52
Figure 4: Participant residence according to appropriateness of admission	121
Figure 5: Household members according to appropriateness of length of stay	129
Figure 6: Number of presenting complaints according to	133

LIST OF APPENDICES

Appendix 1: Participant assessment sheet	339
Appendix 2: Schedule for Participant interviews	347
Appendix 3: Patient information sheet (Phase I).....	348
Appendix 4: Patient consent form (Phase I)	351
Appendix 5: Next of kin/proxy information sheet (Phase I)	353
Appendix 6: Assent form (Phase I)	356
Appendix 7: Focus group meeting agenda – topics to be covered	358
Appendix 8: Information sheet (Phase II)	359
Appendix 9: Consent form (Phase II)	362
Appendix 10: Patient interview schedule (Phase III)	363
Appendix 11: Clinician interview schedule (Phase III)	364
Appendix 12: Barriers to service use questionnaire.....	365
Appendix 13: Clinician questionnaire information sheet (Phase III)	376
Appendix 14: Clinician interview information sheet (Phase III)	379
Appendix 15: Clinician/patient consent form (Phase III)	382
Appendix 16: Patient information sheet (Phase III).....	383
Appendix 17: Carer information sheet (Phase III).....	386

Appendix 18: Assent form (Phase III)	389
Appendix 19: Consultant ward round case notes	391

GLOSSARY OF TERMS

Acquired brain injury (ABI): An impairment of brain function. Common causes are brain lesions caused by such traumas as car accidents, falls, assaults or sports injuries. Brain lesions that cause ABI can also be due to tumours, bleeding and infections of the brain or to poisoning from alcohol, drugs or through exposure to toxic chemicals.

Clinical decision unit: A clinical unit in a hospital that observes patients to determine whether they can safely return home.

Cognition: (Cognitive ability), the ability to think, remember and understand.

Early Supported Discharge (ESD) schemes: Are designed to enable a patient to be discharged from hospital with rehabilitative and medical support being provided in the community rather than the hospital.

Emergency care practitioner: An Emergency Care Practitioner or ECP may come from either a Paramedic, Nursing or Allied Health Professional background with enhanced skills in medical assessment and extra clinical skills over and above those of a 'standard' paramedic/qualified nurse or other ambulance crew such as technicians. The Emergency Care Practitioner (ECP) are employed commonly in Emergency Medical Services.

Epilepsy: Epilepsy is a physical symptom that results from a neurological disturbance in the brain.

Functional restrictions: Limitations on an individual's ability to carry out everyday activities.

Generalist: A doctor or clinician who provides care for a range of general conditions, as opposed to a specialist who cares for specific conditions.

Holistic: Holistic medicine is a system of health care, which fosters a co-operative relationship among all those involved and emphasises the need to look at the person as a whole.

Intermediate care services: A service which is designed to help people recover from illness and stop them going into hospital if it is not necessary or staying in hospital longer than is necessary.

Motor neurone disease (MND): A rapidly progressing, disabling neurological disease, which affects the motor neurones (nerve cells) in the brain and spine.

Multidisciplinary/unidisciplinary expert panels:

- Multidisciplinary panels are made up of differing professionals.
- Unidisciplinary panel is a group made up of individuals from one clinical profession.

Multiple sclerosis (MS): A disabling neurological condition occurring because of damage to myelin, a protective sheath surrounding nerve fibres of the central nervous system.

National service framework (NSF): Are policies set by the National Health Service in the United Kingdom to define standards of care for major medical issues such as cancer, coronary heart disease, mental health and diabetes.

NSFs are also defined for some key patient groups including children and older people.

Neurologist: A doctor who specialises in diagnosing and treating conditions involving the nervous system.

Neurology: The study and treatment of diseases of the nervous system.

Occupational therapy: is a therapy or treatment provided by an occupational therapist that helps individual development of physical skills that will aid in daily living. It focuses on sensory integration; balance and coordination of movement; and fine motor and self-help skills such as dressing, eating with a fork and spoon, etc.

Occupational therapist: is a professional who delivers occupational therapy to individuals.

Parkinson's disease (PD): A progressive neurological condition affecting movements such as walking, talking and writing. It has three main symptoms: tremor, muscular rigidity or stiffness, and bradykinesia (slowness of movement).

Primary care: healthcare that is offered in the community and not in hospitals or specialist centres. General practitioners are an example of healthcare professionals who work in primary care.

Psychosocial: Involving both psychological and social aspects or relating social conditions to mental health.

Quality requirements: Principles of care which professional health and social care staff and their partners will use to inform and guide their practice.

Rapidly progressing condition: A long-term neurological condition which progresses rapidly to a state of advanced disability and subsequent death. Motor neurone disease is the most common example, but others include new variant Creutzfeld-Jakob Disease (nvCJD) and some aggressive forms of Multiple Sclerosis.

Rehabilitation: A multidisciplinary process which supports the individual to achieve their maximum potential to function physically, socially and psychologically through support and intervention.

Respite care: Care for vulnerable people provided either in their own homes or, more usually, in a residential or day-care setting that supplements the care provided by the main carer.

Secondary care: Specialised ambulatory medical services and hospital care (outpatient and inpatient services). Access is often via referral from the primary health care service.

Sensory impairment: Impairment of hearing, sight, speech, touch or cognition.

Social work: Any of several professions concerned with providing social services to those members of the community that need it.

Social worker (SW): A person whose profession is social work.

Specialist: A professional who specialises in a particular field of medicine or condition.

Sub acute care: Sub acute care is typically provided when an episode of acute care is complete, yet the patient continues to have health care needs. Sub acute care is not necessarily hospital based.

CHAPTER 1: INTRODUCTION, AIMS AND OBJECTIVES

OVERVIEW

The aim of this chapter is to introduce the topic of study. Previous research undertaken in the area is outlined briefly and the rationale for conducting the current study is explained. Following this, the overall aim and specific objectives of the studies detailed in this thesis are introduced. Finally, the layout of the thesis is outlined.

1.1 INTRODUCTION

A number of patients, both in the UK and worldwide, are admitted to acute hospitals when it is medically inappropriate (1-5). Similarly, examinations of inpatient stays show a large proportion are medically inappropriate, (3, 5, 6). Definitions of an inappropriate admission (discussed in section 2.3.1) and of an inappropriate length of stay do differ slightly. However, an inappropriate admission generally refers to instances where a patient's medical needs could have been met by a lower technology facility. An inappropriate length of stay refers to the situation where a patient remains in hospital when they are medically fit to be discharged or when they are discharged yet have a continuing need to remain in hospital. In a context of increasing healthcare costs, an ageing population and bed pressures, admissions and lengths of stay deemed to be inappropriate are of mounting consequence.

Studies carried out in the UK have found that between 10-28% of admissions are deemed inappropriate (1, 4, 5). Patients' needs can frequently be met by non acute or sub acute services, including same-day outpatient assessment and admission to a community hospital (1). The occurrence of inappropriate admissions is not isolated to the UK and is echoed elsewhere (2, 4).

With an increasingly ageing and disabled population, the number of elderly and disabled patients being admitted to hospital is greater in comparison to

non disabled populations. It is possible then that the patients most frequently admitted inappropriately or who experience an inappropriate length of stay are disabled and/or elderly. Studies have reported that in patients aged 75 and above, approximately 28% of patient admissions and 28-75% of inpatient days are inappropriate (2, 7-9).

Despite 60% of hospital beds being occupied by patients with a long term medical condition (LTMC), and two thirds of patients admitted as an emergency being those experiencing an exacerbation of a LTMC, documentation of admissions and inpatients stays in this area is poor.

Neurological conditions are highly prevalent LTMCs. Ten million people in the UK have a neurological condition (10). The Department of Health provides the following definition of a long term neurological condition (LTNC).

"A 'long term neurological condition' results from disease of, injury or damage to the body's nervous system (i.e. the brain, spinal cord and/or their peripheral nerve connections) which will affect the individual and their family in one way or another for the rest of their life" (10)

Approximately 20% of patients admitted acutely to hospital will have a neurological condition. The majority of studies that seek to determine appropriateness of admissions and/or lengths of stay for patients with neurological conditions, focus on acute rather than LTNCs. Between 10-50% of patients with acute neurological conditions are reported to have a length of stay of which a proportion is not medically necessary (11-14). However, those with long term as opposed to acute conditions may have different medical and care needs, which will affect the appropriateness of the admission and/or length of stay. Also, if the needs of patients with acute

conditions are different from those with long term conditions then the services and actions required to prevent inappropriate admissions/lengths of stay from occurring may be different.

Inappropriate hospital admissions and inpatient stays have negative consequences for the patient, their family and the health care system in which they are being cared for (15-21). It is evident that hospitalisation can have adverse as well as positive effects (19-21). Inappropriate admissions and lengths of stay place the patient at unnecessary risk of developing problems additional to that of the admitting diagnosis. Furthermore, such admissions and lengths of stay incur unnecessary costs to an already pressured National Health Service and can lead to bed pressures.

1.2 AIMS AND OBJECTIVES

1.2.1 Overall aim

To identify the actions required to reduce the proportion of patients with a LTNC/s who are admitted to hospital inappropriately and/or experience an inappropriate length of stay.

1.2.2 Objectives

Phase 1

1. To identify the proportion of patients admitted to hospital inappropriately.
2. To identify the proportion of patients who are admitted to hospital for an inappropriate duration.
3. To identify the factors associated with, and predictive of, inappropriate admissions/lengths of inpatient stay.
4. To identify alternative management options for patients who are inappropriately admitted/experience an inappropriate length of stay.

Phase 2

1. To explore the wider causes of inappropriate admissions/lengths of stay, as reported by primary and secondary care clinicians.
2. To identify where intervention is perceived as being most needed to reduce the occurrence of inappropriate admissions/lengths of stay.

Phase 3

1. To identify the key barriers to accessing services (which may prevent an inappropriate admission) as determined by patients and clinicians.

1.3 STRUCTURE OF THE THESIS

The thesis is presented in seven chapters. Each chapter begins with an overview outlining what is contained within the chapter. Each results chapter has been designed as a 'stand alone' chapter and therefore has its own introduction, methods, analysis, results and discussion section. Following this a summary of the chapter is given.

Chapter 2:

Chapter 2 contains both a focused and a narrative review of relevant literature. The chapter begins with an examination of the various methodologies used to assess appropriateness of admissions and lengths of stay (see section 2.1). Following this a focused review of literature relating to long term conditions is given (see section 2.2), with a more broad review of literature relating to adults, older adults, and acute neurological patients also being described (see section 2.3). Finally, theories which may explain why inappropriate admissions and lengths of stay occur are examined and the theoretical underpinning of the study are justified.

Chapter 3:

Chapter 3 presents the first of three inter-related studies. The first is based on an assessment, utilising a multi-disciplinary panel, of the appropriateness of admissions and length of stay for patients with LTNCs admitted to Derby Hospitals NHS Foundation Trust. The results of this study are given in section 3.3. Three case studies are also provided, in order to provide the reader with further insight into the causes of an inappropriate admission and the process of assessing appropriateness in section 3.4. The study identifies a number of predictive factors and management alternatives for patients admitted inappropriately or who experience an inappropriate length of stay (see section 3.3). The findings of both studies are discussed in section 3.6.

Chapter 4:

Chapter 4 presents the second of the three studies. The study is an exploratory study utilising qualitative methods to examine clinicians' perceptions of inappropriate admissions/lengths of stay. The study highlights a number of perceived causes and areas where intervention is needed. The chapter describes the methods used in the study (see section 4.2), the findings (see section 4.3), and provides a discussion of the findings (see section 4.4).

Chapter 5:

Chapter 5 presents the final study and examines barriers to service use. The chapter presents both quantitative and qualitative results obtained through questionnaires with admitting clinicians and results from semi structured interviews with both admitting clinicians and patients with LTNCs. The results derived from the questionnaire are given in section 5.3 and the results of the interviews conducted with clinicians and patients are included in section 5.4 and 5.5 respectively.

Chapter 6:

Chapter 6 draws together the most important findings from Chapters 2, 3, 4 and 5 (see section 6.2). It also details the key outputs of the study i.e., the recommendations (see section 6.4) and areas of future research. The thesis concludes with reflections on the challenges encountered throughout each study (see section 6.5) and a description of the unique contributions to knowledge obtained through conducting the studies (see section 6.6).

Chapter 7:

Chapter 7 provides the reader with a bibliography (see section 7.1) and with appendices (see section 7.2). Although the appendices are not required to understand the thesis, they provide supporting information and thus add to the richness of data.

CHAPTER 2: REVIEW OF THE LITERATURE

OVERVIEW

This chapter begins by providing contextual information relating to the provision of health care services in the UK and in Derbyshire (see section 2.2.1 and section 2.1.2). This is followed by a description of the methods used previously in studies which have examined the appropriateness of hospital admissions and length of stay (see section 2.2). The key findings of these studies are also explained. Thirdly, the theoretical framework which underpins each study is outlined and the rationale for the programme of work is explained (see section 2.4). In section 2.5 the results of a focused review examining the appropriateness of admission and length of stay for patients with long term medical conditions (LTMCs) are discussed. Due to the paucity of studies identified through the focused review, studies relating to older patients and those with acute neurological conditions are also examined (see section 2.6.1 and 2.6.2). Finally, the implications and potential causes of inappropriate admissions and lengths of stay are discussed (see section 2.6.3) and gaps in the literature are highlighted (see section 2.7).

2.1 INTRODUCTION

Before commencing a piece of research it is essential to establish from the published literature what research has already been conducted, what is already known and where there are weaknesses and/or gaps in evidence. A literature review was therefore undertaken. As part of this, a focused review was conducted to ascertain:

1. What proportion of patients with a pre-existing medical condition: were admitted to hospital inappropriately; had an inappropriate lengths of stay,
2. What factors were associated with the occurrence of an inappropriate admission/length of stay,
3. What were the causes of inappropriate admissions and lengths of stay.

An English language literature search was therefore undertaken of the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL) (1982-2006), Embase (1980-2006), Health Management Information Consortium (HMIC) (1983-2005), Pubmed (1950-2006), Web of Science (1945-2006), British Nursing Index (1985-2005) and the Cochrane Library (see section 1.4 for further details).

In addition to this, a narrative review of relevant UK literature was undertaken. The aim of this narrative review was to establish: the contextual information regarding the UK and Derbyshire health context; methodological approaches to appropriateness studies; findings of appropriateness studies for acute admissions, older adults and patients with acute neurological conditions.

2.1.1 The UK health care context

Information regarding the context of the research including the immediate and wider setting (primary and secondary care service) and the scope of the problem to be explored allows the reader to develop a deeper understanding of the issues raised throughout this thesis. Also, an examination of the local population allows the reader to determine how generalisable the findings are to different settings (e.g. different areas of the country). The UK health care context, the policy context and the local context (Derbyshire) are discussed below.

During the past three decades a number of changes have occurred in the UK health care system which has led to a climate where increased efficiency and appropriateness of hospital care has received great attention. Key changes have included the increasing number of acute admissions, the decreasing number of acute beds within NHS Trusts, and increased community health and social care provision.

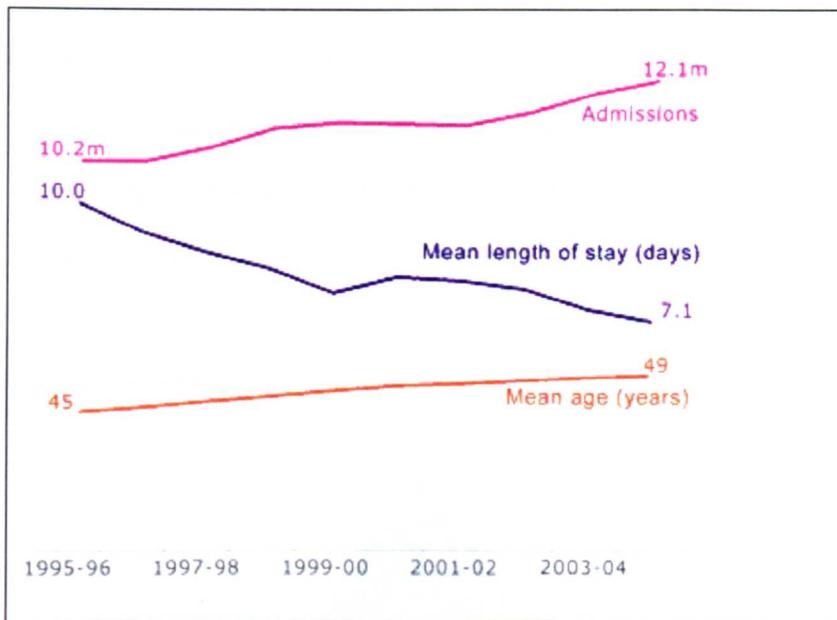
Since the 1980's there has been an increase in the number of acute admissions to hospital. In 1994 the National Association of Health Authorities and Trusts (NAHAT) estimated that throughout the 1980's there had been an increase of between 2-3% in admissions which then increased to 9% between 1991-1993 (22).

The increase in the number of acute admissions has occurred in parallel to a reduction in the average length of stay. The average length of stay has been falling since the 1970's and then fell dramatically in the early 1990's (23). This is thought to be due to increased use of day surgery and recognition by clinicians that an earlier discharge could lead to improved clinical outcomes and did not cause harm to patients (24). However, alongside this there has been an increase in the number of readmissions to hospital, leading to the belief that patients are being discharged from hospital 'sicker and quicker' (25). Rises in the number of hospital admissions have paralleled reductions in the number of acute beds which have consistently fallen since the 1970's (23). A consequence of reductions in the number of acute hospital beds and an increase in the number of admissions is that hospitals frequently experience bed shortages, a situation referred to in the media as a 'bed crisis' (see section 2.5.5 for further details). However, with an increasing awareness that reduced bed numbers will lead to bed crises, the number of critical care beds has increased by 36% since 2000 (26).

We can also see that the profile of patients admitted to hospital is changing. There has been a rise in the average age of patients admitted from 45 to 49 years, thought to be due to the changes in the UK demographic profile, e.g. increased longevity and increases in the number of people suffering from a LTMCs as a result of living longer (27, 28). See

Figure 1 for changes in admission numbers, length of stay and patient age.

Figure 1: Profile of hospital episode statistics over a decade

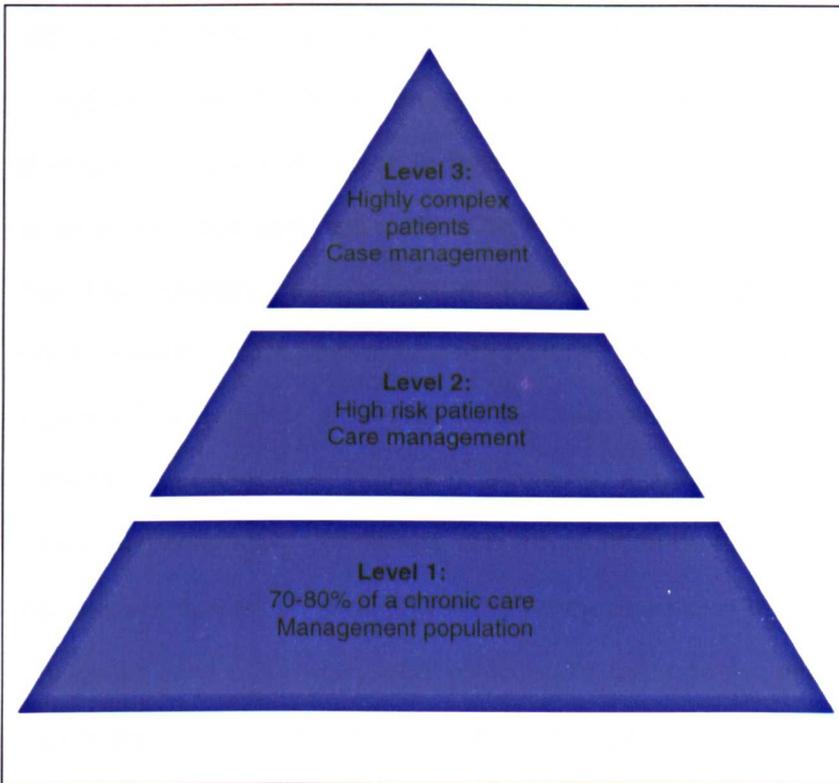


Reference: (27)

Whilst the number of hospital admissions has been increasing, there have been structural changes in the provision of care with increasing emphasis being given to providing care in a community based setting rather than an acute setting. The National Bed Enquiry in 2000 showed consistent support amongst academics and health and social care clinicians for the development of 'care closer to home' (29). There has been a rise in the provision and use of primary care, and community services now provide much of the support that was previously provided in an institutional setting. Services such as Intermediate Care Services (ICS) have been specifically developed to keep people out of hospital and to support the timely discharge of patients from hospital. There has also been an increased emphasis on preventative healthcare interventions, and patients are now viewed as active, rather than passive, managers of their condition. For the vast majority of those with a LTMC there are self management courses, such as the Expert Patient Programme, which aim to educate patients on management aspects of their condition (30). For those with more complicated problems there is care

management, where individuals are supported by multi-disciplinary teams who can provide high quality, evidence based, proactive management, utilising agreed protocols and pathways of care (28). Finally, for those with multiple LTMCs or complex problems there is case management, where a patient is assigned to a specific worker, frequently a community matron or nurse (28). Figure 2 The NHS and Social Care LTMCs model given below summarises the three levels of management.

Figure 2: The NHS and social care long term conditions model



Reference: (28)

With the number of acute admissions increasing, the occupancy rate of hospitals country wide remains high. With an ageing population bringing an increased burden of chronic and degenerative disease, a growing amount of research has examined how costs can be reduced and efficiency of hospital admissions and discharge procedures increased. The appropriateness of acute

admissions and lengths of stay have therefore received increased attention in both academic and political arenas.

The Policy Context

There has been an awareness politically of the impact of inappropriate admissions and inappropriate lengths of stay (referred to more frequently as delayed discharges). Key initiatives employed by the Labour government have included the NHS Plan (2000), the National Service Framework (NSF) for Older People (2000) and the NSF for Long Term Conditions (2005) (10, 31, 32). Commitments in the NHS Plan included: 7,500 more consultants and 2,000 more general practitioners (GPs); 20,000 extra nurses and 6,500 extra therapists; 7,000 extra beds in hospitals; and by 2004 a £900 million package of new Intermediate Care (31). The NSF for Older People similarly sought to 'provide integrated services to promote faster recovery from illness, prevent unnecessary acute hospital admissions, support timely discharge and maximise independent living'. Also, the NSF showed a commitment to increase the capacity of ICS (32). Similarly, a primary aim of the NSF for Long Term (neurological) Conditions was to contribute towards the Public Service Agreement target of 'reducing emergency bed days by 5% by 2008 through improved care in primary and community settings for people with long term conditions' (10). The NSF outlines quality requirements for the care of patients with LTNCs. Ensuring that specialist clinicians are consulted when those with LTNCs are admitted to hospital (quality requirement 11) and that those people admitted with a neurological emergency are assessed and treated in a timely manner by teams with the appropriate neurological and resuscitation skills and facilities (Quality requirement three) are an example of two of the requirements (10). Consulting with specialist clinicians and ensuring patients are cared for by clinicians with neurological management skills would therefore constitute the optimum management of a patient admitted to hospital. However, it is not clear as to whether or not such

actions are being implemented as no extra funds were provided to implement the changes, and if not, whether such a failure is impacting patient care e.g. appropriateness of admissions and/or lengths of stay. Perhaps the most significant policy introduced to prevent inappropriate lengths of stay/delayed discharges has been the introduction of the Community Care Act in 2003. The Act stipulates that when hospital beds are 'blocked' due to patients awaiting social service provision the responsible social services department will be charged between £100 - £120 per day that the patient remains in hospital (33). However the Act has been much criticised. For example, the House of Commons Health Committee (2002) stated that the Act will lead to "An unproductive culture of buck passing and mutual blame between health and social care." (34)

2.1.2 The Derbyshire population and health care context

It is necessary to explore the local study population when conducting research. This allows the reader to determine how the study population differs from other populations, e.g. the UK population, and therefore enables the reader to determine how representative the study population is of the wider, national, population.

The participants included in this programme of work have been recruited from Derbyshire. The residents of Derbyshire are served by Derby Hospital NHS Trust which includes two hospitals: Derby City General Hospital and Derbyshire Royal Infirmary, and by NHS Derbyshire County and NHS Derby City. In Derbyshire County 95% of residents are white, with 3% and 1% being Asian and Indian, respectively (35). Within Derby City there is a larger proportion of minority ethnic groups, with 12.6% being from Black and Minority Ethnic groups with the largest ethnic group being from the Pakistani (4% total population) and Indian (3.8%) community (35). The population of

Derbyshire, in comparison to the rest of East Midlands and England has a slighter higher proportion of people aged 65+, 16.7% compared to 15.9% for England (36). The Derbyshire Health Profile for 2007 showed that the indicators for health, overall, were similar to the England and East Midlands average (37). However, the 2002 census showed that 20.0% of the Derbyshire population reported having a limiting LTMC, which was slightly higher than the 17.9% UK average (38).

2.1.3 Long term neurological conditions

In the UK, 60% of hospital beds and two thirds of emergency admissions are by patients with exacerbations of LTMCs, defined by the Department of Health as "A disease which current medical interventions can only control not cure" (pg. 3. (39). Approximately 30% of all UK inpatient days are spent caring for those who have multiple LTMCs in the UK (28). Those with a LTMC are twice as likely as those without a LTMC to be admitted to hospital and often stay in hospital disproportionately longer (39). A highly prevalent group of LTMCs are neurological conditions. Ten million people in the UK have a neurological condition, many of which are long term. Such conditions account for 20% of acute hospital admissions.

LTMCs can be conditions which have a sudden onset, can be intermittent and unpredictable, be progressive or can be stable (10). Examples of sudden onset conditions include acquired brain injury or spinal cord injuries. Such conditions have a sudden onset followed by a partial recovery. Conditions such as multiple sclerosis and epilepsy can be intermittent and relapses/remissions can lead to unpredictable consequences. Progressive conditions such as motor neurone disease and Parkinson's disease (PD) lead to a progressive deterioration in neurological function. An example of a stable

condition is cerebral palsy. Cerebral palsy is a typically stable condition however can be affected by ageing (10).

The effects of a LTNC can vary greatly from individual to individual. The NSF for Long Term (neurological) Conditions outlines the problems LTNC may lead to: physical or motor problems (e.g. paralysis, fatigue, inability to walk); sensory problems (e.g. loss of vision, pain); cognitive/behavioural problems (e.g. lapses in memory, difficulties planning and problem solving); communication problems (e.g. difficulties speaking or understanding what is said or written); psychosocial and emotional problems (e.g. personality changes, behavioural problems) (10).

Consideration needs to be given to how patients with LTNCs, with the problems outlined, may be affected by an admission to hospital. Those with LTNCs may have specialised care requirements, including moving and handling issues and a need for specialised/personalised equipment. Such needs may be difficult to address in hospital, due to limitations in the staff to patient ratio or unavailability of personalised equipment. Also, due to problems with communication, patients with LTNCs may be unable to communicate their care needs and preferences whilst in hospital. If patients have specialised needs they may require provision of specialist services, which may have limited capacity compared to mainstream services, and therefore prolong the hospital admission. In general terms, hospitals are environments geared towards the treatment of acute conditions. The interplay of treatment for an acute condition whilst handling issues of disability may be complex. If such needs are not met effectively, patients with LTNCs may be increasingly susceptible to de-conditioning whilst in hospital. For the reasons highlighted above it is often in the best interest of the patient to be cared for in the community rather than a hospital. Admissions to hospital that are not necessary therefore place the

patient at risk of experiencing adverse affects. For further discussion of the implications of inappropriate admissions and inappropriate lengths of stay please see section 2.5.5.

2.2 METHODOLOGICAL APPROACHES TO APPROPRIATENESS STUDIES

In order to assess the methods that are most suited to achieving the research aims it is necessary to explore the methodological approaches used in studies of a similar nature. Through exploring such approaches it is possible to understand the advantages and disadvantages of each approach and therefore inform the selection of methods for the study. The following section will examine the differing definitions used in appropriateness studies and the implications these have for the interpretation of research findings (see section 2.2.1), the methods for assessing appropriateness (see section 2.2.2) and methods of data collection (see section 2.2.3).

2.2.1 Defining inappropriate admissions and lengths of stay

There is no set definition of an inappropriate admission or an inappropriate length of stay. Definitions of an inappropriate admission reported in the literature include:

'Inappropriate use of a facility comes about through providing unnecessary care, through providing unnecessary care using a resource not suited for the level of care actually provided or required, and through less than complete use of time during the course of care' (40); 'an admission that does not result in any significant benefit for the patient, or which result' in benefit which could have been 'obtained at a lower care level' (41); 'patients who are inappropriately placed in an acute unit and who could be alternatively treated in a lower technology facility' (42).

Definitions of inappropriate lengths of stay are less clear and frequently relate to whether or not a patient has experienced a 'delayed discharge'. Delayed discharges can be seen as '*patients judged medically ready for discharge...but whose discharge is delayed*' [9]. However, for the purpose of this thesis an inappropriate length of stay may also refer to stays which are too short.

The task of defining an inappropriate admission and length of stay is made particularly difficult because definitions can be specific to the setting. Appropriateness is usually dependent on whether or not the patient could be treated in a lower level care facility. An admission in one facility may be inappropriate as the treatment/procedure given to the patient could have been given in a non acute setting. However, in another facility the treatment/procedure may only be available in a hospital; therefore the admission would be deemed appropriate. Also, a definition made in 2008 may become out of date in 2009 as procedures move from the inpatient to outpatient setting with advances in technology treatment/procedures (42). Definitions used may also differ depending on whether local services are taken into consideration or not. Studies may assume an 'ideal' health care environment, where appropriateness is considered irrespective of whether or not a particular service is available. For example, if a patient is admitted but did not require acute care their admission would be deemed inappropriate regardless of whether an alternative (non acute) service was available. Studies utilising such definitions will help to identify 'structural problems' and may find a higher number of admissions/days of care to be inappropriate than definitions taking service availability into account. In order to identify service needs, definitions of this type are required. In contrast, studies that take service availability into account concentrate on identifying 'process problems', detailing changes required within the current system. As a result, studies which utilise such a definition may find lower numbers of

admissions/lengths of stay to be inappropriate than 'ideal' health care definitions. Results of studies must be interpreted whilst bearing this in mind.

Assessing appropriateness

In order to inform the methods used in the studies conducted as part of this thesis it is necessary to appraise the methods that have been used in the past.

Traditionally, when determining the appropriateness of admissions and lengths of stay, physician opinion has been used (43, 44). Physician opinion is one of the most rudimentary methods of assessing appropriateness and usually involves the caring physician being asked 'does the patient require hospital care today?' or the study author assessing whether or not, in their opinion, the patient required hospital care (45). These methods of assessment have the potential to be biased, as the caring physician may be reluctant to discredit his/her service whilst the study author may be keen to find significant results. Such criticisms led to the increased use of panels of 'experts' and to the development of structured appropriateness tools, discussed below.

Expert panels

Expert panels continue to be considered the 'gold standard' for assessing appropriateness (46). Panels of experts are convened in order to reach a consensus statement about the appropriateness of the admission or length of stay/day of care in question. During the 1970's and 1980's much attention was paid to the benefits of an assessment made by an individual compared to a group. The benefits of using a group method for assessing appropriateness of admission/length of stay far outweighed those of an individual.

"The positive effects include the greater cumulative knowledge of group members as compared to a single individual, the variety of different perspectives available, the ability of members to point out errors in one another's information processing, the synergetic efforts of building on one another's ideas, and the opportunity for members to evaluate one another's ideas and improve on the alternative being considered" pg.96 (47)

Expert panels have generally been uni-disciplinary rather than multi-disciplinary. The benefit of using a uni-disciplinary panel is that the power or status of members should be more equal (homogenous) than a multi-disciplinary panel, the influence of others may therefore be reduced. However, there is an increasing recognition of the benefits a multi-disciplinary expert panel can bring to studies that assess appropriateness. In order to consider all factors of a patient's illness, and therefore take a holistic view of a patient's admission and length of stay, it may be argued that a multi-disciplinary panel is needed. There may be aspects of a patient's acute management that fall outside of the remit of physicians, e.g. physiotherapy. Also it is the main task of appropriateness studies to determine what alternative form of care patients who are admitted inappropriately should have received, and what actions were needed to ensure an appropriate length of stay. An expert panel made up of varying professions would have the benefit of providing a broad knowledge of service needs/areas.

Although expert panels are seen as the 'gold standard' they have been subject to criticism. In the main, expert panels are criticised for being subjective and producing inconsistent results, frequently varying with the profession of those included in the panel. This point is highlighted by a study in which the appropriateness of admissions was assessed by two panels; a

general practitioner panel and a consultant panel. The general practitioner panel estimated that 8.0-14.0% of hospitalised patients could have received alternative care whereas the consultant panel estimated this figure to be 5.0-5.9% (48). There is also much criticism around the use of 'groups' to produce consensus statements and the impact that psychosocial factors, such as conformity and persuasiveness, can have on outcomes. Also, the status, or the (perceived or real) professional power of group members is thought to affect individual decisions within a group (49). Those who are less confident, because they perceive themselves as lower down the (perceived or real) group hierarchy, may choose to conform with the member/s with the greatest (real or perceived) power within the group (49). To make a stand and disagree with the majority or the member with the most status/power can be difficult. Group members may also be persuaded by members who appear most confident in their arguments, or those who appear to have more expertise ("well he knows what he's talking about") (49). Individuals within an expert panel may then adjust their behaviour or their decisions to conform to the rest of the group. Although these are all valid criticisms, a well thought out and executed group methodology can help to reduce the impact of these factors, and will be discussed later (section 2.3.2). In response to the criticism that expert panels are subjective and questions over the extent to which results produced are 'real' a number of standardised assessment tools have been developed. Such tools are designed specifically to increase objectivity. The most frequently used tools are the Appropriateness Evaluation Protocol (AEP), the Intensity Severity Discharge (ISD) Tool and the UK specific Oxford Bed Instrument (50-52).

Appropriateness tools

The AEP developed in the US and published by Gertman and Restuccia is a tool designed specifically for acute adult patients, excluding obstetrics and psychiatry (51). The AEP contains two sets of criteria; one determines

appropriateness of admission and the other determines appropriateness of days of care. The validity, referring to the extent to which a measurement device actually measures what it is designed to measure, and the reliability, referring to how similar the results would be if a given test were repeated, have been tested at length against expert panels. Reliability testing shows a specific agreement rate, a measure of inter-rater reliability (the number of times raters agree with the outcome of the test expressed as a percentage) of 24-75% for admissions and 64-85% for days of care (46). Validity testing shows a specific agreement rate, a measure of inter-rater reliability (the number of times raters when they repeat the test, expressed as a percentage), of 39-80% for admissions and 59-91% for days of stay between the tool and an expert opinion (46). The AEP has also been developed for use in Europe and was found to have an overall agreement rate of 46%-86% for admissions and 25%-95% for days of care (53). In a systematic review of measures used to assess appropriateness the authors found the AEP tool was tested most extensively for reliability and validity in comparison to the Oxford Bed Study Instrument and the Intensity Severity Discharge tool, among others. However, as demonstrated by the wide ranges of the agreement rates for both validity and reliability testing, the AEP ranges from very valid/reliable to not very valid/reliable.

The Oxford Bed Study Instrument (OBSI) was developed in 1988 and is based largely on the AEP (although much simpler) (50). The OBI has undergone very little validity and reliability testing. The investigator originally compared the decision of appropriateness reached using the tool with the opinion of the patient's senior, producing an overall agreement rate of 88% (Kendall's coefficient of concordance, $W=0.88$, $p<0.00001$) (50). However, this study examined the decisions made regarding appropriateness of 20 patients only and was compared with the opinion of one physician, which as outlined above,

is not ideal. Although studies have gone on to use this tool (54, 55) its lack of validation is worrying.

The ISD, a review tool developed in the US by InterQual (1987), examines days of stay and is intended for use with medical, surgical, obstetric and gynaecologic patients. It contains 22 sets of criteria, the first of which is generic and is applied to all patients; the remaining criteria are applied only when necessary for a particular patient. Inter-rater reliability testing shows a specific agreement rate of 54-60% and validity testing (against the judgement of a panel of physicians) shows a specific agreement rate of 29-59% (56, 57). In one UK study, the ISD in comparison to a mixed expert panel (GPs and Consultants) found almost double the amount of admissions to be inappropriate, 18% in comparison to approximately 10% (58). Also, in this study the author herself comments on the poor validity of the ISD for use in the UK, although she deems it to be moderately valid for research and planning purposes as testing showed the tool to have fair to moderate validity (according to Landis and Kock's ranges for strength of agreement (59)) (58).

As shown above, the validity and reliability of tools can be variable, with even the AEP, which is claimed to be the most reliable/valid, being found to be unreliable and invalid in some studies (46), (53). In addition to problems of validity and reliability there are a number of other problems. Firstly, they employ an 'ideal' health care definition and therefore cannot take service availability into account, typically leading to higher numbers of admissions being deemed inappropriate compared to an expert panel (46). Furthermore, for studies which aim to examine process problems the use of appropriateness tools would appear to be unsuitable (46). However, the AEP and the ISD both employ an override option. If the assessor disagrees with the outcome of the AEP or ISD assessment they may override the decision. This is useful for studies that wish to take service availability into account.

However, given that the purpose of appropriateness tools is to standardise the decision making process, objectivity is reduced by any override option. Also, assessors with a greater knowledge of available services in the area have been found to classify patients as inappropriately admitted more frequently than reviewers who have less knowledge of services when the override option was employed (51). Secondly, appropriateness tools, in an attempt to remain 'simple' and quick to use, are diagnosis independent which some argue leads to circumstances specific to a patient being ignored (46). Thirdly, one of the biggest problems with appropriateness tools is that both of the validated tools (AEP and ISD) were designed for use in the US. Differences in medical practice, availability of resources and extent of coverage (to name but a few), between the US and other countries, raise the question of how appropriate it is to use these tools in a UK setting (60). Fourthly, tools such as the AEP and ISD were designed in the 1980's and have not been updated since. As discussed, definitions of appropriateness can soon become outdated, particularly when changes in medical practice are considered, the underpinnings of such tools may therefore be out of date.

It is evident that either method of assessing appropriateness can have problems. Whilst the physician opinion/expert panel offer the ability to be sensitive to a patient's circumstances they can be criticised on the grounds that they are subjective. In addition, the outcomes can be influenced by psychosocial factors and decisions may reflect group dynamics rather than the 'true' medical opinion of the physicians. Appropriateness tools such as the AEP, however, whilst being relatively objective can remain insensitive to specific conditions and can have variable validity and reliability when compared to an expert opinion.

Delayed discharge lists

Delayed discharge lists produced by hospitals are another means of examining appropriateness of length of stay. These include lists of patients who have been deemed medically fit for discharge by the physicians managing the patients' care yet remain in hospital (61). Delayed discharge lists are not produced specifically for research purposes and can be open to bias. There is a potential for results to be biased when the assessment is made by the caring physician, as they may be reluctant to deem a discharge to be delayed due to its negative associations (i.e. inefficiency). Also, in the UK, the decision to label a patient as a delayed discharge can lead to sanctions being placed on social services departments when provision of care is delayed. This may again influence the point at which a discharge is labelled as delayed. Furthermore, different clinicians within the same Hospital Trust may define a delayed discharge differently. The use of delayed discharge lists have benefits in that the assessment of appropriateness has already been made therefore saving time for the researcher and a much larger sample can be obtained than may be possible through primary research. However, as stated delayed discharge lists are not collected purposefully for research, essential information may therefore be missing and they are open to considerable bias, the results produced may therefore be inaccurate.

2.2.2 Data Collection

In order to ensure the research aims are achieved it is necessary to determine what types of data will be needed. Once this has been determined it is possible to examine how such data will be collected. An appraisal of possible methods is given below.

Quantitative data

Studies which examine appropriateness of admission and/or length of stay primarily collect quantifiable data and this is for a number of reasons. Firstly, the majority of data used to assess appropriateness is of a quantitative nature e.g. hospital investigation outcomes. Secondly, quantitative methods allow for a type of analysis that can examine relationships objectively. They also allow associations between variables to be assessed to search for factors that are predictive of an inappropriate admission or length of stay (62).

In studies that examine appropriateness of admission/length of stay quantitative data can be collected through questionnaires, structured interviews and from documentary sources, among others.

The most frequently used method of data collection is through the use of documentary sources, namely patient health records. Health records, as a documentary source draw information from numerous sources and provide in-depth information about a patient and their admission that cannot be obtained through basic hospital statistics. As health records contain a vast amount of information they also have the benefit of providing extremely rich data with relatively little cost. Collecting data from health records can have some limitations however, for example some items may be given in abbreviated terms or may be incomplete. It is also difficult to assess the accuracy/validity of data (for example the caring clinicians' assessments, patients' reporting of symptoms) described within health records. However, the data contained in these records can be difficult to obtain via other means, given the fact that the data are the outcome of an in-depth medical assessment by a physician who has undertaken medical training.

A structured interview, which involves asking participants a set of questions that remain exactly the same from person to person can be used to complement the data collected from health records. Structured interviews involve asking participants questions which are normally specific and require only limited response, referred to as closed questions, allowing the researcher to code the respondent's answers and quantify the product of the interview (62). They can be used to assess the accuracy of data contained within health records and to obtain information that is not routinely documented in health records or is missing.

Qualitative data

Qualitative data is collected rarely in studies examining appropriateness of admissions/lengths of stay. Studies assessing appropriateness of admissions/lengths of stay typically seek to identify a) the proportion of patients admitted inappropriately or who experienced an inappropriate length of stay, b) the factors associated with or predictive of an inappropriate admission/length of stay, which is reliant on the collection of quantitative data. However, critiques of quantitative research frequently argue that quantitative research ignores the impact that individual lives have on the phenomenon under investigation (63). Quantitative research examines relationships between variables but fails to examine how a relationship was produced. There is a strong argument therefore to combine quantitative methods with qualitative methods, referred to as a combined approach. By doing this it can be argued that the weakness from one can be complemented by the strengths of the other.

Qualitative data can be collected via a number of methods including through interviews and focus groups.

Interview methods

One of the most frequently used qualitative methods is the interview; however, unlike a structured interview which produces quantitative data, it is unstructured or semi-structured therefore producing qualitative data. Semi-structured interviews are guided by a schedule of questions, the researcher is able to ask new questions or vary the order of the questions depending on how the interviewee responds (62). An unstructured interview on the other hand it not guided by a schedule, the researcher may choose to ask only one question and allow the interview to determine its own natural pathway. Interviews have particular strengths; they are a useful way of gaining large amounts of data quickly and make it possible to gather a wide variety of information from a number of subjects. However, interviews have a number of limitations and weaknesses. For example, patients may be unwilling or may be uncomfortable sharing all that the researcher hopes to explore. Also, due to its interpersonal nature, interviewing is a skilled activity. People are very good at reading non-verbal signs. In a face-to-face situation most people like to be co-operative and avoid interpersonal conflict. So an unconscious indication from an interviewer that they disagree with what the person has said can lead a respondent to change their answers to something that they feel is more acceptable (64). This is a particularly pertinent issue in studies examining appropriateness of admissions/lengths of stay as patients may have perceived the interviewer as being connected with the hospital to which they are admitted. This connection may result in negative answers relating to the hospital and their admission being constrained. However, these are problems that face even highly skilled interviewers and are to some extent unavoidable, although utilising skilled interview techniques can reduce the likelihood of this happening (see Table 1 for skilled interview techniques).

Table 1: Skilled interview techniques

<i>Knowledgeable</i>	Is thoroughly familiar with the focus of the interview.
<i>Structuring</i>	Gives purpose to the interview; rounds it off; asks whether the interviewee has any questions.
<i>Clear</i>	Asks simple, easy, short questions; no jargon.
<i>Gentle</i>	Let's people finish; gives them time to think; tolerates pauses.
<i>Sensitive</i>	Listens attentively to what is said and how it is said; is empathetic in health with the interviewee.
<i>Open</i>	Responds to what is important to interviewee and is flexible.
<i>Steering</i>	Knows what he/she wants to find out.
<i>Critical</i>	Is prepared to challenge what is said, for example dealing with inconsistencies in interviewees' replies.
<i>Remembering</i>	Relates what is said to what has been previously said.
<i>Interpreting</i>	Clarifies and extends meaning of interviewees' statements.

Reference: (64)

Focus groups

An alternative method used to collect qualitative data is a focus group. A focus group is defined as:

'a group interview, centred on a specific topic and facilitated by a moderator, which generates primarily qualitative data by capitalising on the interaction that takes place in the group setting' (65).

A focus group normally consists of between eight and 12 people (66). Focus groups have the advantage that they provide a relatively quick way of 'tapping' into a variety of views. Also, group interaction allows discussion of views that may not be possible in a one to one interview and may empower members to discuss issues they would otherwise not feel comfortable discussing. Whilst group dynamics have benefits, several psychosocial factors, such as conformity and persuasiveness, can influence the outcome of focus groups. The impact of these factors can be minimised by selecting relatively homogeneous groups as these prevent any one individual from feeling marginalised (66). Nevertheless, the outcomes of a group cannot be separated from the context in which they were created. Also, the extent to which outcomes are meaningful and focused depends partly on the skills of the moderator.

Nominal group technique and the delphi process

Data can be collected from expert panels in a variety of ways. Focus groups, as discussed above offer one method of data collection, and are one of the oldest methods of collecting data. In recent years, new standardised methods such as the Nominal Group Technique (NGT) and the Delphi Process (DP) have been designed to formalise the decision making process. Formalising such processes is thought to increase objectivity and minimise the impact of psychosocial factors (49). Techniques such as the NGT and the DP have therefore been developed as structured methods for gathering consensus decisions from groups of people, that reduce the impact of psychosocial factors (67, 68). The NGT begins firstly by the moderator posing a problem or presenting a question to the group. The group is then given approximately 15 minutes in which to consider the problem silently and for members to write down their ideas (67). Following this group members are asked to state one of their ideas and the facilitator records each person's idea onto a flip chart. During this stage of the process, members are asked not to talk or to

comment on the ideas given. Once the ideas have been noted, members have the opportunity to discuss the items (67). Finally, members identify in private the ten ideas they judge to be the most important and give them a ranking. Members discuss their preliminary rankings and then reconsider their chosen ideas/priorities in private before deciding whether to revise the rankings (67). The moderator collects the individual rankings and produces a matrix of (quantitative) answers which are weighted to produce a final, standardised, rating. The strengths and limitations of the NGT are summarised in Table 2 (69). Although the NGT has many advantages, it is not a suitable method, in its standard form, for collecting data about appropriateness of admissions and lengths of stay. This is because the key feature of the technique, namely ranking of ideas/outputs, is not relevant in this field as only two possible outcomes apply i.e., admissions are appropriate or inappropriate.

An alternative process is the DP which aims to structure communications between experts and a collating panel (69). Unlike the NGT, members never meet face to face, and it is this aspect which is thought to control for psychosocial influences. Briefly, participants are sent a postal questionnaire about an area of interest. Responses are returned to the researcher who collates the members' responses, summarises them and then feeds the responses back to all members. Members consider the information and then complete the questionnaire again. This process is repeated as many times as is it is necessary to produce a consensus or until a full understanding of perspectives is achieved. The DP allows members to express their opinions in an anonymous way therefore avoiding psychosocial pressures (see Table 2 for the strengths of the DP) (69). However, for appropriateness studies this method is inappropriate for several reasons. Firstly, establishing appropriateness of admissions or lengths of stay can be reliant upon the communication of complex information. Communicating such complex

information in writing would be more difficult than face to face communication and the validity of such communications would be questionable. Misinterpretation of communications could lead admissions/lengths of stay to be deemed appropriate when they are indeed inappropriate and vice versa. Secondly, in practical terms the time taken to discuss a large number of patients would be immense, and the volume of work would be considerable.

Table 2: The relative strengths of nominal group technique, the delphi process and focus groups

Advantages	Nominal Group Technique	Delphi Process	Focus Groups
Difficult for dominant participants to control	Yes	Yes	Possibly
Avoids 'quick decision making'	Yes	Yes	Possibly
Generates a high number of comments/ideas	Yes	Yes	Possibly
Provides support to allow identification of personal problems and self disclosure	Yes	No	Yes
Allows measurement of importance of ideas/items to individuals	Yes	Yes	Possibly
Avoids pursuit of a single train of thought ('focus-effect')	Yes	Yes	Yes
Encourages minority concerns/options to be voiced	Yes	Yes	Possibly
Participants value social interaction i.e. group cohesiveness	Possibly	No	Yes
High degree of task completion	Yes	Yes	Possibly
Ease of administration	No	Yes	Possibly
Need for experienced leader	Yes	No	Yes

Reference: (69)

For appropriateness studies it is clear that there are problems with all methods discussed (focus groups, NGT and DP) in their current format. Adjusting the format of either the NGT or the DP may be necessary in order to produce consensus decisions about the appropriateness of admissions and lengths of stay (see Table 3 for an example).

Table 3: Combined methodology: nominal group technique and delphi process

Non group setting		Method
Step 1:	Send members questionnaire with patient information.	DP
Step 2:	Ask members to make a preliminary decision in private.	DP/NGT
Group setting		
Step 3:	Each member is asked one by one to give their preliminary decision/finding, each decision is noted by the researcher.	NGT
Step 4:	When preliminary decisions are not unanimous there is an open discussion about the preliminary findings. Each member gives their expert opinion.	NGT
Step 5:	Each member is asked to make a final decision (privately) taking into consideration the expert opinions they have heard.	NGT
Step 6:	Each member is asked one by one to give their final decision/finding, each decision is noted by the researcher.	NGT
Step 7:	The majority decision is taken forward as the consensus statement/decision.	NGT

2.3 THE APPROPRIATENESS OF ACUTE ADMISSIONS

In order to understand the research problem seeking to be addressed it is necessary to explore existing research undertaken in the area. This allows the researcher to understand the research problem/question fully, for example, through determining the prevalence of the problem and any factors associated with the problem. It also provides an evidence base for the findings (produced and described in this thesis) to be compared against. Existing literature acts as an additional source of evidence that can be used to explain the research findings. A brief overview of the prevalence of inappropriate

admissions/lengths of stay (see section 2.3.1) and the factors associated with such admissions/lengths of stay (see section 2.3.2) are given below.

2.3.1 Prevalence of inappropriate admissions/lengths of stay

Studies that examine admissions, lengths of hospital stay and their appropriateness have been conducted for over 40 years within the UK, demonstrating there has been a concern over the use of acute beds for some time. For example in a 1972 study GPs and Consultants were asked to examine a sample of admissions to a Scottish hospital independently and determine whether or not the patients required inpatient care (70). The results of the study found that approximately one in four admissions could have been avoided if domiciliary nursing and social services were improved (70). In terms of inappropriate lengths of stay one of the initial studies in this area was conducted in 1975 (71). The study focused on 'bed blocking' by elderly patients and like many at that time the caring physicians determined appropriateness of length of stay for patients whose stay was greater than four weeks (71). A total of 48 patients were found to be 'bed blocking', constituting 4.8% of the beds occupied (71). However, the appropriateness of the patient remaining in hospital was determined by the caring physician which may have led to an underestimation of the number of beds 'blocked'.

More recent studies conducted within the UK provide details on the prevalence of inappropriate admissions and/or inappropriate lengths of stay, with some going on to examine the patient characteristics associated with an inappropriate admission/length of stay, and/or identify causes, and/or determine alternative forms of 'appropriate' care. The majority of studies conducted within the UK examine emergency admissions or the admissions of patients to a speciality, e.g. medical admissions. In a UK study of 102 emergency medical admissions, 28% were found to be inappropriate (determined by the AEP) (1). For the admissions that were found to be

inappropriate, there was most frequently the potential for treatments or tests to be performed on an outpatient basis, or the possibility for lower levels of care. Those clinicians who had referred patients to hospital who were later deemed to be admitted inappropriately were presented with a list of possible alternatives to admission that might have been used at the point of referral. When presented with this a large proportion of referrers (60%) identified alternatives to admission that they would have considered. Same-day outpatient assessment and admission to a community hospital were most frequently believed to be more appropriate forms of care. However it is unclear whether or not attempts were made to access such alternatives, and if not what the reasons were for not exploring these alternatives (1). In a study of both acute and emergency admissions in a UK hospital between 10-18% of all admissions were inappropriate. This study utilised two methods to determine appropriateness, the ISD and three panels; two consisting of GPs and one of consultants. The ISD found that 18% of admissions were inappropriate. The two GP panels found between 8-14% of admissions were inappropriate, whilst the consultant panel found between 5-5.9% of patients admitted as suitable for alternative forms of care (48). The utilisation of multiple methods of assessment in this study adds to the validity of the study findings. It also confirms the view of others that consultants in comparison to other clinicians can be conservative when assessing the treatability of patients outside of hospital (48). In this study preferred alternatives to admission were most frequently GP beds and an urgent outpatient appointment (48). The details of other UK studies are given in Table 4.

Studies examining days of care consistently report a higher frequency of inappropriate days of care in comparison to admissions. For example, Smith (1997) found that through use of the AEP, 821 patients and 45% of days of care were judged to be inappropriate and over half the patients had a period of stay in which half or more days were judged inappropriate (5). The study

also sought to examine the validity of the AEP and therefore supplemented the assessments of appropriateness (by the AEP) with an expert panel assessment of a subset of cases. The study found there were high levels of agreement between the AEP and expert panel, adding to the validity of findings. The inappropriate days of care that were identified related to organisational issues, although the author does not detail what they were (5). Houghton, using the AEP, found that the last hospital day of two thirds (66%) of patients admitted to a UK hospital were inappropriate (3). Delays in the discharge of patients related to waiting for medication from the pharmacy and for social care packages to be organised. In this study the author is unable to identify whether such delays were related to a lack of provision in these areas or the poor organisation of services (3). Also, because the AEP employs an 'ideal' health care definition, the use of the AEP may have led to an overestimation of the proportion of inappropriate days, in comparison to use of an expert panel. Anderson examined the admission of 847 patients to an Oxford hospital (50). The patients were found to have health needs that necessitated continued admission to hospital for only 38% of the inpatient days. The authors make a number of suggestions that would aid the timely discharge of patients: increased frequency of ward rounds by consultants or delegating discharge decisions to other staff; providing diagnostic related protocols for planning the length of stay in hospital; having specialist nurses assigned to help with communication with primary care staff (50). Whilst the study makes a number of helpful suggestions of actions to reduce inappropriate lengths of stay which is commendable, there are a number of criticisms regarding the methods utilised in the study. For example, the tool to assess appropriateness (the OBSI) was developed by the authors and has therefore undergone no formal assessments of validation previously. The study tool was administered by the senior nurse and in order to assess the validity of the tool a 6% sub-sample was examined by the patient's senior registrar. With caring clinicians administering the tool there is the potential for

bias to be introduced whilst the examination of only 6% of cases is insufficient to validate an instrument comprehensively.

Qualitative evidence of appropriateness of admission or length of stay is somewhat limited. Of the studies reviewed so far only one (Houghton 1996) has included qualitative data, namely the views of patients regarding appropriateness. Houghton (1996) only included patients' views in the assessment of length of stay. Of the patients asked, only a small proportion of patients (12%) believed that their length of stay had been too long, with over two thirds reporting it was 'about right'. However, there is a range of literature which explores, qualitatively, the causes of inappropriate lengths of stay. Satisfaction surveys for example highlight patient experiences of inefficient inpatient care. For example, in a satisfaction survey patients of five hospital (in five different countries) have reported that their care is often uncoordinated and that delays in provision of care are frequent (72). In the same study patients reported that there was poor communication between staff in the emergency departments, leading to frequent delays in bed allocation. Also, they reported that there was a lack of organisation of the admission process and that scheduled tests and procedures were not completed on time (72). Likewise, a qualitative study exploring patient discharges in a Canadian hospital described how there was ineffective communication between professionals in community and hospital settings, caused by a lack of insight into the others roles and responsibilities, which led to delays. Also, hospital clinicians had difficulty identifying which specialists to consult, where necessary, which led to inefficient and ineffective discharges (73). In a review of discharge studies, Tierney identifies a number of key themes in regards to the causes of delayed discharges (74). The key themes identified included: problems with communication between primary care and inpatient clinicians (75-78); lack of assessment and planning for discharge (77, 79, 80); inadequate notice of discharge (79-81) ; inadequate

consultation with patients and their carer/s (81-83), as causes of delayed discharges (74). Also, dependency on informal support, a lack of (or slow) statutory service provision (81, 84-86) and inattention to the special needs of vulnerable groups such as the frail elderly have been identified (79, 80, 87).

In terms of the prevalence of inappropriate admissions, the findings of UK studies are widely variable. Such variation was reiterated in a systematic review, published in 2000 which found that worldwide figures for inappropriate admissions ranged from <1-54% and inappropriate days of care ranged from 5.5-62%. Although remarking on the difficulty in drawing conclusions from existing data, the authors suggest that between 15% and 50% of beds are being used inappropriately (46). Despite large variations in the reported prevalence of inappropriate admissions/lengths of stay the finding that a proportion of patients admitted to UK hospitals either do not require acute care or can be cared for in an alternative setting are consistent.

2.3.2 Factors associated with inappropriate admissions/ lengths of stay

A number of studies have sought to determine if there are particular characteristics that are associated with inappropriate admissions. A survey of a London hospital medical ward which examined 625 adult admissions found that patients whose admission was inappropriate were less likely than their counterparts to report that they were able to climb stairs and wash clothes prior to admission (3). In another study examining a similar number of admissions (n=634) factors independently associated with an inappropriate admission were: the age of the patient, speciality of care received, use of community services, health status on admission (namely coping failure and admission with a stroke) (58). It appears that the ability of patients to care for themselves and their care requirements are related to the occurrence of inappropriate admissions.

Table 4: Appropriateness study findings

Author	Speciality or criteria	Assessment of appropriateness	Results		Alternative forms of care
			Inappropriate admissions	Inappropriate length of stay	
Smith (5)	Emergency medicine	AEP	6%	45%	
Campbell (1)	Emergency medicine	AEP	28%		
Coast (88)	General medicine, care of elderly people	ISD	19.7% (emergency admissions)	54%	Community hospital, GP bed, urgent outpatient assessment
Coast (48)	General medicine, care of elderly people	GP expert panel	9.8-15.0%		
Coast (58)	General medicine, care of elderly people	ISD	19% (emergency admissions)	61%	GP bed, urgent outpatient appointment
		GP expert panel	8-14%		
		Consultant expert panel	5-5.9%		
		ISD	20% (emergency admissions)		

Author	Speciality or criteria	Assessment of appropriateness	Results		Alternative forms of care
			Inappropriate admissions	Inappropriate length of stay	
Koffman (6)	Acute treatment wards	OBSI	13.5%		
Houghton (3)	Adult medical wards	AEP	31%	66%	Care at home, out-patient care, non-acute beds
Victor (54)	All, excluding psychiatry, obstetrics	Nursing staff, OBSI	<1%	N/A	Respite care, hospice care
Victor (89)	All, excluding psychiatry, obstetrics	OBSI	N/A	14.6%	

2.4 THEORETICAL FRAMEWORK

When attempting to research a given problem is it necessary to ask yourself how the problem can be explored most effectively. For example, when asking the question why are patients admitted inappropriately, from the literature examined we could suggest that it is because of structural problems (e.g. lack of service provision), or we could suggest it's attributable to organisational problems (e.g. communication between primary and secondary services), or we could suggest it is because individual clinicians do not attempt to access alternative services. All of the above suggestions are hypothetical, in that they are at this stage unexplored. It is the task of the researcher to determine what their theoretical framework/structure will be for the research. Such a framework guides the research and helps determine what will be measured e.g. structural factors and/or organisational factors. The theoretical frameworks considered to guide the research presented in this thesis are detailed below (see section 2.4.1) followed by a description of the framework selected (see section 2.4.2) and its application (see section 2.4.3).

2.4.1 Selection of a theoretical framework

Three alternative theoretical perspectives were considered as possible explanatory theories for the causes outlined in section 2.3; decision making psychology (90), organisational psychology (91) and systems theory (92). Decision making psychology examines how people make decisions and how optimum decisions should be made. It details how problems are identified, how actions to solve the problem are selected and how such actions are implemented. In terms of appropriateness of admission, physicians' decisions are extremely important. The physician must decide what is wrong with the patient, what type of treatment is suitable and which service/s to use. On this basis, decision making psychology was considered a relevant framework for explaining the causes that relate to individual clinicians. However,

physician decisions are only one factor related to inappropriate admissions. Decision making psychology alone does not address wider problems relating to the health care system, e.g. the structuring and organisation of services. Organisational psychology, referring to the study of behaviours of people in the workplace, was therefore considered as an adjunct to decision making psychology. Through gathering of scientific knowledge it is hoped that problems relating to the world of work can be solved. Areas of investigation include interactions between workgroup members, leadership, management, and other aspects of task-oriented group mentality and behaviour. Initially, this was considered as a potential framework as it examines how individuals make decisions within the context of an organisation. Organisational psychology would therefore have offered a theoretical framework that can be used to explore the causes of inappropriate admissions and/or inappropriate lengths of stay that relate to both the organisation of services and the actions of individuals within the organisation i.e. clinicians. However, when examining appropriateness of admission a number of factors relating to the healthcare system e.g. structuring of services, rather than the individual clinician or organisation have been identified. For example, a lack of rehabilitation and elderly care facilities, transfer between departments and discharging procedures, can be seen as factors which concern the healthcare system. Decisions made by physicians can be influenced by many factors, much of which cannot be attributed to the individual alone. An approach therefore that takes account of only two of the three potential causes of inappropriate admissions/lengths of stay (i.e. organisational causes and causes relating to the individual) was deemed to have lacked comprehensiveness and was therefore rejected as an overarching framework. Following this, the sociological study of systems was considered. Social systems theory is the study of organisations within the context of a definitive system. It provides a framework in which a group of objects or actions, that work jointly to achieve a common goal, can be analysed. The theory

symbolises a move from individually orientated study to the wider study of systems. Rather than focusing on individuals, structures, departments and units separated from the whole, system theorists focus on understanding the interdependence between groups of individuals, structures and processes that enable a system to function. Systems theory was therefore deemed to provide a theoretical framework that could be used to explore structural causes, organisational causes and those causes relating to individuals. As a result, systems theory was considered the most appropriate framework to underpin this thesis and the selection of methods.

2.4.2 Social systems theory

A social system is seen as something that has a clear boundary between what is inside or part of the system and what is outside, referred to as the environment. Social systems are made up of relationships and interactions among individuals. A definition of a social system is:

"A social system consists in a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the "optimization of gratification" and whose relation to their situations, including each other, is defined and mediated in terms of a system of culturally structured and shared symbols" (93)

A system can either be an open or closed system. A closed system does not interact with its environment, the relationships among the system and its components are fixed. An example in social terms, may be an extremely isolated family, the family may refuse to interact in anyway with their environment, the surrounding community and may be resistant to any

external influence. In contrast an open system interacts with its environment. It is constantly trading raw materials such as energy for goods and services which the system produces. For example, an occupational therapy system is constantly interacting with the environment. An occupational therapist prior to training can be seen as a raw material, unskilled (in occupational therapy). However, through interaction of the system with its environment these raw materials are used and converted into a skilled service (a skilled occupational therapist). A system can also be dynamic or static. A static system fails to change over time and is rarely impacted by its environment. A dynamic system however is an ever changing system which is changed by its environment, for example a young child is constantly changed by the environment it exists in. Systems can demonstrate either negentropy, where there is a tendency for the system to evolve over time, or entropy, where the system loses energy and can dissolve into chaos. In a system characterised by negentropy rules/laws/policies are often put in place, those who break rules are deemed accountable. However, in a system characterised by entropy there are no rules and in no way are individuals within the systems deemed accountable, this inevitably leads to chaos (92).

Differentiation

The creation of subsystems is seen as part of a process of differentiation. In differentiated systems there are two environments. The first environment is the environment shared by all people within the whole system. The second environment is the internal environment of the sub system. For example, the internal environment for the occupational health service may be the British healthcare system and the overall environment being society. Differentiation allows the system to adapt to the environment, because without adaptation no system would survive (94). For example, for a large scale organisation (a system) to survive it must adapt to public, political and technological changes.

Differentiation allows a system to become more complex and varied. A system which has a subsystem devoted to political changes, another to technical changes, will be better able to deal with changes than a system with none. Through differentiation any changes which occur in the environment can become translated and adopted in the systems structure. There are several types of differentiation. The most complex form of differentiation and most relevant to health care is functional differentiation. Functional differentiation is the most prominent form of differentiation in society today and occurs when a function is ascribed to a particular unit (94). For example, within a hospital there will be roles which are differentiated according to function e.g. clinician, secretary, manager etc. Sub systems differentiated according to function lead to systems which are both dependent and independent of each other. Assuming each system performs effectively, they can maintain relative independence from each other. However, when a system is differentiated according to function the systems become dependent on each other. If one sub system fails to fulfil its tasks then the whole system will be affected (92).

Components of a social system

Social systems are guided by four components, values, norms, collectivities and roles. Values define the expected commitment of the social unit and specify what is desired of a social system. Norms specify appropriate behaviour and help to integrate various social systems. Values and norms guide all people contained within society. Within society there are collectivities which are groups of individuals orientated towards the attainment of a specific goal often referred to as organisations. The individuals within the organisation are clearly distinguishable from those outside the group. When individuals are part of a collectivity, roles specify what is expected of people. A social system can be seen then to guide members on how much commitment they are

expected to give, how they are expected to behave and the type of roles people are expected to play when part of a group or organisation.

Decision making

In terms of goal attainment, three kinds of decisions can be made. The first being decisions that are made regarding what goals the system/organisation should pursue and how they can be attained, referred to as policy goals. The second being decisions regarding the allocation of resources and the allocation of responsibilities among organisation members, referred to as allocative decisions. The third being decisions which determine how organisational members can be motivated to achieve goals and how contributions can be coordinated, referred to as coordinative decisions (95).

The attainment of goals within an organisation is directly related to the making of decisions and the undertaking of actions. Actions have a number of basic elements; firstly they consist of the individuals who actually perform the act, secondly they consist of ends or goals that are being pursued and thirdly they consist of the resources or means utilised to aid the individual to meet the end/goal. Overseeing all of these actions are (1) the conditions or particular circumstances in which the actions are being carried out, (2) and norms which refer to rules that are socially accepted and guide an individual as to the 'acceptable' ends and means a person can undertake (96). We can see then that in every act an individual undertakes they have to make key decisions. They have to decide what their goal is, how they will achieve it and what means they will utilise. However, if individuals were to be placed in the same situation not all individuals would act the same, this is because it depends on how individuals perceive the situation they are in and the subjective meaning they assign to it. An individual's perception of the situation they are in will take into consideration other individuals, collectivities of individuals and the individual themselves (97). Farao (2001) suggests that

decisions are influenced by an individual's orientation to objects. There are three types of orientation; cognitive, cathectic and evaluative. Cognitive orientation occurs when an object becomes typified, cathectic orientation is the emotional attachment to an object and evaluative orientation is the process by which the decision is made (e.g., how cognitive orientation and cathectic orientation are balanced). For example, in a healthcare setting a physician may need to decide which emergency service to put in place to prevent a patient being admitted to hospital. The physician might identify two services which could meet the patient's need, he/she may believe that one course of action is more effective than another (cognitive orientation), however, he/she may prefer to use the less effective service as the process of referral is far less time consuming (cathectic orientation). When evaluating which service to access he/she knows that in the long term the more effective, yet more time consuming service, will have greater benefits for the patient (evaluative orientation). This is an over simplistic example however that does not capture the complexity of decision making in a health care system. It is essential to understand that the process individuals follow in ascertaining long term effectiveness are not the same and that the values of physicians regarding effective outcomes will differ. Modern authors have investigated and theorised the cognitive/evaluative processes that are applied when clinical decisions are made. Due to their extreme complexity it is not possible to explore these in this thesis, in a detailed manner. However CrosKerry (2002) provides an overview of the generally accepted cognitive /evaluative processes involved in decision making (98). There is exhaustive decision making where all available data sources are explored and sifted through until a solution or diagnosis is found (99). This method is typical of less confident/experienced clinicians e.g. students, although when an experienced clinician becomes fatigued they can resort to this type of decision making, which lacks direction and is uneconomical (100). There is hypothetico-deductive method of decision making which is when decision

making is both goal and data orientated (101). For example a clinician will identify the clinical actions and data that will best enable them to reduce the short list of diagnoses/solutions e.g. undertaking a physical examination or an x ray) (99). This type of decision making is a lot more refined and precise than exhaustive decision making. There are heuristics, where clinicians develop 'rules of thumb', although this method can lack precision, on a practical level it enables faster decision making, which can be adequate in cases which are low risk (102). 'Rules of thumb' also be influenced by expectations (norms and values) of clinicians by other clinicians, by patients, by policy makers e.g. 'what are people in my position supposed to be doing, or should be seen doing'. We can see then that the processes involved in ascertaining which two services could meet the patient's need (described earlier) are extremely complex. Also cathectic orientation, referring to a clinician's preferences will be mediated by a wide range of non clinical factors, for example allocation of resources, priority setting and the costs of associated care, may influence an individual's preferences. Exploring 'rules of thumb' and clinicians preferences for care (e.g. acceptance or non acceptance of inappropriate admissions) is therefore essential.

2.4.3 Application of social systems theory

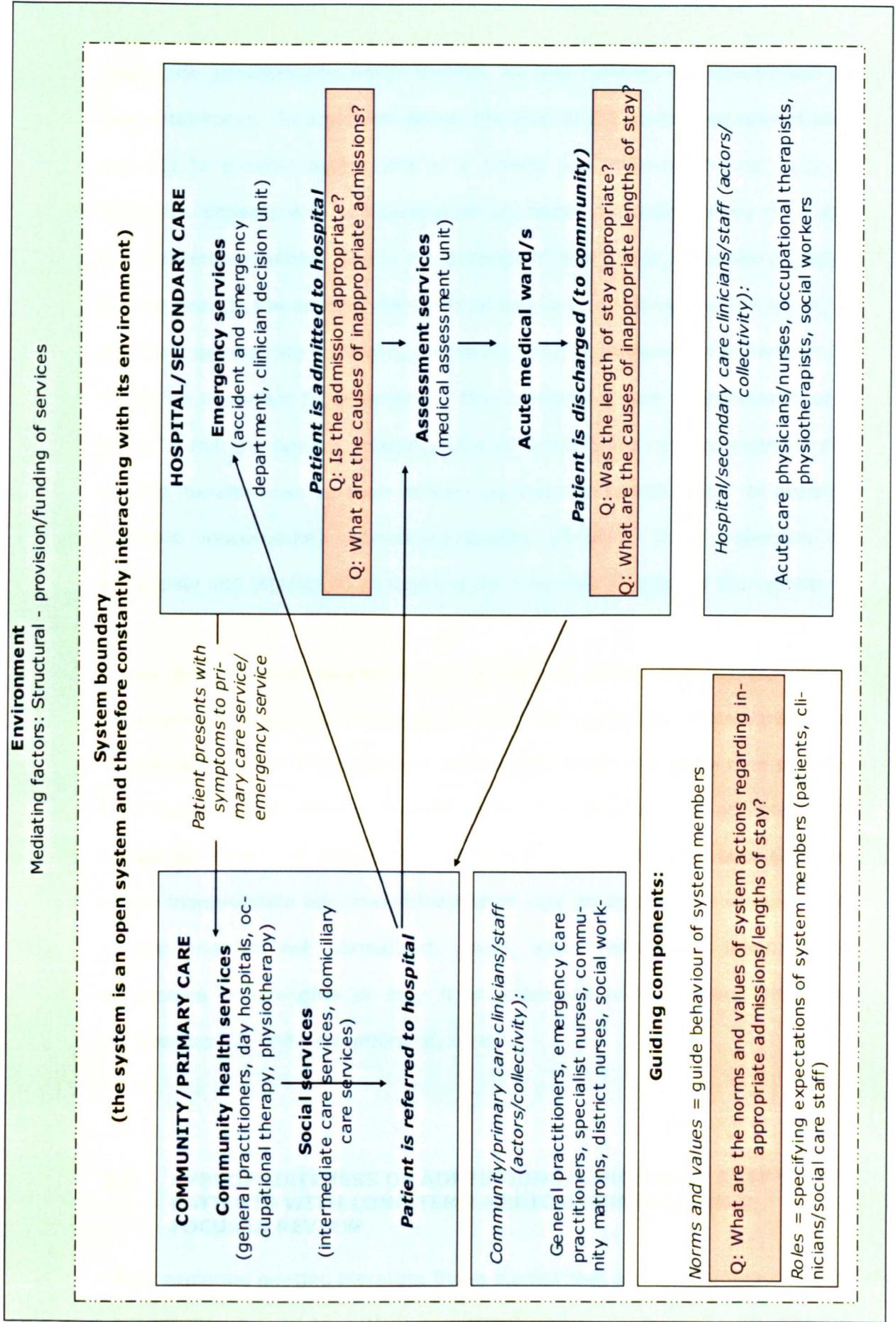
In summary, the healthcare system has a boundary which separates what is and is not part of the system. The system is an open dynamic system meaning that the interaction between the system and its environment is ever changing. The healthcare care system demonstrates entropy where the system develops order through the specification of policies. A key concern is adaptation to the environment. The British healthcare system can be seen to work towards this, for example re-organisation of services and resources to adapt to an aging population. However, whether this is being done in an optimum fashion or not is unclear. As stated, a frequent criticism of the NHS is that it fails to appreciate such interdependencies and often attempts to

solve problems in an isolated manner. Within the overall healthcare system there are many sub systems or departments working together. The sub systems of the health system are functionally differentiated. Due to this the sub systems are dependent on one another to perform the functions that they themselves cannot. Individuals are contained within the system and make a variety of decisions relating to the system goal e.g. policy, allocative, coordinative. Individuals ascertain what means are necessary to achieve a particular goal and mobilise resources to meet this goal. The decisions are influenced by the situation in which the decisions are made, personal preferences, individual perceptions and the way individuals evaluate choices. They are also influenced by what the system deems to be acceptable behaviour and what values the system adheres to.

Due to the relative abstract nature of systemic theory it is impossible to ascertain clearly what is inside and outside the system. It is therefore a task for the researcher to propose a system model. The system can be either micro or macro dependent on the area of investigation. For the purpose of this thesis the system in question will be a primary care/secondary care system. The system will contain those sub systems which are most likely to relate to the acute admission of patients and the discharges of patients. For example, the ICS is a primary care service and is highly likely to relate to the admission or discharge of a patient. However, dental services are primary care services but they are less likely to affect the admission or discharge of a patient. The attributes of the system will detail those aspects which can be deemed to be within the control of the actors (clinicians, patients and their families) of the system. The environment will contain aspects which the system or sub system cannot directly control. The funding of services by the government and the commissioning of local services for the purpose of this thesis would constitute as part of the environment therefore as it cannot be

directly controlled by the patients and clinicians in the system. Figure 3 provides a proposed system model.

Figure 3: Example acute admission system model



The acute admission/discharge system, as any system, is characterised by goal attainment. In a general sense, the goal of the acute care system may be: (1) to provide acute care in a timely and efficient manner; (2) to discharge patients with sufficient support, where necessary, when medically fit in a timely manner. Given the purpose of this thesis I propose a goal is also to provide the appropriate levels of care e.g. acute versus non acute, in the most appropriate setting e.g. hospital versus community. Furthermore, it would be important to determine if this is indeed a goal of individuals or a 'norm' within the system. Inappropriate admissions and inappropriate lengths of stay therefore can be seen to work against this specific goal. In order to examine inappropriate admissions/lengths of stay, it is necessary to appreciate and attempt to understand the inter-relationships of the system.

Given the fact that individuals are guided by norms and values, careful consideration should also be given to what the norms and values are of the specific system. If it has become normalised, within the acute care system, that inappropriate admissions and/or lengths of stay are acceptable or unavoidable then the researcher's task is extremely different to a situation where inappropriate admissions/lengths of stay go against the values of the system and are not normalised. Also, when researching inappropriate admissions and lengths of stay it is important to understand clinicians' preferences for, and perceptions of, care.

2.5 APPROPRIATENESS OF ADMISSIONS/LENGTHS OF STAY FOR PATIENTS WITH LONG TERM MEDICAL CONDITIONS. A FOCUSED REVIEW

When exploring existing literature those studies that are most similar in terms of the research setting, patient population and methods used, will offer the most comparable findings. The studies detailed above provide a broad overview of studies assessing appropriateness and typically examine medical

admissions or emergency admissions. For the reasons outlined below the comparability of existing research with the research described in this thesis is limited due to the differing study populations. In order to identify comparable studies, namely with the same patient population (those with LTMCs) a focused review was undertaken. The inclusion criteria (see section 2.5.1), results (see section 2.5.2 – 2.5.5) and critical appraisals of findings (see section 2.5.6) are given below.

Patients with LTMCs admitted to hospital will differ from patients admitted to hospital who have no LTMCs (see Table 5 for further details). Those with LTMCs can have complex needs and can experience difficulties in activities of daily living. Such difficulties may lead them to require care, particularly social care, something shown to have an impact on the appropriateness of length of stay (3, 6, 39, 50, 74). Specifically, those with LTMCs may have cognitive problems impacting their ability to communicate their preferences and comprehend information (10). Consequently, when studies explore medical admissions or emergency admissions and fail to specify what proportion of the study population has a LTMC, it is difficult to know how much the results reflect the experience of patients with or without LTMCs. Table 5 given below details further differences between acute and chronic/long term conditions.

Table 5: Differences between acute and chronic conditions

	Acute disease	Chronic disease
Onset	Abrupt	Usually Gradual
Duration	Limited	Lengthy, indefinite
Cause	Usually single	Usually multiple and changes over time
Diagnosis and prognosis	Usually accurate	Often uncertain
Technological information	Usually effective	Often indecisive; adverse effects common
Outcome	Cure	No cure
Uncertainty	Minimal	Pervasive
Knowledge	Professionals knowledgeable; patients inexperienced	Professionals and patients have complementary knowledge

Reference: (103)

2.5.1 Research question

In order to examine the appropriateness of admission and length of stay of patients with LTMCs a focused review was conducted. The focused review sought to ascertain:

1. What proportion of patients with a pre-existing medical condition: were admitted to hospital inappropriately; had an inappropriate lengths of stay,
2. What factors were associated with the occurrence of an inappropriate admission/length of stay,
3. What were the causes of inappropriate admissions and lengths of stay.

An English language literature search was conducted between March 2006 and April 2006 and re-run during September 2007 using the following databases: CINAHL (Cumulative Index to Nursing and Allied Health), Embase,

HMIC (Health Management Information Consortium), Medline, British nursing index, Cochrane library. Key words describing appropriate admissions/lengths of stay and LTMCs were used to search for literature. Studies published in the last twenty years, since 1986, were included. The selection of LTMCs was selected on the basis of their prevalence and were determined using the British Household Panel Survey (2002). Reference lists of articles that met the inclusion criteria were also hand searched in order to identify additional papers.

2.5.2 Inclusion criteria

Studies were included if they examined appropriateness of acute admissions and/or length of stay, if the study population included a majority of people with a diagnosed LTMC (symptoms lasting 12 months or more, or defined as 'long term' or 'chronic' if not stated), if the study was primary research, and published in English. All study designs were accepted. Following a preliminary search the inclusion criteria were adjusted to include studies where at least half of the population had a LTMC. Abstracts of possible studies were reviewed and full text articles obtained for studies that met the inclusion criteria. If the information available in the abstract was not sufficient to determine inclusion then the full text was obtained in order to do so.

2.5.3 Results

The search identified a total of 496 articles. Preliminary screening identified 61 articles that were potentially relevant and which met the inclusion criteria. In a large percentage of articles it was not evident from the abstract alone if the medical condition of the participants was long term. The full text of each selected article was obtained and reviewed independently by two researchers. Three articles met the inclusion criteria (104-106). In one paper the

description of the sample was not sufficiently clear to determine exact percentages of patients with LTMCs, therefore, further enquiries were made with the author (104). The remaining articles were excluded for the following reasons: 22 did not examine any of the primary outcome measures and 36 did not include a population in which the majority had a LTMC/s, or had not recorded this. The study design and population of the included studies is given below (see section 2.4.3) followed by a description of the study findings relating to inappropriate admissions and inappropriate lengths of stay (see section 2.4.4 - 2.4.5).

2.5.4 Study design and population

All studies examined inappropriate length of stay and one examined inappropriate admissions (105). One study examined patients admitted to a Swiss hospital (105), one examined patients admitted to a US hospital (106) and one examined patients admitted to an Italian hospital (104).

The Swiss study included patients aged 75 years or over admitted to a medical centre from July 1995 to February 1996 (105). Two thirds of the study population had one co-morbidity and 16% had three or more co-morbidities. The mean age of patients was 82 years, 63% were female and 56% were living alone. Data relating to 96 patients were obtained via patient interviews, and the AEP was used to determine the appropriateness of admission and inpatient days (105).

The US study examined acute admissions of people with chronic pulmonary disease to two acute care hospitals between 1986 and 1987 (106). Patients were included if they were aged 45 or above, had a diagnosis of chronic pulmonary disease, restrictive pulmonary disease or asthma and were experiencing chronic pulmonary disease related problems e.g. dyspnoea on

exertion or shortness of breath. Patients who exhibited signs/symptoms that were indicative of chronic pulmonary disease and patients with chronic obstructive pulmonary disorder or asthma were also included. Patients had a mean age of 68 years, 64% were female and 84% of patients were white. Data relating to 83 patients were collected prospectively through patient interviews, review of medical records and discussions with medical staff. The data were reviewed firstly using the Appropriateness Evaluation Protocol (AEP). The data were then reviewed by a physician, taking into consideration additional clinically relevant events, in order to determine the length of stay that was medically necessary (106).

The Italian study included patients admitted to one of five acute medical wards, including two general medical wards, one cardiology ward, one geriatric medicine ward and one respiratory medicine ward (104). Two hundred and eleven patients were studied, of which 54% were male, and the sample had a mean age was 79 years (range 23-97). Approximately one third of patients (31%) had pre-existing respiratory conditions, 23% had pre-existing cardiac conditions and 30% had 'other' pre-existing conditions. Data were collected from the medical records, through direct assessment and from clinicians. Patients were surveyed at one time point i.e., the index day of care. The appropriateness of the index day of care was determined using the Italian version of the AEP (104).

2.5.5 Inappropriate admissions

In the Swiss study of patients aged 75 years and over, 9% (n=18) of admissions to hospital were categorised, on the basis of the AEP, to be inappropriate (105) (see Table 6). They also found that increased impairments in activities of daily living and an abnormal Mini Mental State Examination (MMSE) score were associated with inappropriate admission.

Patients who experienced an inappropriate admission also tended to have a higher Geriatric Depression Score compared to those admitted appropriately (105).

Table 6: Inappropriate acute admission and inappropriate length of inpatient stay of adults with long term medical conditions

Author	Diagnoses	Study methods	Assessment of appropriateness	Results	
				Inappropriate admissions	Inappropriate length of stay
Mushlin (106)	Chronic obstructive pulmonary disease.	83 patients admitted to acute hospitals. Prospective patient interview, record review, discussion with medical staff.	AEP and physician		44% patients
Ingold (105)	One co-morbidity (two thirds), 16% three of more co-morbidities, 20% cardiovascular disease, 7% pulmonary disease.	196 patients admitted to department of internal medicine. Prospective patient interview.	AEP	9%	26% days 35% patients
Griffiths (104)	31% pre-existing respiratory conditions, 23% pre-existing cardiac conditions.	211 patients admitted to one of five acute medical wards. Prospective record review, questioning of medical staff and direct assessment.	AEP		44% patients

2.5.6 Inappropriate length of stay

Each of the studies examined inappropriate length of stay (106). In the Swiss study, 35% (n=68) of patients experienced at least one inappropriate hospital day with 26% of all days being deemed inappropriate (105). All inpatient days were deemed inappropriate for patients whose admission to hospital was not justified (i.e. inappropriate). The vast majority of inappropriate hospital days (87%) were due to discharge delays, with 59% being caused by transfers to nursing homes and rehabilitation facilities. A total of 15% of delays were noted as being caused by patients or their family, and 6% due to hospital staff e.g. physician in charge being undecided about discharge disposition. Factors such as living alone, receiving formal help, having reduced mobility, increased impairments in basic activities of daily living before hospitalisation and at admission, an abnormal Geriatric Depression Score and an abnormal MMSE score were associated with an inappropriate length of hospital stay. Patients who lived alone and who had an abnormal Geriatric Depression Score were 2.6 and 2.8 times more likely to experience inappropriate hospital days, respectively (105).

The US study identified that 44% (n=35) of patients had a prolonged hospital stay. Continuation of 'conservative' therapy (n=26) was the most common reason for prolongation of hospital stay, followed by problems with discharge arrangements (n=8) and delay in completion of 'diagnostic workup' (n=6) (106). The authors do not define what they consider to be 'conservative' therapy.

The Italian study revealed that on the 'index day', 44% (n=93) of patients were inappropriately placed in acute beds (104). Overall, geriatric medicine had the highest number of patients inappropriately placed (62%) and cardiology wards the lowest (27%). Reasons for inappropriate placement

included awaiting test results (n=18) or tests (n=17), transfer (n=16) primarily to a non acute facility and patient or family request for an extended stay (n=15). Patients who were found to remain in hospital inappropriately did not differ significantly from those whose continued stay was appropriate in terms of gender, age, diagnosis, co-morbidity, route of admission or previous level of dependency. However, patients who remained in hospital inappropriately were more likely to be older and to be receiving care prior to admission, than those who remained there appropriately (104). See Table 6 for summary of study findings.

2.5.7 Critical appraisal

The quality of each included study was appraised critically. A summary of the critical appraisal findings is given in Table 7. The broader limitations of the studies are discussed in section 2.5.7.

Table 7: Critical appraisal of included studies

	Mushlin	Ingold	Schlupep
Comments	<ul style="list-style-type: none"> Detailed description of methods provided Research design appropriate to purpose Thorough data collection Study population, type and selection processes clearly described Representativeness not discussed Excluded patients accounted for Tests used are appropriate to purpose, design and sample Variables hypothesised as predicting short and long length of stay were analysed – however no justification for the hypothesis of these variables Significance level not stated, 0.05 level assumed Process of data analysis consistent with methodological framework No methods used to check findings stated Strengths and weaknesses discussed/acknowledged Not clear if physician researchers were also involved in patient care, may cause bias. Implications for practice clearly discussed 	<ul style="list-style-type: none"> Detailed description of methods Overall research design is appropriate to the purpose Thorough data collection Study populations, type and selection processes clearly described Excluded patients accounted for Representativeness not discussed Detailed description of data analysis Tests used are appropriate to purpose, design and sample Process of data analysis consistent with methodological framework No methods used to check findings stated 	<ul style="list-style-type: none"> Detailed description of methods Overall research design is appropriate to the purpose Paper does not state who determined the justification for each hospital day No discussion of study population, sample size, type or selection processes No description of data analysis Strengths and weaknesses not discussed/acknowledged
Summary of comments	<ul style="list-style-type: none"> Study not up to date Moderate to small sample size Good study methods 	<ul style="list-style-type: none"> Study relatively up to date Moderate sample size In-depth analysis 	<ul style="list-style-type: none"> Study not up to date Large sample size Details of representativeness,

	Mushlin	Ingold	Schluep
		<ul style="list-style-type: none"> • Thorough data collection 	<p>sampling, data analysis missing</p> <ul style="list-style-type: none"> • Potential sources of bias, not clear if neurologist collecting data was involved in patient care • Unclear as to who determined justification for hospital days • Thorough data collection

2.5.8 Overview of findings

The results of this focused review indicate a gap in the literature, with a limited number of studies reporting findings on the frequency of, and factors associated with, inappropriate admissions and lengths of stay for patients with LTMCs. Factors associated with an inappropriate admission were impairment in activities of daily living and an abnormal MMSE score. Inappropriate lengths of stay were caused by continuation of 'conservative therapy', problems with discharge arrangements and delayed completion of diagnostic assessments (106). Living alone, receiving formal help, having reduced mobility, impairments in basic activities of daily living, and an abnormal MMSE score were all factors associated with an inappropriate length of hospital stay (104-106).

When considering the clinical and research implications of these findings, there are several secondary factors that should be taken into consideration. Firstly, the data described in the studies reviewed were collected over a decade ago and in one study (106), data collection occurred two decades ago. Significant changes have taken place in the provision of health care (e.g. medical advances, new technology) since the late 1980's and early 1990's that could limit the applicability of the studies reviewed. Secondly, the results regarding inappropriate admissions are based on a small number of patients (n=18) and relate to patients aged 75 and over and cannot be applied directly to a younger adult population (105). Thirdly, in one study the proportion of patients with LTMCs was only 54%, the findings are therefore less applicable to those with LTMCs that studies which have a higher proportion (104). The extent to which the study findings can be applied to patients with LTMCs is therefore limited.

Of the studies conducted to date it is likely that a large proportion of patients studied have LTMCs. Given this it would be relatively simple to collect information relating to the number of LTMCs and to perform a separate analysis. It should be noted that due to cost restraints, we were not able to include unpublished literature and material published in other languages. Additional research to those contained within this review may therefore exist.

In order to provide a comprehensive discussion of all literature findings, the findings of the focused review are critically discussed alongside narrative review findings in section 2.7.

2.6 APPROPRIATENESS OF ADMISSIONS/LENGTHS OF STAY: A NARRATIVE REVIEW

Due to the scarcity of published evidence examining appropriateness of admission and/or length of stay for patients with LTMCs a narrative review examining the admissions and/or lengths of stay of older people (who are more likely to have a LTMC) and those with neurological conditions (with the nature of the condition e.g. acute or long term, being unspecified) to UK hospitals was undertaken. The literature search was completed primarily between November 2005 and August 2006, and between June 2009 and August 2009, although collection of literature was an ongoing process.

2.6.1 Older adults

Rates of inappropriate admissions/lengths of stay

In older patients, generally those aged 65 and over, or those admitted to a geriatric ward, the reported percentage of inappropriate days is again widely ranging. Victor for example examined the discharges of patients aged 85 and over (9). She found that in 27% of 456 discharges a delay of three or more

days had occurred. It is important to note that a retrospective examination of health records was undertaken and only those patients who had a 'delay' noted in their records for three days or more were examined. The authors note that definitions of a delayed discharge varied hence this is why only those with a delay of three days or more noted were included. It is likely that those included in the study are more extreme cases and that a proportion of patients not included in the study may have been deemed delayed if a more sophisticated method of assessing appropriateness was used. The results may not be an accurate reflection of patients experiencing a delayed discharge of less than three days.

Houghton, in a study cited earlier (section 2.4.1) performed a sub-group analysis of the admissions of patients according to age (3). They found that those who were aged 75 and over had the greatest proportion of inappropriate last inpatient days (75%). Those who were aged 65-75 had the second largest proportion of patients whose last hospital day was inappropriate, 69%. This study also assessed appropriateness of admission and found that those aged 75 and over had the greatest proportion of patients inappropriately admitted, 35%. However, patients aged 65-75 had the lowest proportion along with those aged 45-65, 28% (3).

Koffman, in a UK study examining three acute treatment wards found that of 118 patients, 16 (13.5%) experienced an inappropriate length of stay. The majority of patients who experienced an inappropriate length of stay (88%) were aged 65 and over.

Factors associated to an inappropriate admission/length of stay

Victor found that patients whose return to home was delayed by three or more days were significantly more likely to live alone, have no family carer, require post-discharge home nursing or entry to an institutional care facility,

when compared to patients without a delayed discharge. Patients whose care was coordinated by a nurse led team were three times more likely than those coordinated by an occupational therapist or social worker to have a delayed discharge. The hospital team, absence of a family carer and entry into a residential or nursing home were found to be predictors of a delayed discharge. Lengthy assessment procedures, waiting lists, uncertainty about who pays for care and the absence of a family carer were identified as related to delayed discharge (9).

In the study conducted by Koffman, staff cited that reasons for the inappropriately located admissions were lack of rehabilitation facilities and lack of facilities for older people (6). However, leading on from this Koffman recommends that healthcare professionals and social service departments need to work more closely together and strive to return patients to the community whenever possible. This indicates that there may also be problems with the organisation of services, although no evidence is given for this in the paper (6).

Also, as part of the NHS plan a survey of 5,500 patients aged 75+ was undertaken (31). The NHS plan does not provide further details on the methods used in this study. However, given that the study looked at the continued admission of patients on one day, it is highly likely that the caring staff determined the appropriateness of the length of stay. This may have introduced bias as it may have been possible that clinicians wanted to be perceived by the Department of Health as performing well, or in contrast highlight the problems they encounter. The survey showed that clinicians experienced considerable problems when trying to access services on a patient's behalf, both within hospital and in primary care. The main problems were accessing services for the patients within an appropriate, non delayed, timeframe. For example, a total of 42% of patients were waiting to be

discharged to a residential home, 23% were waiting for an assessment of their ongoing care needs prior to discharge and 6% were waiting for packages of care to be put in place. The report concluded that almost three-quarters of patients aged 75 and over were not getting the care they needed and they believed this was due to lack of partnership working between the NHS and other agencies, particularly Local Authorities. As a result there was a lack of alternative services to hospital admission for patients (31).

McDonagh in a systematic review states that a 'lack of care at an appropriate level, primarily long term care' is the principal reasons for inappropriate days of care (46). McDonagh goes on to state that such patients require care that is at a level between a 'patient hotel' and acute hospital care and that actions to avoid inappropriate admissions should involve more intense outpatient services or a sub-acute type of bed e.g. community hospital GP bed (46).

2.6.2 Neurological patients

Somewhat fewer studies have examined condition specific groups. However, a limited number of studies have examined patients admitted with acute neurological conditions. For example, in one UK study which used physician opinion to assess appropriateness, Playford, found that 21% of neurology patients were waiting in hospital for adaptations to their homes or placement in a more appropriate location (13). Carter examined the characteristics of patients admitted to the acute medical, surgical and neurology wards of two Oxford City hospitals, who had been identified as a delayed discharge. Patients were identified through a weekly delayed discharge list, patients referred to a specialist disability service or patients identified by clinicians as having a delayed discharge (107). Patients were aged 18-70 years. A total of 50 patients were identified as having a delayed discharge. The majority of

patients who had a neurological disability, were male (n=30) with a mean age of 51. The mean delay period was 36.1 days with a total of 711 delay days. Impairment and disability did not correlate with the period of delay experienced. The main reasons for delay were concerns for home safety, awaiting transfer to a rehabilitation facility, awaiting a hospital or nursing home transfer, awaiting funding and home modifications. The authors state that at any one time in Oxford there are between 13-14 patients with a neurological disability experiencing a delayed discharge resulting in an approximate cost of £490,000 over 12 months. They suggest that specialised rehabilitation facilities would be better equipped to deal with the problems causing delayed discharges and that reallocation of funding directed towards these services may improve the care patients received and free up acute beds (107). Both of the studies discussed above utilised the opinion of the caring clinicians to determine appropriateness, which as highlighted in section 2.2.1 can be problematic.

2.6.3 Actions to reduce inappropriate admissions and lengths of stay

Over the preceding decade actions have been employed to try and reduce the number of patients who are admitted to hospital inappropriately or who have an inappropriate length of stay. These actions seek to reduce inappropriate lengths of stay by operating ICS, discharge planning, early support discharge schemes, emergency care networks, extending assessment services opening hours, and increasing the provision of social workers in A and E.

Intermediate Care Services

One of the most significant attempts to tackle the issue of inappropriate admissions and inappropriate lengths of stay has been the introduction of ICS. Such services are 'designed to prevent avoidable admissions to acute care settings, and to facilitate the transition from hospital to home and from medical dependence to functional independence' ((108), pg 13). The range of

services that ICS teams can offer varies, see Table 8 for details of what they may include.

Table 8: Potential services offered by intermediate care

Services
Multi-disciplinary rapid response teams which aim to prevent hospital admission by providing care in a patient's home.
Intensive rehabilitation services to help older patients regain their independence.
Recuperation facilities, using nursing home or other 'step-down' beds for the on-going care of patients who can be discharged from acute care but are not yet ready to go home.
One-stop clinics for older people to facilitate rapid access to services for health and social care.
Integrated home care teams to help patients live independently at home following hospital discharge.

Reference: (88)

There is an increasing consensus amongst clinicians that intermediate care in nurse-led units, which allow patients to be 'stepped down' from acute care to nursing only management, is clinically effective and acceptable to patients (109, 110). The introduction of ICS goes some way to providing the level of care McDonagh recommends i.e. a level between a 'patient hotel' and acute hospital care (46). However, the effectiveness of ICS to reduce inappropriate hospital use is unclear (111, 112). Also, despite offering an alternative to hospital admission the majority of the provision to date concentrates on supporting discharge rather than avoidance of acute admissions (113, 114).

Extending opening hours

Delays in the completion of medical assessments have been shown to have an impact on the discharge of patients (3, 106, 115-117). The limited opening

hours of hospital assessment services are thought to contribute towards delays in the completion of medical assessments (118). Whilst hospital wards operate on a 24 hour basis, other services such as pharmacy and assessment services do not. A delay often occurs therefore before the clinicians are provided with the results (88). Hospitals are being encouraged to improve access to diagnostic services, through extended opening hours or 24 hour working, seven days a week, where appropriate (119, 120).

Discharge planning

In order to shorten length of stay, checklists/care plans used to guide the management of patients have been designed to reduce length of stay (121-123). Such checklists have been designed primarily to streamline inpatient management by prompting physicians to identify the type of management required (inpatient or outpatient) and treatment goals, and a number of studies have shown them to be effective in reducing inappropriate stays (121-123). In contrast to this, a number of other studies have shown that discharge planning procedures including setting of goals to be ineffective in reducing inappropriate lengths of stay (121, 124-127).

Social workers in accident and emergency

In order to improve coordination of social care provision from the A and E department, social workers have been placed in A and E settings (128-130). Such interventions have sought to meet the social needs of patients through providing alternative forms of domiciliary or residential care services (131). For example, the introduction of a team consisting of two A & E sisters, a social worker and a physiotherapist, who had priority access to an occupational therapist, effectively prevented a number of unnecessary admissions and aided the provision of alternative forms of care for patients (132). The involvement of social workers in emergency departments can also save time taken to make referrals for clinicians (133, 134). The introduction

of social workers in A and E may also address problems that clinicians may have in knowing what services are available and the referral policies and practices for each.

Early supported discharge schemes

Early Supported Discharge (ESD) schemes are designed to enable a patient to be discharged from hospital with rehabilitative and medical support being provided in the community rather than the hospital (135-137). A systematic review of 11 studies has shown that ESD schemes (provided by specialist multi-disciplinary teams) have led to a significantly reduced risk of death or dependency, significantly fewer adverse outcomes and a significantly shortened length of hospital stay (eight days shorter) for stroke patients when compared to conventional care. The review also found that ESD schemes led to significant improvements in patients abilities to perform activities of daily living (measured by the extended activities of daily living scale), an increased likelihood of living at home, and improved satisfaction with services (136). ESD schemes may therefore offer a means of preventing delays in the discharge of patients from hospital, and may also facilitate positive outcomes (e.g. improvements in ability to perform activities of daily living). However, it is unclear whether or not ESD schemes would be of benefit to patients who have little rehabilitation potential, for example when rehabilitation is unlikely to lead to improvements in ability to perform activities of daily living.

Emergency care networks

As detailed in section 2.6.3 many potential causes of inappropriate admissions and inappropriate lengths of stay relate to the provision and organisation of services. Studies point to a lack of integration between primary and secondary care services, poor communication and failure to attend to the special needs of vulnerable groups (6, 50, 74). With emergency care provision involving a wide number of services (GPs, ambulance services,

social services) a lack of integration is often a consequence when services and care providers function independently (138). In recognition of this emergency care networks are being introduced (139). Emergency care networks seek to streamline the emergency care patients receive and represent an acceptance amongst service providers and policy makers that emergency care provision is a problem for the whole health care system. Emergency Care Networks have a number of aims, see Table 9 for details.

Table 9: Aims of emergency care networks

Aim
Optimise the emergency care of all patients in the locality.
Ensure that the patient perspective and quality of care are the priorities in planning emergency healthcare in the local health and social care community.
Ensure ease of access to appropriate services at the appropriate time without unnecessary duplication for the patient and in line with national standards.
Co-ordinate emergency health care across all organisations in a community.
Ensure the engagement of external organisations whose services contribute to the effective delivery of emergency care.
Work with health and social care commissioners to determine priorities in emergency care.
Promote knowledge of developments in emergency care amongst health and social care professionals and users.
Developing and maintaining improvement work including that initiated by the Emergency Services Collaborative.
Agree and develop local standards and protocols to facilitate comparative audit and training.

Reference: (140)

The work of emergency care networks varies from location to location. Within the study locality, Derbyshire County and Derby City there are two emergency care networks. The aim of the network covering Southern Derbyshire network is to:

"To improve patient choice and access to services and to challenge traditional organisational barriers that may be detrimental to the patient's health care experience. It will pioneer an approach that will develop and sustain new relationships throughout the local health care community. 'Comprehensive' solutions will be provided to address the existing fragmentation of services, where there is evidence of poor communications." (141)

Specific work of the network outlined in the Emergency Care Strategy for Southern Derbyshire 2005-2008 included developing long term condition management plans, improving access to ICS and improving out of hour's access to social services. To date integrated assessment and care management teams for patients with LTMCs have been developed. Community matrons have been employed to identify people at risk in the community and assist them with the management of their conditions. Nurse assessors have also been employed by the NHS and are co-located with existing social care staff. Extra ICS beds have been allocated at the Cherry Tree Unit and a single point of entry has been developed. In order to improve out of hours access of social work staff, care managers are now working on Saturday mornings (141).

2.6.4 Implications of inappropriate admissions and inappropriate lengths of stay

Inappropriate admissions and lengths of stay have negative consequences for the patient, their family and the health care system in which they are being cared for. It is evident that hospitalisation can have adverse as well as positive affects. For every person hospitalised a small degree of risk is incurred. Inappropriate admissions and lengths of stay place patients at unnecessary risk of developing problems additional to those of the admitting

diagnoses. Patients with prolonged hospitalisation are at risk of developing hospital acquired infections e.g. MRSA, and experiencing deconditioning, reductions in mobility, increased dependency and social isolation **(19-21)**. For example Steel, when examining risks of care in a tertiary care hospital, noted that at least one third of all patients had experienced an 'ill effect' unrelated to a pathological process during hospitalisation **(18)**. A neurology specific study also found that over the period of a year, 81% of the 117 patients with neurological conditions admitted to a rehabilitation hospital, developed complications, most commonly respiratory disease and genitourinary disease. The study did not compare the occurrence of complications inside and outside of a hospital environment, it is not clear therefore if these complications would have occurred regardless of the environment. However, it demonstrates the susceptibility of patients with neurological conditions to develop additional complications (142). Studies have shown that when admitted, patients, particularly older patients, have low mobility and a large amount of bed rest (143-145). One study reports that 65% of patients studied experienced a decline in mobility from their preadmission baseline to the second hospital day, and that most patients had failed to improve upon discharge (146). Importantly, the bedrest and reduced mobility patients experience when admitted, often relates more to the hospital environment than the patients admitting condition (147, 148). Studies have found that healthy volunteers recruited to remain in bed for ten days, aside from toileting, experienced a large loss of skeletal muscle, and lean tissue (149). For patients with long term conditions, this could have a lasting impact. For example, a study compared hospitalised and non hospitalised women (n=595) who were disabled but dependent in activities of daily living. Results found that hospitalisation was independently predictive of a dependence in activities of daily living that persisted for at least 18 months after baseline (150). Patients also echo fears of developing additional complications as a result of admission. For example, Swinkels found that

patients who remained in hospital inappropriately often expressed fears of deterioration not only as a result of the conditions for which they were admitted, but because of limited opportunities to mobilise (151).

Admission to hospital has also been reported to frequently lead to protein undernutrition, particularly in older adults (152, 153). Sullivan (1999) conducted a study examining the nutrient intake of patients admitted, and reported that many elderly patients were maintained on nutrient intakes far less than their estimated maintenance energy requirements. The authors conclude that this lack of nutrients places patients at an increased risk of mortality (152). In a similar study examining mortality and protein under nutrition, the author concludes that "weight loss, a low body mass index, and other indicators of lean and fat mass depletion appear to place the patient at increased risk for adverse outcomes independent of illness severity" (154).

Patients with LTNCs such as PD, report further negative implications of hospital admission. For example, 27% of PD society members admitted to hospital in the last five years report feeling that doctors, nurses and other hospital staff did not understand Parkinson's and how it affected the individual (155). In particular hospital clinicians do not understand the complexities of PD patients' medication regime, and the need to ensure that patients maintain their strict timings for receiving medication whilst admitted (155). Furthermore, PD patients believe that the understanding of hospital clinicians is worsening, with 21% reporting a lack of understanding in 1997 compared to 27% in 2007, although this could relate to the changing expectations of PD patients over time (155).

Inappropriate admissions and lengths of stay can lead to unnecessary costs. In a 2006 Department of Health publication the UK health secretary stated

that improving health services by cutting unnecessary emergency admissions could help save the NHS £400 million per year (17). However, it is not clear if this takes into consideration the impact cutting unnecessary admissions would have on other secondary care and primary care services.

Inappropriate admissions and inappropriate lengths of stay not only lead to increased costs on an already strained NHS but can lead to bed shortages. Despite recent increases in the number of acute beds, bed occupancy continues to increase with average bed occupancy rates reaching 84.6% in 2005/6 (26, 156). Mathematical models predict that when occupancy reaches 85% there is a substantial risk of bed shortages. When occupancy reaches 90% periodic crises will occur (157). Highlighting this is the instance where difficulties with social service funding led to medically fit patients admitted to a Birmingham hospital remaining in hospital leading to a bed crisis. Due to the lack of beds medical staff were forced to treat new arriving patients in ambulances. Although this is an extreme example it shows how inappropriate lengths of stay can have negative consequences not just for the admitted patient but for other patients (15, 16).

2.7 A DISCUSSION OF LITERATURE REVIEW FINDINGS

2.7.1 Conceptualisation of appropriateness

It is evident that 'appropriateness' is a conceptually difficult term. It is clear that studies typically use either an appropriateness tool, or the opinion of physicians. The patient is rarely asked whether they feel their admission/length of stay was appropriate or not. Of all the studies reviewed, only one (Houghton 1996) included patients' views regarding appropriateness of length of stay. This is an important point, because it assumes the physician 'knows best'. It could be argued that in a system set up to serve the general public, it is not the opinion of the patient that matters? However, it is

evident that studies in this area report on the appropriateness of admission according to physicians, not individuals. Houghton's (1996) study perhaps offers some insight into the motivations for asking physicians not patients. In Houghton's study, two thirds of patients felt their length of stay was 'about right' whilst the AEP identified around two thirds of last inpatient days were inappropriate (3). In a rationalised system would it be realistic to use patients views regarding appropriateness to plan services? Do patients see hospital care as the 'gold standard' of care? and if so are they aware of the negative consequences of hospitalisation? Can we expect patients to make informed decisions about the appropriateness of care? The answer arguably is no. However, as will be discussed later, at a minimum the motivations and preferences of patients should be understood just as it is important to understand the motivations and preferences of all actors in a system which is as interrelated as the health care system.

Also, the way in which an individual determines appropriateness will depend on their own value system. For example, one physician may assess appropriateness according to the outcome, e.g. were the patients needs met? irrespective of whether or not the setting of the care (hospital versus community) was appropriate to their needs, whereas another may not. As discussed, there are a number of implications of inappropriate admissions and inappropriate lengths of stay, including adverse physical and psychological affects on the patient, costs, bed blockages etc. The importance individuals, physicians or patients, place on these 'consequences' will differ and will be influenced by an individual's personal experiences and values. To this end, it must be acknowledged that an assessment of appropriateness is a subjective assessment that is borne out of a person's experiences and views of life. Providing a working operational definition can help to mediate these individual variances, to an extent, however the studies included here do not report that

a working definition was provided. This is a severe criticism of existing appropriateness studies.

2.7.2 Key causes of inappropriate admissions and lengths of stay

The studies described identify a number of causes of inappropriate admissions and inappropriate lengths of stay. Broadly, they relate to problems with the: (1) structuring of current services, (2) the organisation of services and (3) problems/issues concerning individuals (clinicians or patients).

Structural causes

When examining the causes of inappropriate admissions there is evidence that service availability is often limited. This appears to be a particular problem for the elderly, with a lack of respite care and long stay facilities being identified as structural causes of inappropriate lengths of stay (6, 54, 107, 118). This problem is not isolated to the elderly however. Studies that examine adult admissions also find that there are problems with the provision of services (3, 70). However, it is likely that a large proportion of patients making up the study samples are elderly. These findings appear to be consistent over time with studies carried out as early as 1972 identifying that a lack of services (domiciliary nursing and social services) led to inappropriate lengths of stay (70).

Service availability is a problem that the NHS commonly faces. With a free 'at the point of delivery' service for all and with capped funding, demand for health care may never be truly met, particularly given the changing demographics. Also, in the UK services are provided in a way which serves patient groups equally.

In 2000 the government acknowledged the problems of service availability and aimed, through implementation of the NHS plan, to increase health

service capacity by modernising and redesigning services (118). However, in a system where resources are limited it is inevitable that some rationing of services will take place. This may be evidenced by the selection of priority areas, for example through the National Service Frameworks. As Hughes states:

"Resources are scarce and so must be rationed....The question is not whether all individuals should be able to access all services but, rather, who should be restricted from accessing certain services and which services should be provided with the health care system". ((158), pg. 106)

The selection of priority areas will be dependent on a number of factors, which may include patient need, cost of services and political importance, to name but a few. This highlights the need to view the acute care system as part of a whole system. Political importance, costs of services, may be outside of the individual physician's control, but nonetheless are important determinants of care.

Whilst the causes of inappropriate lengths of stay are relatively well documented, this cannot be said for the causes of inappropriate admissions. The literature in this area is lacking. Studies have shown that a proportion of patients are suitable for alternative care, frequently community hospital care, GP beds, urgent outpatient assessment (1, 48, 88). However, they do not explore why such alternatives are not accessed. For further discussion of this see section 2.8.2.

Organisational causes

The organisation of health and social care services can be seen as a broad cause of inappropriate lengths of stay. Organisational inefficiencies such as

clinicians having to wait for another opinion or a consultant decision due to infrequent consultant ward rounds, have been documented as leading to short term delays in patients' discharges (6, 115, 159). Delays in carrying out assessments have also been documented as impacting on the discharge of patients (3, 115-117). Causes of inappropriate lengths of stay in addition to these include delays in ordering tests, delays in seeking medical consultations and a lack of a clear therapeutic plan (121). It is not clear what leads to organisational inefficiencies, It may be the case that individual clinicians are not working in the most optimum fashion e.g. ordering tests at the earliest possible opportunity, or that individuals are working to their optimum but there are simply too many patients to care for.

Accessing community social care resources is also a problem and this can be due to delays in assessing a patient's social care needs and insufficient partnership working between GPs, hospital staff and social service staff (6, 71, 88, 160-162). As Elder points out:

"Some [patients] have no acute medical needs, although this can only be apparent after adequate medical assessment, and little potential for rehabilitation. Their admission may be precipitated by family, primary care or social services recognising that they cannot be supported in their current environment. They require longer term functional support or institutional placement, and time in hospital, which is often lengthy, is primarily used to organise that support or placement." ((163), pg 442)

Elder goes on to call for faster access to multi-disciplinary assessment and a simplified mechanism for funding. He states that a single point of access for

both health and social services would go a long way to preventing many inappropriate admissions (163).

It is unclear from existing literature whether or not organisational problems are leading to inappropriate admissions. As stated above, no literature in this area has attempted to provide answers to explain why alternative services are not accessed. It is possible when examining the wider literature to identify a number of potential causes. For example, changes in the provision of out of hour's GP services may be impacting on the appropriateness of hospital referrals. In the UK, out of hours GP service provision is provided primarily by deputising locums. There are concerns that deputising locums who are unlikely to be familiar with a patient's medical history might act more cautiously and be more likely to refer a patient to hospital than their counterparts, particularly for those with long term conditions (164, 165). However, it is unclear what prevents patients from being discharged from hospital once they have been referred (by a deputising locum for example). It may be perfectly appropriate to refer a patient for a specialist assessment in A and E/the MAU. However, it is unclear what proportion of patients referred to A and E/MAU require a specialist, and therefore appropriate assessment, and how many are referred to hospital inappropriately, because the clinician has assessed they are unsafe to remain at home without additional services.

Communication difficulties between service providers have been documented as a barrier that impedes clinicians from accessing services and therefore preventing an inappropriate admission and/or facilitating discharge from hospital. For example, in a qualitative study of access barriers to cardiac services communication difficulties, specifically in the transference of information about patients across health care settings, often led to referral delays (166). However, it is not clear if these problems relate to the organisation of services or to the working practices of individuals. If patient

referrals were being delayed then this may have prevented alternative services being accessed. A US study has also found that lack of communication between health care providers was reported to prevent effective coordination and continuity of care (167). If the coordination and continuity of health care service provision is routinely poor then the level of communication and coordination required to prevent an inappropriate admission may not be achievable (167).

From a patient's perspective problems with the organisation of primary care services, for example difficulties in speaking to someone from a GP surgery, and the limited number of GP appointments have been shown to act as an access barrier to primary care services (166, 168, 169). The preferred alternative to admission for many of the studies cited has been GP beds. However, if patients have experienced problems in accessing GPs it may be the case that clinicians also experienced problems in accessing/communicating with GPs, which may prevent them from accessing appropriate care.

Causes relating to individuals

Studies examining the appropriateness of lengths of stay identify a number of patient factors, e.g. patient age, living arrangements, availability of informal care, service requirements, that may contribute towards experiencing an inappropriate admission/length of stay (9, 58, 104-106). However, such factors may be indirect rather than direct causes of inappropriate admissions. For example it may be more likely that those patients who are older, who live alone and do not have access to informal care are more dependent on formal service provision, which as highlighted can be a problem. Also, the availability of others, may be a factor that clinicians understandably take into consideration when assessing risk.

Causes of inappropriate admissions may also relate to individual clinician or patient specific factors. For example the rate at which GPs refer patients to hospitals and outpatient services has been documented as widely variable both in the UK and abroad (170-173). This was highlighted by the 1989 whitepaper 'Working for Patients' which stated that there was a 20 fold variation in the referral of patients to hospital by GPs (174). It is claimed that a number of referrals for hospital care are inappropriate (171, 175, 176). This has led to a concern that patients are being referred to secondary care services unnecessarily and this leads to the use of expensive, limited NHS resources (177).

A number of studies have examined the characteristics of GPs with high referral levels. A UK study found that GP trainees referred more patients for emergency hospital admission than their trainers, indicating that less experienced GPs act more cautiously when treating patients (178). Studies have shown that at an individual, psychological level, GPs are influenced by the confidence they have in their clinical judgement, their awareness of the chances of life threatening events occurring, tolerance of uncertainty, the need to maintain the esteem of consultant colleagues and personal enthusiasm (179, 180). Furthermore, a GP's confidence in their own clinical judgement may be influenced by their knowledge of disability and its management. Studies have found that patients with disabilities feel that their health care providers frequently lack disability specific knowledge (167, 181, 182). This lack of knowledge then goes on to prevent the timely and effective coordination of the health care services that are required (167). Furthermore, patients may be discouraged from visiting a GP who is not knowledgeable about their condition (183).

Pressure exerted on the GP by their patients to refer to hospital has also been documented as a factor that influences referral rates (170, 184, 185). At a more structural level, time constraints and the availability of services have been found to reduce the tendency of GPs to explore options other than referral for emergency admission (185, 186). For example, in a US study of access barriers for patients with neurological conditions, it was found that the time spent coordinating a patient's care, was perceived as poor (167). Participants reported that physicians did not invest enough time or effort in coordinating their care effectively. The authors stated that there is a problem with the patient-provider ratio in the US. The amount of time a physician has to spend with a patient can be seen therefore to have an impact on care (167).

The limited knowledge of clinicians regarding available services and their referral policies and practices has also been shown to be associated with the referral of patients to hospitals rather than to more appropriate health and social care services (187, 188). If clinicians are not aware of the myriad of services that are potentially available to patients then the number of alternatives to hospital admission are vastly reduced.

However, GPs rarely admit patients to hospital, rather they refer patients to the A and E department or MAU. It may be argued that the responsibility for inappropriate admissions occurring cannot be attributed to GPs who refer, rather than admit patients to hospital. It is unclear once patients are referred to hospital by their GP what proportion goes on to be discharged/admitted following the initial assessment.

Once patients are referred to A and E departments or MAU's by their GP, it is the hospital physicians who determine whether the patient is admitted or discharged. However, the pressures placed on A and E/MAU physicians may

be impacting decisions to admit. As Croskerry (2002) states "emergency physicians are required to make an unusually high number of decisions in the course of their work. In few other workplace settings, and in no other area of medicine, is decision density as high." (pg. 1184, (98) Also, with an increasing ageing population and an increased prevalence of comorbidity. patients presenting to A and E departments often require a complicated and time consuming evaluation process (189). Derlet (2000) provides an example of this:

"It is difficult enough to determine the etiology of abdominal pain in an otherwise healthy patient. This becomes even more problematic when the patient also has underlying diabetes, cancer, or coronary artery disease. It may take hours to exclude a serious and occult diagnosis yet, in our opinion, many hospitals and health systems expect rapid decisions." Pg 64.
(189)

UK targets for admitting or discharging patients from the A and E departments in less than four hours may limit the time physicians have to undertake complicated, time consuming evaluations, and they may prefer to do this in a MAU where there are no associated time pressures. Similarly, the four hour target may limit the ability of physicians to treat patients solely in the A and E setting. Clinical decision units enable patients to be treated and/or observed without admission, typically by the A and E consultants, but provision of these units is variable across the UK (190). Also, for patients with complex conditions or comorbidities, a specialist consultation is often required to determine definitive treatment or to determine the need for admission. This is dependent on the availability of on call specialists, which has been shown in some hospitals to be limited (191). If specialists cannot be consulted with, physicians may not have the confidence to discharge the patient, and due to

risk aversion, admit patients to hospital (in some cases inappropriately) (192). Junior doctors, in particular may be unwilling or not have enough confidence in their clinical skills to discharge a patient from hospital (192).

If we assume that the patient clearly does not need admitting but requires community care to be organised to enable the patient to be discharged safely, then the barriers GPs experience when seeking to access services may also be applicable to hospital clinicians. It could be argued that it may be easier for a community based clinician to access community based services, given that they are familiar with the ways of working for community based services, and that this should be their responsibility.

Interrelatedness of causes

Whilst it is commonsensical to group causes according to structural, organisational and individual factors, it is essential to acknowledge the interrelatedness of all causes. For example, delays in the ordering of tests may relate to the fact that the patient to clinician ratio is too high (structuring of service). In this case, increased numbers of clinicians may alleviate the problem more so than reconfiguring internal services.

2.8 GAPS IN THE LITERATURE

2.8.1 Examination of those with long term conditions/neurological conditions

There is a considerable gap in the literature regarding the appropriateness of acute admission and inpatient stay for patients with LTMCs. A focused review detailed in section 2.5 showed that there were three studies reporting findings on the frequency of, and factors associated with, inappropriate admissions and lengths of stay for patients with LTMCs. However, these studies were not conducted in the UK and are now considerably out of date.

2.8.2 Exploration of the wider causes of inappropriate admissions and inappropriate lengths of stay

The most overarching finding of appropriateness studies, confirmed by a focused review, is that a proportion of patients admitted to hospitals in the UK can be cared for in an alternative setting (46). So the question that is raised but not addressed in previous appropriateness studies is why are these alternative services not being accessed? Evidence suggests that there may be problems in accessing services due to ineffective communication, but otherwise little thought has been given to examining the causes of inappropriate admissions. Although the literature does examine the cause of inappropriate lengths of stay, as Glasby states, existing literature fails to look beyond the surface.

*"In particular, studies often failed to look beyond the surface of the causes of delayed discharges, for example suggesting that lack of rehabilitation services may be a factor but failing to explore the factors contributing to a lack of such provision."
(162), Pg 26)*

Also, it appears that many researchers fail to explore the issue of service accessibility and assume that access to care is unproblematic. For example, when Victor concluded that inner London is under-provided with respite and long stay facilities it is reasonable to ask what evidence was there that the reason the service was not provided was because it did not exist? (54). Could it not be possible that the service existed but for some other reason was not provided? This exact problem was one of the main findings of an evaluation of the delayed discharge literature by Glasby (162).

"Often, the solution to the problem is implicit within studies, and is not explored in full. Thus, a study that concludes that delayed hospital discharges are caused by a lack of rehabilitation or of home care, will implicitly conclude that the solution is 'more rehabilitation' or 'more home care' without any consideration whatsoever of the strengths or limitations of such services in the locality concerned. (Pg 30, (162))

It is common for the NHS to be criticised for failing to appreciate the wider picture and how problems relate (193). In a report commissioned by the Department of Health studies in this area were criticised for investigating the rates and causes of delayed discharges but failing to explore solutions in sufficient detail (194). It is often the case that a problem relates less to the problem area itself but to the area outside of the problem. In order to ensure solutions are effective it is necessary to explore fully the immediate and wider causes of inappropriate admissions. Existing methods used in appropriateness studies fail to explore the wider issues. This may be because there is a tendency for appropriateness studies to utilise quantitative methods only. Qualitative methods applied to appropriateness studies would offer an insight into the factors that facilitate and/or impede hospital admission and discharge.

2.8.3 The patient perspective

An obvious gap in the literature examining appropriateness of admission and length of stay is that the perspective of the patient is rarely explored. The patient is the only person present from the start of the problems occurring, through to admission and discharge, and may therefore be the most qualified people to comment on the circumstances surrounding an admission and use of alternative services. As Glasby states:

"A patient perspective can also provide a more holistic, long-term view of the factors that contribute to hospital admissions, helping to build a picture of how best to respond to the needs of people starting to experience ill-health." ((195), p.116)

2.9 CHAPTER SUMMARY

Existing studies utilise a range of methods to explore appropriateness of admissions and/or lengths of stay include utilising expert opinions and standardised tools which evaluate the appropriateness of an admission. They can also define appropriateness differently and can choose to take the availability of information into account or not.

Research has consistently shown that a proportion of patients are admitted to hospital inappropriately. Also, when admitted to hospital, a proportion of patients experience a length of stay that is inappropriate. The causes of such admissions and lengths of stay relate broadly to the structuring of services, the organisation of services and/or to the behaviours of individuals who deliver health care services.

The literature examining the admissions of those with LTMCs is very sparse, as is literature concerning the in-depth causes of inappropriate admissions and lengths of stay and possible solutions.

In the current climate the necessity to reduce inappropriate admissions and lengths of stay are of exceptional importance. Not only are patients put at risk of hospital associated complications but they place unnecessary pressure on the availability of beds and acute care resources. As heavy users of acute resources, there is a strong rationale for examining the admissions and lengths of stay of patients with LTNC. The importance of examining LTNC is signified by the development of the NSF for LTNC.

**CHAPTER 3: PHASE I -
APPROPRIATENESS OF ACUTE ADMISSIONS AND LENGTHS OF
STAY**

OVERVIEW

Following a systems theory framework it is necessary firstly and foremost to determine if patients with long term neurological conditions (LTNCs) are admitted to hospital inappropriately and/or have an inappropriate length of stay. A prospective examination of the appropriateness of acute admissions and inpatient lengths of stay was therefore carried out at the Derby Hospitals NHS Foundation Trust.

The study design including the procedure is detailed in section 3.1. The study results are given in section 3.2 and 3.3 with Tables 1 to 31 providing additional information. The remainder of this chapter comprises four sections:

- 3.1 Methods
- 3.2 – 3.3 Results
- 3.4 Discussion
- 3.5 Chapter summary

3.1 INTRODUCTION

The study sought to determine the appropriateness of acute admissions and of inpatient stays for patients with LTNCs. The appropriateness of the admission and length of stay were assessed by an expert panel (see 3.2.4). The prevalence of inappropriate admissions/lengths of stay is given, as well as associated factors. A number of interviews with patients admitted inappropriately were undertaken. Three case studies (including interview data) are provided in order to highlight the factors that may have an impact on the appropriateness of admission and length of stay.

3.2 METHODS

3.2.1 Aims and objectives

Overall aim

To determine (a) the causes of inappropriate acute hospital admissions and lengths of stay for people with a LTNC/s condition(s) in a typical UK hospital and (b) the types of services/actions that may lead to an appropriate admission and length of stay.

Specific objectives

1. To determine (from a consecutive series of patients with a LTNC admitted acutely to Derby City General Hospital and Derbyshire Royal Infirmary) the proportion of patients who were inappropriately admitted to hospital and/or had an inappropriate length of stay.
2. To determine factors associated with appropriate and inappropriate acute admissions/lengths of stay in this population.
 1. To ascertain the structural, organisational and individual causes of inappropriate admissions/lengths of stay
 2. To determine how inappropriate admissions and length of stay could have been avoided.

3.2.2 Sample size calculation

The sample size estimation was based on the percentage of inappropriate lengths of stay identified previously as they are reported to occur more frequently than inappropriate admissions. This ensured that the sample size was adequate to investigate both variables.

In order to estimate the required sample size, information was taken from two comparable studies which included 2,232 (12) and 154 (14) stroke

patients. Both studies examined the appropriateness of each admission and concluded that the duration of stay was inappropriate in 50% and 47% of cases respectively. As a stroke often results in a sudden reduction in cognitive and/or functional ability, patients commonly need home adaptations and the support of health or social care services before they can be discharged. Organisation of community support can contribute, therefore, to an inappropriate length of stay. As many LTNCs produce less rapid changes in performance than stroke, it was anticipated that the percentage of inappropriate lengths of stay experienced by this population would be lower than 47% and was estimated to occur in 30-35% of cases. In order to estimate a 95% confidence interval for 35% with a 5% precision a sample size of 350 was required. Assuming a withdrawal rate of 5% the final sample size calculation was 370 (368 exact). In the time available, it was anticipated that between 100-150 patients with one or more LTNC (long term is defined as initial symptoms occurring 12 months previously or more) could be recruited and thus the confidence intervals produced would be wider. Nevertheless, as the primary purpose of this aspect of the study was to identify the factors associated with inappropriate admission and/or length of stay and to investigate how they could have been avoided, a sample of 100-150 was thought to be adequate.

3.2.3 Participants

Prospective assessment of admission and length of stay appropriateness:

Inclusion criteria:

1. Admission to a medical assessment unit (MAU) or general medical ward for over 24 hours
2. Patients aged 18 years or above
3. A diagnosis, made by a physician, of one or more LTNC

Qualitative examination of participants inappropriately admitted:

Inclusion criteria:

1. Enrolled in the above study
2. Ability to participate in a semi-structured interview or to have a relative available to participate in an interview
3. A potentially inappropriate admission (as determined by a neurological rehabilitation medicine physician)

Exclusion criteria:

1. Involvement in another research study
2. A sensitive time for the patient whether linked to their condition, treatment or personal circumstances (as determined by the interviewer or a clinician)
3. Patients who were discharged before they could be seen by the researcher

3.2.4 Setting

Participants were recruited from Derby City General Hospital (DCGH) and the Derbyshire Royal Infirmary (DRI), which are parts of the Derby Hospitals NHS Foundation Trust. Patients were recruited from the MAU or other general medical wards, if they were transferred from the MAU before they were seen by the researcher. Within the hospitals there are 56 assessment beds and 352 general medical beds. In terms of neurological services the Trust has a ward dedicated to the care of patients with conditions associated with the following specialties: rheumatology, dermatology, neurology. A neurological rehabilitation inpatient unit is also available, however, this does not accept emergency admissions (196). Outpatient neurological services provided by the Trust include a specialist Parkinson's disease (PD) service, a multiple sclerosis (MS) speciality clinic and day care facilities for the streamlining of

investigations and treatments. A neurological rehabilitation medicine service provides outreach neurological therapy and nursing and outpatient appointments.

In terms of community services, Derbyshire has 12 community hospitals which provide a range of services including: minor injury units, day hospital services, older people's mental health assessment beds, step-up (admission avoidance) and step-down (rehabilitation) beds and a diagnostic and treatment centre (197). Intermediate Care Services (ICS) are available to patients who need help to recover from illness or regain independence. They work to ensure the safe and timely discharge of patients from hospital and to prevent unnecessary admissions/ readmission of patients to hospital or long term care. There is a dedicated Intermediate Care unit at Cherry Tree Unit, Warwick House. The service is primarily aimed at those aged 65 and over although anyone over 18 meeting the eligibility criteria can receive the service.

As stated in section 2.6.4 there are two Emergency Care Networks within Derbyshire County and Derby City, covering Southern Derbyshire (NHS Derbyshire) and Northern Derbyshire (NHS Derby City) which work to coordinate emergency care service provision.

3.2.5 Assessment of appropriateness of admissions and lengths of stay

The appropriateness of the admission and length of stay was assessed by an expert panel. Although tools such as the AEP (51) offer increased objectivity, for the reasons outlined in section 2.2.1, they were deemed to have limitations. The 'expert panel method' which allowed a specific assessment of the circumstances surrounding each admission and length of stay to be considered in depth, and enabled alternative management options to be explored, was considered best suited to the study aims.

3.2.6 Definition of appropriateness

The following theoretical definition of appropriateness was used by the expert panel:

'Admissions and lengths of stay are deemed appropriate when the level of care required by the patient cannot, at that point (2006), be provided in the local (Derbyshire) community and can only be provided in an acute hospital, and where the required care is given without delay.'

For admissions, the definition does not take into consideration local service availability and aims therefore to identify structural problems. For length of stay the definition used allowed both structural problems and process (organisational) problems to be examined. The length of stay examined included acute care only, therefore the episode was deemed over when the patient had been discharged from acute care, irrespective of whether or not the patient remained in hospital (to receive non acute care).

3.2.7 Composition of the expert panel

The project team considered the composition of the expert panel carefully and in consultation with several clinical colleagues. In order to determine the appropriate forms of management and to examine the admission and length of stay of patients holistically, it was felt imperative that the opinion of a multi-disciplinary panel was sought. Frequently patients may have completed acute medical care; however continuation of specialist care, e.g. intensive inpatient physiotherapy, necessitates continued admission. It is noteworthy at this point to state that each member of the expert panel provided comments regarding the appropriateness of each participant case. However, as it is frequently physicians who make decisions as to whether or not to

admit patients to hospital, physicians only (n=3) determined the appropriateness of admission and length of stay.

The expert panel which determined appropriateness of admission and length of stay consisted of:

- a neurological rehabilitation medicine physician,
- an acute care physician,
- a general practitioner.

An extended panel who provided comments (where appropriate to their clinical area) regarding appropriateness of admission/length of stay, and suggested alternative services/management strategies that may have met patient need included:

- a community matron,
- a social services manager,
- a rehabilitation nurse specialist,
- a senior occupational therapist and
- a senior physiotherapist.

Purposive sampling methods were used to recruit each panel member. Purposive methods allowed the identification of clinicians with experience of working with patients with LTNC. This was particularly important when recruiting a GP as the prevalence of patients with a LTNC registered with a GP practice can vary. It was therefore important to ensure that the GP recruited had recent experience of the admission and discharge of patients with LTNC to hospital.

Approximately 14 patients were discussed during each expert panel meeting.

The objectives of the expert panel were to determine:

1. The appropriateness of admission and the appropriateness of length of stay.
2. When an admission was deemed inappropriate the best alternative form/s of care.
3. When the length of stay was deemed inappropriate the actions that would have facilitated an appropriate length of stay.

The definition of appropriateness utilised by the expert panel was dependent on (a) the type of care that was available in the community/acute hospital at that time (2006) in Derbyshire. A checklist was designed to identify procedures or interventions which clearly necessitated acute admission to hospital, according to modern standards of medical management (at the study site at that time). Once the checklist had been designed it was sent to two additional acute care physicians for validation. The final list of appropriate admissions included:

- Monitoring on an Early Warning Score Chart
- Continuous cardiac monitoring
- Administration of intravenous drugs or fluids (including blood transfusion)
- Monitoring of documented drug overdose

Undergoing any of the following procedures:

- Lumbar puncture
- Insertion of chest drain
- Placement of, and treatment via, central venous cannula
- Cardioversion
- Cardio pulmonary resuscitation

The list is not designed to be exhaustive, however provides the reader with details of how the definition was operationalised, enabling the reader to ascertain how transferable the findings are.

3.2.8 Data collection

The extensive data collected from participants aimed to:

- (a) provide information to the expert panel and
- (b) identify variables that relate to inappropriate hospital admissions or lengths of stay.

The decision to collect data was based on factors that had been identified previously as relating to inappropriate admissions/lengths of stay and the information that would be required by an expert panel to determine appropriateness. Data relating to the participant's medical history, current medical condition, social circumstances, admission and discharge were therefore collected:

Participant demographics: age, gender, ethnicity, independence prior to admission, home situation (e.g. living alone, with partner, informal care available), services presently being given.

Medical history: details of neurological condition – diagnosis, time since diagnosis and first symptom, neurological impairments present – Guy's Neurological Disability Score (GNDS), Functional Independence Measure (FIM) score, Mini Mental State Examination (MMSE) score, partially sighted/blind registration.

Present complaint: time and date of admission, presenting complaint and diagnoses, circumstances leading to admission, additional services accessed prior to admission e.g. visited G.P.

Service provision: services received whilst in hospital e.g. occupational therapy, palliative services, services to be provided following discharge.

Length of stay: date of discharge, length of stay, discharge destination, day of week discharged.

Readmission: inpatient admission including acute and non acute admission during the following six month period.

Participant death: in the six months following the date of recruitment.

Length of stay relates to inpatient care on a general medical ward or a MAU only. The expert panel did not examine days of care of participants who had been transferred to a non acute ward.

Assessment tools

Following discussions with clinical colleagues three assessment tools were administered in order to obtain a profile of the participant's medical condition. The following three tools were selected to examine functional abilities, disabilities and cognitive status respectively: the Guy's Neurological Disability scale (GNDS) (198), the Functional Independence Measure (FIM) (199) and the Mini-Mental State Examination (MMSE) (see Appendix 1) (200).

The GNDS is a questionnaire which covers 12 areas of disability. It is a questionnaire which can be either administered face to face or via a postal questionnaire. The questionnaire examines the following sections; memory and concentration, mood and emotion, vision, speech and communication, swallowing, use of arms and hands, bowel functioning, fatigue and sexual function. Participants are asked to give answers corresponding to their clinical state on the day and during the previous month. Each section is assessed through four to eight questions where the participant is required to answer yes or no (198). The validity and reliability of the scale for use with MS patients has been assessed (201). Test-retest reliability was found to be good ($r = 0.972$) with each individual component ranging from 0.685 to 0.987. When compared against the Extended Disability Status Scale (EDSS)

and the Barthel Index the GNDS was found to have good validity ($r = 0.636$ and $r = 0.757$ respectively) (201).

The FIM is a measure of disability that describes need in terms of activities of daily living. It includes 18 items which are designed to determine the amount of assistance a person needs to perform basic life activities safely and effectively (202). The activities include a minimum set of skills which relate to; self-care, sphincter management, ability to transfer, locomotion, communication, social interaction and cognition. Each item is rated from one to seven (one being complete dependence and seven complete independence) (203). A recent examination of the reliability has found that, when combining the reliability values of 11 studies, FIM has good reliability. The median inter-rater reliability was found to be 0.95 and the test-retest was 0.95 (202). An additional study found that in comparison to the Bathel Index, the FIM has greater validity and is equally reliable in the assessment of disability (204). However, in terms of measuring change the Bartel Index and the FIM have been found to be comparable (205).

The final tool, the MMSE, is a tool used to examine cognitive impairment. The tool examines; orientation, attention, learning, calculation, abstraction, information, construction and delayed recall (200). In a validity study the MMSE was administered to 2302 participants aged 75 and over. The MMSE was compared against the Cambridge Mental Disorders of the Elderly Examination. The MMSE was found to have a high inter-observer reliability ($Kappa\ 0.97$) (206). In order to establish validity the MMSE was compared with DSM-III-R (Diagnostic and Statistical Manual of Mental Disorders) and NINCDS-ADRDA criteria (guidelines regarding the diagnosis of dementia, clinical diagnoses and Activities of Daily Living measures). Overall, the reliability and construct validity were satisfactory. In terms of criterion validity the MMSE demonstrated high levels of sensitivity for moderate to

cognitive impairment, however, it has lower levels of sensitivity for lower levels of impairment (207). The MMSE cannot be used to provide a diagnosis of dementia, however, it is an easy and quick to use screening tool and was therefore deemed suitable for use in this study.

In addition to the data detailed above, qualitative data were collected through in-depth, face to face, interviews with participants who were deemed by the expert panel to be admitted to hospital inappropriately. As interviews were conducted with patients whilst they were admitted to hospital a neurological rehabilitation medicine physician conducted a preliminary examination of the patient's medical notes to determine cases that were potentially inappropriate. Once the appropriateness of the patient's admission had been determined by the expert panel, the data of only those patients who were deemed admitted inappropriately were analysed. In-depth interviews sought to examine the:

- (1) main cause of admission as perceived by the patient,
- (2) measures that could have been taken to prevent admission, as perceived by the patient,
- (3) perceived benefits and consequences of admission and
- (4) measures that may be taken in the future to prevent admission.

An interview schedule was designed specifically for the study and was sufficiently flexible to allow participants to introduce issues which they deemed to be important or relevant (see Appendix 2 for interview schedule).

3.2.9 Procedure

An acute care physician currently working in the MAU of Derby Hospitals NHS Foundation Trust estimated that approximately five to ten patients with a LTNC would be admitted to hospital per day. As the number of admissions is

relatively small, random sampling was not used. Data were collected over four weekends to ensure that patients who were admitted and discharged over the weekend were represented.

Patients who met the study inclusion/exclusion criteria were approached by a clinician involved in their care whilst in a MAU or once transferred to another medical ward. The clinicians asked whether or not the patient was happy to speak with the researcher. Patients who agreed to this were given a brief explanation of the study and were given a copy of the information sheet (see Appendix 3). Those who were willing to take part in the study were asked to sign a consent form (see Appendix 4). Patients who were expected to be discharged from hospital within 24 hours (ascertained by a clinician involved in the patients' care) were given one to two hours to consider the details of the study before being contacted. For patients who were expected to remain in hospital for more than 24 hours, they were given a day to consider the information. Patients who were cognitively impaired and not able to give informed consent were also included; if a next of kin or proxy was present and willing to assent to the study (see Appendix 5 and Appendix 6). If a next of kin/proxy was not available, data were collected from the patient's records by a clinician involved in the patients' care and anonymised before it was transferred to the researcher. Consent was also obtained from patients who communicated in another language, if a relative was available to translate the study details. There was no provision for patient information sheets to be made available in alternative formats or languages.

Of the participants that consented to involvement in the study and met the additional inclusion criteria (see section 3.2.2), a proportion (n=6) were approached to take part in an interview. In the situation where patients were unable to partake in an interview themselves due to cognitive impairment, the patient's partner, relative or friend was approached to take part. This

ensured that the admissions of patients with cognitive and/or physical impairment could be explored. The researcher and the research supervisors felt it was essential to examine the experiences of such patients as a proportion of patients with a LTNC may have cognitive/physical impairment. Approval to carry out the study was obtained from the Derby National Research Ethics Committee (NREC).

Collection of data

Data were collected via three methods: health record review, structured interview and semi-structured interview. The health record review was conducted at three time points: immediately after the participant had enrolled on the study, one month after the participant had been discharged from hospital and six months after discharge. The health record review and structured interview were conducted immediately following enrolment to ensure that data could be collected prior to the participant being discharged. Sequentially, the structured interview was conducted after the first record review to ensure that the researcher was aware of the circumstances of the participant's admission and conditions, therefore, sensitising the researcher to any issues that could potentially have caused distress to the participant during the interview. Prior to data collection the researcher received informal training from an acute care physician on how to read health records and training from a neurological rehabilitation medicine consultant on how to administer the assessments. The researcher was also accompanied by a neurological rehabilitation medicine consultant when administering the first initial assessments in order to verify they were being conducted correctly.

Data collected during the first health record review included: demographic information (age, gender, ethnicity, place of residence, household members), medical history (details of neurological conditions) and present complaint (time and date of admission, presenting complaint, differential diagnosis,

circumstances of admission). Data collected during the structured interview included: informal care provision, services accessed prior to admission and data related to neurological, functional and cognitive impairment. In addition, the participant was asked to describe the circumstances of admission; this ensured that all relevant data relating to this had been obtained. A number of participants (n=6) also completed an interview whilst an inpatient. The second health record review was undertaken one month after discharge to establish the inpatient services the participant had received whilst admitted and the discharge details (discharge mode, discharge destination, length of stay). The final record review examined electronic patient records and was conducted six months following discharge. It was conducted to determine whether or not the participant had been readmitted or had died during that period. The Patient Administration System (PAS) was used to collect such data, the PAS is an electronic record created for each patient in receipt of hospital services and included personal details, out-patient appointments and inpatient services received.

Data collected from the first and second health record review and the structured interview, as well as copies of the inpatient case notes (medical and therapeutic) were anonymised and given to the expert panel. In addition, the data collected during the assessments were summarised and presented to the panel. Panel members were given the copies one to two weeks prior to the meetings and were asked to consider the information and come to a preliminary decision prior to meetings. During panel meetings members firstly stated their preliminary decision and following this provided comments relevant to the appropriateness of admission or length of stay. As the panel consisted of three members (general practitioner, rehabilitation medicine consultant, acute care consultant) the collection of preliminary decisions made in isolation allowed the members to consider the information without being influenced by other members. Following this the panel produced a consensus

statement regarding the appropriateness of each admission followed by length of stay. Collection of the preliminary decisions of members prior to the production of the consensus statement allowed the researcher to assess the inter-rater reliability and intra-rater reliability of the decisions made by the panel members. Once the appropriateness of acute admission and length of stay had been assessed, alternative forms of care were examined. In addition to the three physicians, a community matron, social services manager, neurological rehabilitation nurse specialist, occupational therapist and a physiotherapist worked together to suggest alternative services or management strategies for the cases discussed. The inclusion of these additional members ensured that clinicians central to the admission, management and discharge of patients with LTNCs were represented and those selected had relevant clinical experience and current knowledge of the problems prevalent amongst patients with LTNCs. No restriction was placed upon the number of suggested alternative forms of care which would have met the participant's needs when an admission was inappropriate and the actions which would have been necessary to ensure an appropriate length of stay. Panel members were asked not to limit their suggestions to existing services or routine actions alone.

The expert panel did not determine the number of inappropriate inpatient days. This was due to the time associated with determining the precise day on which the participant no longer required admission and producing a consensus statement on the number of inappropriate days. Rather, they sought to determine if the participant required acute care throughout the length of stay. Following discussion with the expert panel and the study supervisors this was felt justifiable as patients with a LTNC remaining in hospital for even one day unnecessarily has important clinical implications (e.g. blockages of acute beds, hospital associated risks). The appropriateness of the admission and the length of stay were considered independently.

Expert panel members were asked to consider the admission and come to a preliminary decision regarding the admission prior to examining the inpatient case notes, therefore removing the advantage of hind sight. When an admission was inappropriate the length of stay by nature would also be inappropriate. The length of stay of those who had been admitted appropriately only was therefore examined.

3.2.10 Analysis

Descriptive statistics, [means (\pm Standard Deviation), medians (Interquartile Range) and proportions] were used to describe participants and the outcomes of the expert panel meeting. A Chi-Squared Test or Fisher Exact Test was used, where appropriate, to determine whether a difference existed in the proportion of participants when the admission/length of stay was appropriate/inappropriate for specific categorical variables (see Table 18). A Fisher Exact Test was used when more than 20% of cells had an expected cell count of five or less. When greater than 20% of cells had an expected cell count of less than five and when the tables were greater than 2 x 2 significance levels are not reported. The distribution of variables was examined for normality using the Kolmogorov-Smirnov test and histograms. No variables had a normal distribution of data. The Mann Whitney U test was used to examine continuous variables between the two cohorts (appropriate/ inappropriate admission or length of stay). Binary logistic regression was used to model variables predictive of an inappropriate admission and length of stay. Variables that were significantly associated with an inappropriate admission/length of stay after the univariate analysis were entered into the binary logistic regression model separately for estimating the unadjusted Odds Ratios (OR) and 95% confidence intervals (CI). All the variables that were significantly associated with an inappropriate admission/length of stay were entered into one logistic regression model for estimating the adjusted

OR and 95% CI. Using a Forward stepwise: Likelihood ratio selection method variables were tested for significance. Entry of variables to the model was determined using the Log-Likelihood ratio test, with $p < 0.05$. The Hosmer-Lemeshow test was used for examining the goodness of fit for the model. Variables were deemed significant if the p-value was equal to or less than 0.05. Kappa statistics (chance of corrected measures of agreement) were calculated for each pair of raters ($n=3$) in order to determine the level of agreement prior to expert panel meetings (intra-rater reliability). The results of the analysis were interpreted on the basis of Landis and Kock's benchmarks for strength of agreement (see Table 10) (59).

Table 10: Strength of agreement

Strength of agreement		
>0.20	=	Poor
0.21-0.40	=	Fair
0.41-0.60	=	Moderate
0.61-0.80	=	Good
0.81-1.00	=	Very good

Reference: (59).

The GNDS neurological disability scale was used primarily to collect narrative information regarding disability in order to inform the panel. The scale is designed for use patients with MS only and for this reason the total score was not analysed. However, following consultation with two neurological rehabilitation medicine consultants it was felt that two subscales were generic and applicable to all patients with LTNCS. The sub-scales that measured speech problems and walking problems were therefore included in the analysis. The sub scales were scored from one to five, with one indicating no disability and five indicating severe disability (see Appendix 1 for further details). The subscales concerning self care (FIM) were also examined. Ability to self care has been identified in the literature as an important factor

in appropriateness of admission/length of stay. It was therefore felt important to examine this separately as well as within the full scale.

Qualitative data, obtained through semi structured interviews, were analysed using thematic content analysis in order to identify themes. Transcripts were read and points of interest were noted. In a second reading of transcripts, emerging themes were noted. Themes were then grouped and checks with the original transcripts were performed to validate the data. Quotes used throughout the paper are representative of views expressed and typify emerging themes. In order to safeguard anonymity, numbers are used to refer to each of the participants/relatives interviewed. The inclusion of verbatim evidence enables the reader to assess the adequacy of the interpretation offered by the researcher and is one of the most important criteria for assessing the validity of qualitative research (63). The results produced are designed to offer a descriptive insight into the perspectives of clinicians, rather than produce objective and generalisable findings. Also, triangulation of quantitative and qualitative data allows for the weakness of one approach to be complemented by the strengths of the other (see section 1.3). Therefore, the use of qualitative data can be seen to add depth and understanding to the information obtained through quantitative methods, whilst the use of quantitative methods allows for relationships and associations to be examined in an objective manner (62).

3.3 RESULTS PART ONE: ASSESSMENT OF APPROPRIATENESS OF ADMISSION AND LENGTH OF STAY

3.3.1 Recruitment

Participants were recruited from two acute hospital sites in Derby (i.e., DRI/DCGH) between June 2006 and January 2007. During this 8 month period, 298 patients were identified by medical staff to meet the inclusion criteria and 119 (39.9%) of these cases were recruited. Patients were not

enrolled onto the study if consent could not be obtained prior to discharge (n=110) or if patients declined to take part (n=33) (see Table 11). During August the number of patients eligible to participate in the study peaked at 72. Following the summer period, the number of eligible patients decreased, per month, until November, when once again the figures rose and peaked during December. The number of patients where neither consent nor assent could be obtained was considerably higher during December and January than the other months. During these months it appeared that whilst the number of eligible patients was increasing the type of patient admitted was generally more frail than during the other months and were less likely to be able to give consent.

Table 11: Factors preventing recruitment of patients

Reason for non recruitment	Frequency	Percent
Discharged before consent/assent could be obtained	120	67.0
Patient declined	33	18.4
Sensitive time for the patient or family	11	6.2
Discharged before seen by researcher	11	6.2
Patient died	4	2.2
Total	179	99.8

3.3.2 Reliability of expert panel decisions

Determining appropriateness of admission

Decisions regarding the appropriateness of each hospital admission and length of stay were made independently by three physicians prior to each expert panel meeting. Inter-rater reliability was examined using the Kappa statistic (59). Overall, there was moderate agreement between the preliminary decisions made by the raters (see Table 12). The intra-rater reliability statistics revealed that there was moderate agreement between the raters' preliminary decision and the overall panel's decisions, with the

decisions remaining the same in 79.2% to 90.2% of cases respectively (see Table 13).

Table 12: Inter-rater reliability for appropriateness of admissions

Rater	1	2	3
1	-	0.444	0.426
2	0.444	-	0.419
3	0.426	0.419	-

Table 13: Intra-rater reliability for appropriateness of admissions

Rater	Baseline decision versus panel decision		
	Agreement	Kappa statistic	Total
1	79.2% (84)	0.489	100% (106)
2	90.2% (92)	0.729	100% (102)
3	84.3% (75)	0.589	100% (89)

Determining appropriateness of length of stay

For appropriateness of length of stay there was moderate to good agreement between raters (inter-rater reliability) in their preliminary decisions (see Table 14). The intra-rater reliability was moderate to good and there was consensus between the pairs of raters for 78.0% to 87.0% of cases (see Table 15).

Table 14: Inter-rater reliability for appropriateness of length of stay

Rater	1	2	3
1	-	0.482	0.525
2	0.482	-	0.695
3	0.525	0.695	-

Table 15: Intra-rater reliability for appropriateness of length of stay

Rater	Baseline decision versus panel decision		
	Agreement	Kappa value	Total
1	78.0% (56)	0.519	100% (72)
2	87.0% (60)	0.720	100% (69)
3	83.0% (53)	0.651	100% (64)

3.3.3 All participant characteristics

Table 16 describes the demographic profile of the sample (n=119). The majority of participants were male (50.4%), white (96.6%), living in their own home (79.0%), and had a mean age of 68 (+/-17.9).

Table 16: Participant demographics

Variable	n= (%)
Gender	
Female	59 (49.6)
Male	60 (50.4)
Ethnicity	
White	115 (96.6)
Pakistani	2 (1.7)
Indian	2 (1.7)
Residence	
Own home	94 (79.0)
Residential home	15 (12.6)
Nursing home	10 (8.4)
Additional members of household	
None	30 (25.5)
Spouse	47 (39.5)
Other relative	4 (3.4)
Other relative and spouse	6 (5.0)
Parents	7 (5.9)
Residential/nursing residents	24 (20.2)

Table 17 details the ethnicity of those patients admitted to Derby Hospitals (2005 – 2006) with an existing neurological condition. Comparisons with the ethnicity of patients in the study sample show that they are comparable, and therefore representative of the Derbyshire population. Also, when comparing the sample with census data, the ethnicity of the participants included in the study appears to be representative of the Derbyshire population which showed that in Derbyshire 95% of residents are White, 3% are Asian and 1% are Indian (35).

Table 17: Ethnicity of patients admitted with an existing neurological condition to Derby Hospitals NHS Foundation Trust 05-06

Ethnicity	Frequency	Percent
White	2149	95.3
Indian	30	1.3
Pakistani	21	0.9
Black	8	0.4
Other	46	2.0
Total	2254	99.9

Total does not equate to 100% due to rounding error. Data relates to patients admitted with a condition that existed prior to the admission.

The most frequent LTNC was a cerebral vascular accident (CVA) (38.1%, n=56), followed by epilepsy (21.1%, n=31) and PD (12.2%, n=18) (see Table 18).

Table 18: Type and prevalence of long term neurological condition

Long term neurological condition	Frequency	Percentage
CVA	56	38.1
Epilepsy	31	21.1
Parkinson's Disease	18	12.2
Dementia	13	8.8
Multiple sclerosis	12	8.2
Alzheimer's disease	4	2.7
Sub-arachnoid haemorrhage	4	2.7
Peripheral neuropathy	2	1.4
Pituary tumour	2	1.4
Cerebellor atrophy	1	0.7
Huntington's disease	1	0.7
Intercranial haemorrhage	1	0.7
Total	145	n/a

*The frequency is higher than the study numbers as a result of a number of patients having multiple LTNC

The majority of participants had one LTNC (79.8%, n=95), however, approximately one fifth of the participants had multiple LTNCs (20.2%, n=24).

The FIM was completed for 71 participants. The maximum score for the FIM was 126 (indicating independence), the majority of participants (58.3%, n=42) scored between 100-126 and had a median score of 103.0 (65.5 – 116.0). The GNDS was completed for 73 participants. Over a quarter of participants were able to walk independently (25.8%, n=17) and the majority of participants had no communication difficulties. The median GDNS score was 19.0 (13.0 – 32.0). The MMSE was completed by 48 participants and this measure indicated that the majority of participants had no cognitive problems (70.8%, n=34), 12.5% (n=6) had mild cognitive problems and 14.6% (n=7) had moderate cognitive problems. There was a median MMSE score of 25.0 (23.0-28.0).

The majority of participants (71.3%, n=62) were receiving support from friends or a member of the family. Almost a fifth of participants were being supported by a district nurse (17.6%, n=21), a third were supported by formal carers (31.1%, n=37) and over half (60.2%, n=53) used home care equipment.

Services accessed prior to admission

Almost half of the participants had seen their general practitioner (GP) prior to admission. The majority of these went on to be referred for admission by their GP or by an 'out of hours' clinician. Six participants had been receiving out-patient services for the condition/symptom which had prompted the admission, five participants contacted NHS Direct, four had spoken with or had an appointment with their practice nurse and two participants had been in contact with social services.

Admission details

The majority of participants were admitted under emergency circumstances (60.9%), almost a quarter of participants were admitted on a Monday (22.7%, n=27) and over a half (52.3%, n=53) had consulted a GP prior to admission. Chest pain (11.8%, n=14), shortness of breath (9.2%, n=11), collapse (8.4%, n=10) and a fall (8.4%, n=10) were the most common presenting complaints. Additional complaints included epileptic fit (5.9%, n=7), reduced mobility (4.2%, n=5), diarrhoea (4.2%, n=5) and participants being described as 'off their legs' (4.2%, n=5). In total, there were 39 different presenting complaints (see Table 19).

Table 19: Presenting complaints

Presenting condition/complaint	Frequency	Percentage
Chest pain	14	11.8
Shortness of breath	11	9.2
Collapse	10	8.4
Fall	10	8.4
Epileptic fit	7	5.9
Reduced mobility	5	4.2
Diarrhoea	5	4.2
Off their legs	5	4.2
Unwell	5	4.2
Left sided weakness	5	4.2
Raised blood sugar levels	4	3.4
Confusion	3	2.5
Vomiting	3	2.5
Overdose	2	1.7
Chest infection	2	1.7
Urinary tract infection	2	1.7
Dysphasia	2	1.7
Headache	2	1.7
Abdominal pain	2	1.7
Lethargy	2	1.7
Other	18	15.1
Total	119	100%

Discharge details

The majority of participants were discharged on a Friday (24.4%), followed by a Monday (20.2%) or a Tuesday (20.2%). Almost three quarters of participants (71.4%, n=85) returned to their original place of residence whilst a number of participants (10.1%, n=12) were transferred to a sub or non acute institution, and nine participants died whilst in hospital (7.6%).

Post discharge outcomes - participant readmission and death

Fifty participants (42.4%) were readmitted to hospital in the six months following the study. The majority of participants who were readmitted were admitted on only one more occasion (21.8%, n=26). A limited number of participants were admitted three or more times (10.9%, n=13) within six months following recruitment. An additional 29 participants died following recruitment into the research study.

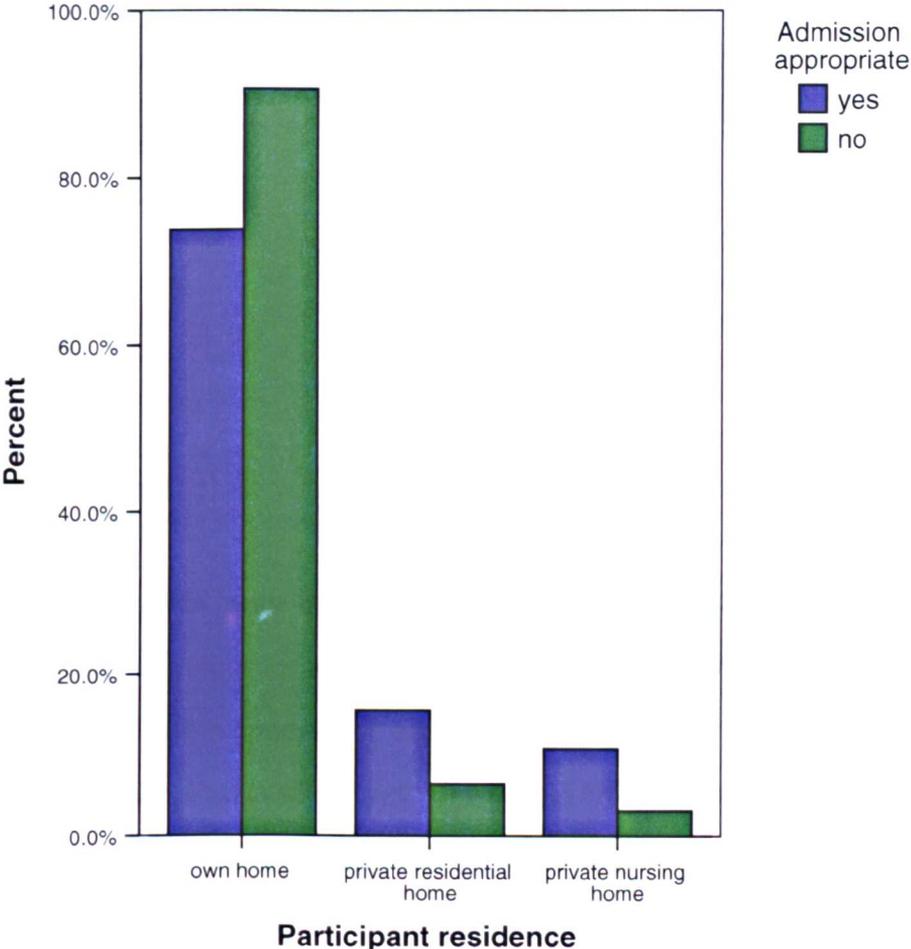
3.3.4 Differences between those admitted appropriately and those admitted inappropriately

The expert panel was not able to determine the appropriateness of three hospital admissions as they felt there was insufficient evidence on which to base a decision, which were excluded from the analysis. The appropriateness of 116 admissions was therefore determined. Thirty two out of 116 admissions were deemed inappropriate (27.6%, 95% CI: 20.3-36.3). In these cases the participants did not require acute care.

Participant characteristics

Inappropriately admitted participants were most frequently female, although this difference was small (53.1% versus 48.8%) ($p=0.678$). Participants admitted inappropriately had a median age of 71.5 (53.3-78.5) and those admitted appropriately had a median age of 74.0 (59.25-83.00) ($p=0.177$). Participants admitted inappropriately were significantly more likely to live in their own home, with 90.6% of participants residing in their own home compared to 73.8% of participants who were admitted appropriately ($p=0.049$) (see Figure 4). Almost a third of participant (31.0%) admitted inappropriately lived alone and almost two fifths (23.8%) of participants lived alone amongst the cohort of patients who were admitted appropriately ($p=0.413$).

Figure 4: Participant residence according to appropriateness of admission



The conditions most prevalent amongst participants who were admitted inappropriately were dementia, MS or PD (see Table 20). The least prevalent condition was epilepsy.

Table 20: Assessment of admission according to condition

LTNC	Admission appropriate	
	Yes % (n)	No % (n)
Multiple sclerosis	56 (5)	44 (4)
Parkinson's Disease	64 (7)	36 (4)
Dementia	75 (5)	25 (3)
Stroke	78 (31)	22 (9)
Epilepsy	81 (13)	19 (3)
Other	67 (6)	33 (3)
Multiple LTNCs	74 (17)	26 (6)

There was no difference in the number of LTNCs for those participants who were admitted inappropriately and those who were admitted appropriately. Both cohorts had a median of one LTNC (1.0-2.0) ($p=0.876$). Participants admitted inappropriately had fewer LTNCs than those admitted appropriately, 2.5 LTNCs (2.0-3.8) in comparison to 3.0 LTNCs (2.0-5.0) respectively ($p=0.103$).

Data concerning activity limitation resulting from neurological impairment, functional ability and cognitive ability were collected for 74, 73 and 49 participants respectively. In terms of activity limitation resulting from neurological impairment considerably fewer participants who were admitted inappropriately were able to mobilise independently (12.5% versus 30.6%) (no p value available). Similar numbers of participants mobilised using a wheelchair when outdoors, 42.8% of participants who were admitted appropriately compared with 43.8% of participants who were admitted inappropriately (no p value available). In terms of cognitive impairment the median MMSE score for both cohorts indicated no cognitive impairment, those with an inappropriate admission had a MMSE score of 26 (24.0-28.3) and those whose admission was appropriate had a MMSE score of 26

(23.0-29.0) ($p=0.445$). Almost three quarters (73.5%) of participants who were admitted appropriately reported no speech problems or mild speech problems whilst over half (56.3%) of participants admitted inappropriately reported such problems (no p value available). Participants who were admitted appropriately had a median speech score of 0 (0.0-2.0) whilst those participants who were admitted inappropriately had a speech score of 1 (0.0-3.0) ($p=0.152$). There was little difference in the functional ability of participants. Those who were admitted appropriately had a median FIM score of 103 (62-117) and those who were admitted inappropriately had a median FIM score of 104 (65.5-116) ($p=0.908$). Examination of FIM subscales showed that a greater number of participants who were admitted inappropriately had problems with self-care activities, although these differences were not significant. Those admitted inappropriately had a median self care score of 37 (26.5-41.25) compared with a median self care score of 37 (19.0-42.0) for those admitted appropriately ($p=0.826$).

Data regarding the use of primary care services were collected for 84 participants. There were no significant differences in the primary care services received by participants admitted appropriately and those admitted inappropriately. Over a quarter of participants (26.8%) who were admitted appropriately were supported by a district nurse whilst 17.9% of participants admitted inappropriately were supported in this way ($p=0.365$). Similar numbers of participants admitted appropriately (59.6%) and inappropriately (60.7%) used a home care aid ($p=0.925$). A lower number of participants who were admitted inappropriately required the help of a formal paid carer compared to participants who were admitted appropriately although this difference was not significant, 32.1% compared to 44.8% respectively ($p=0.262$). In the majority of cases, those participants who had been admitted inappropriately stated their spouse or partner (48.4%) was their main carer. For those participants admitted

appropriately the majority stated that their main carer was a formal paid carer (40.7%) ($p=0.196$). There was no difference in the median number of support services used by the participants, those who were admitted inappropriately used 2.0 (1.0-3.0) services and those admitted appropriately used 2.0 (1.0-3.0) services ($p= 0.719$).

Services accessed prior to admission

In total 45.2% of participants who were admitted inappropriately had seen a GP prior to admission whilst 57.1% of those admitted appropriately had seen a GP prior to admission ($p=0.259$). A very small proportion of participants had utilised a health/social care service other than hospital care prior to admission. Two participants in each group had seen a nurse prior to admission, and four participants admitted appropriately compared to one participant who was admitted inappropriately had contacted NHS Direct for advice.

Admission details

Almost two thirds of participants admitted inappropriately were admitted from the accident and emergency (A and E) department (71.0%, $n=22$) and just over half (56.8%, $n=46$) of participants who were admitted appropriately had been admitted as an emergency ($p=0.169$). The most frequent presenting complaints of participants admitted appropriately were fall ($n=8$), chest pain ($n=7$), collapse ($n=7$), shortness of breath ($n=7$), epileptic fit ($n=4$) and high blood sugars ($n=4$). In those that were admitted inappropriately the most frequent complaints were chest pain ($n=7$), collapse ($n=3$), diarrhoea ($n=2$), fall ($n=2$), shortness of breath ($n=2$) and reduced mobility ($n=2$).

Approximately a third (34.8%) of participants who were admitted inappropriately presented with a neurological related problem and two

fifths (23.3%) of participants admitted appropriately presented with a neurological related problem ($p=0.174$). The two cohorts (i.e., those admitted appropriately and inappropriately) did not differ significantly in the number of times they had been admitted to hospital during the previous year. Those who were admitted appropriately had an average of one more admission during the year (0-2) and those who were admitted inappropriately had an average of 0.5 more admissions during the year (0.0-1.75) ($p=0.683$).

There was no significant difference between the two cohorts for the number of presenting complaints. Those who were admitted inappropriately had one presenting complaint (1-2) as did those who were admitted appropriately (1-2) ($p=0.829$).

Post discharge outcomes - participant readmission and death

The majority of participants in both groups did not go on to be readmitted; 50.0% of participants admitted inappropriately were readmitted to hospital in the six months following discharge whilst 39.3% of participants admitted appropriately were readmitted ($p=0.296$). The number of participants who died following discharge differed significantly between those who were admitted appropriately and those who were not. Participants who were admitted appropriately were more likely than those admitted inappropriately to have died in the six months following discharge from hospital, 22 (26.2%) participants admitted appropriately compared with three (9.4%) participants admitted inappropriately ($p=0.049$).

Reasons for inappropriate admissions

Frequent reasons for an admission to be deemed inappropriate was that participants; could have been managed by primary care services (40%); required attendance at hospital rather than admission (i.e. to the A and E

department, or clinical decision unit) (40%); required admission to a non acute or lower level care facility (i.e. a community hospital) (12.5%); could have been managed by outpatient services (7.5%).

Alternatives to inappropriate acute admission

The cases of participants identified as admitted inappropriately by the expert panel were examined in depth. When it was evident an inappropriate admission had occurred the panel determined the types of service (regardless of whether or not they were available locally) that would have provided the most appropriate care for the participant. The majority of participants could have had their needs met by one service. However, due to multi-factorial problems, in a number of cases participants would have required the input of more than one service (n=5). It was also evident that in three cases a number of services would have met their needs, for example either emergency respite or provision of Intermediate Care at home.

The alternative form of care that was noted most frequently as meeting participant needs was an assessment in the clinical decision unit (n=15) (see Table 21). In these situations patients required a basic level of treatment with a period of monitoring. A nursing home was the second most frequently noted alternative form of care which could have met participants' needs (n=7). In terms of medical management, GP management would have met the needs of five participants. A number of participants (n=5) could have had their needs met by admission to an alternative ward (non general medicine) (n=2) (orthopaedic ward, psychiatric ward), a planned admission for detailed investigations (n=2) or admission to a lower level care facility (n=2), for example a community hospital. For participants who required a level of increased social care, but not to the level given in a nursing home, community social care, such as

ICS would have met their needs (n=3). Specialist nursing care, for example chronic disease specialist nursing and therapeutic support (occupational/physiotherapy therapy) would have also met the needs of three patients. One participant required the input of neurological services and another therapy services in an out-patient setting.

Table 21: Alternative to an inappropriate admission

Alternative form of care	Frequency	Percentage
Admission to the clinical decision unit	15	35.7
Respite/palliative care in nursing home	7	16.7
GP management in the community	5	11.9
Admission to a non acute ward	5	11.9
Increased social care in the community	3	7.1
Specialist nursing support/ therapeutic support in the community	3	7.1
Referral to out-patient neurological/therapy services	2	4.8
Other	2	4.8
Total	42	100.0

3.3.5 Differences between those who experienced an appropriate length of stay versus those who experienced an inappropriate length of stay

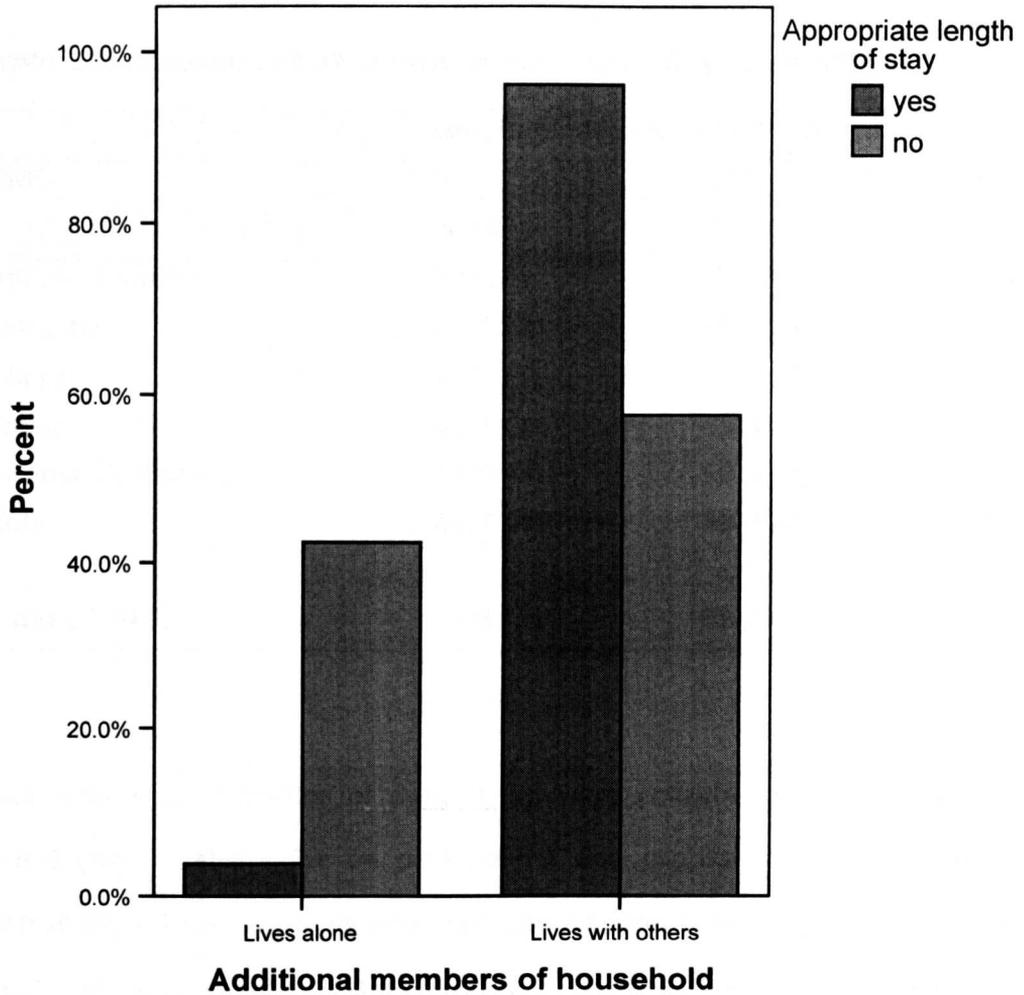
The Length of stay of those participants who were found to have been admitted to hospital appropriately (n=84) were analysed. The appropriateness of three further lengths of stay could not be determined due to a lack of information on which to base the decision. The analysis was therefore based on a total of 81 lengths of stay. It was found that 51 out of 81 participants (63.0%, 95% CI: 52.1-72.7) experienced an inappropriate length of stay. Of the 51 participants, 46 (90.2%) had experienced a length of stay that was too long. In these situations it was felt that these participants no longer required acute care yet remained in hospital. For five participants the length of stay was too short. It was felt that these participants continued to have acute needs yet they had been discharged from hospital.

Participant characteristics

Participants were comparable in terms of age; participants who experienced an inappropriate length of stay had a median age of 76.0 (58.0-83.0) compared with a median age of 72.5 (62.5-81.0) for those who experienced an appropriate length of stay ($p= 0.984$). Equal numbers of female and male participants experienced an inappropriate length of stay ($p=0.932$). A larger proportion of those who experienced an inappropriate length of stay lived in a nursing/residential home compared to their counterparts (27.5%, $n=14$ vs 23.3%, $n=7$) and a smaller proportion lived in their own home (72.5%, $n=37$ vs 76.7%, $n=23$) ($p=0.683$). Participants who experienced an appropriate length of stay were more likely to live with others when compared to those who experience an inappropriate length of stay set 95.8% ($n=23$); 51.4% ($n=19$) respectively ($p<0.001$) (see Figure 5).

Care was provided by the spouse/partner for a similar proportion of participants in both sub-sets. The spouse/partner was the primary carer for 41.4% ($n=12$) of participants in the group who experienced an appropriate length of stay and for 40.8% ($n=20$) of participants in the group who experienced an inappropriate length of stay. However, formal carers were noted as providing the main care for a 46.9% ($n=23$) of participants who experienced an inappropriate length of stay and 27.6 ($n=8$) of those who experienced an appropriate length of stay ($p=0.080$).

Figure 5: Household members according to appropriateness of length of stay



Those with MS, dementia and epilepsy frequently experienced an inappropriate length of stay (see Table 22). Both cohorts of participants had a median of one LTNC, however the inter-quartile range was significantly wider for those who had an inappropriate length of stay (1-2) in comparison to those who had an appropriate length of stay (1-1) ($p=0.016$). Approximately one quarter (29.4, $n=15$) of participants who experienced an inappropriate length of stay had two or more LTNCs in comparison to 6.6% ($n=2$) of participants who had an appropriate length of stay. Those who experienced an inappropriate length of stay had an average of four long term

medical conditions (LTMCs), (2-5) whilst those who experienced an appropriate length of stay had an average of three (2-4) LTMCs ($p=0.070$).

Table 22: Assessment of length of stay according to condition

Disability measure	Score	Length of stay appropriateness		
		Yes	No	Total
Activities of daily living	0-176	% (n)	% (n)	
Multiple sclerosis		0.0 (0)	100.0 (5)	100%
Dementia		40.0 (2)	60.0 (3)	100%
Epilepsy		41.7 (5)	58.3 (7)	100%
Stroke		46.7 (14)	53.3 (16)	100%
Parkinson's disease		50.0 (3)	50.0 (3)	100%
Other		66.7 (4)	33.3 (2)	100%
Multiple LTNCs		11.8 (2)	88.2 (15)	100%

Data relating to activities of daily living were collected for 53 participants, neurological disability for 54 participants and cognitive impairment for 37 participants. Those who experienced an inappropriate length of stay were slightly more impaired in activities of daily living and ability to self care than their counterparts (see Table 23 for details). The participants who experienced an inappropriate length of stay were slightly more impaired in speech (see Table 23 for details). Almost half of participants (46.6%, $n=14$) who experienced an inappropriate length of stay used a wheelchair to mobilise compared to two thirds (38.8%, $n=7$) of participants who experienced an appropriate length of stay. Those who experienced an inappropriate length of stay were also more impaired cognitively (see Table 23)

Table 23: Appropriateness of length of stay – level of disability

Disability measure	Score range	Score indicating no impairment	Appropriate length of stay		P value
			Yes	No	
Activities of daily living (FIM)	0-126	126	Median (IQR) 103.0 (96.0-122.0)	Median (IQR) 107.0 (45.0-115.0)	0.228
Ability to self care (FIM subscale)	0-42	42	36.5 (30.3-42.0)	37.0 (17.0-41.0)	0.325
Walking problems (GDNS subscale)	0-5	0	2.5 (0.0-4.0)	3.5 (2.0-4.0)	0.194
Speech problems (GDNS subscale)	0-5	0	0.0 (0.0-0.0)	0.0 (0.0-3.0)	0.078
Cognitive problems (MMSE)	0-30	30	24.0 (18.5-26.5)	26.5 (23.0-29.0)	0.119

Participants who experienced an inappropriate length of stay were less frequently supported by a district nurse in the community than those with an appropriate length of stay; 25.0% (n=8) compared to 31.8% (n=7) respectively (p=0.583), although this difference was not significant. Over half of those who experienced an inappropriate length of stay (52.69%, n=18) were supported by a formal carer in comparison to just over a quarter of participants who experienced an appropriate length of stay (27.3%, n=6) (p=0.058).

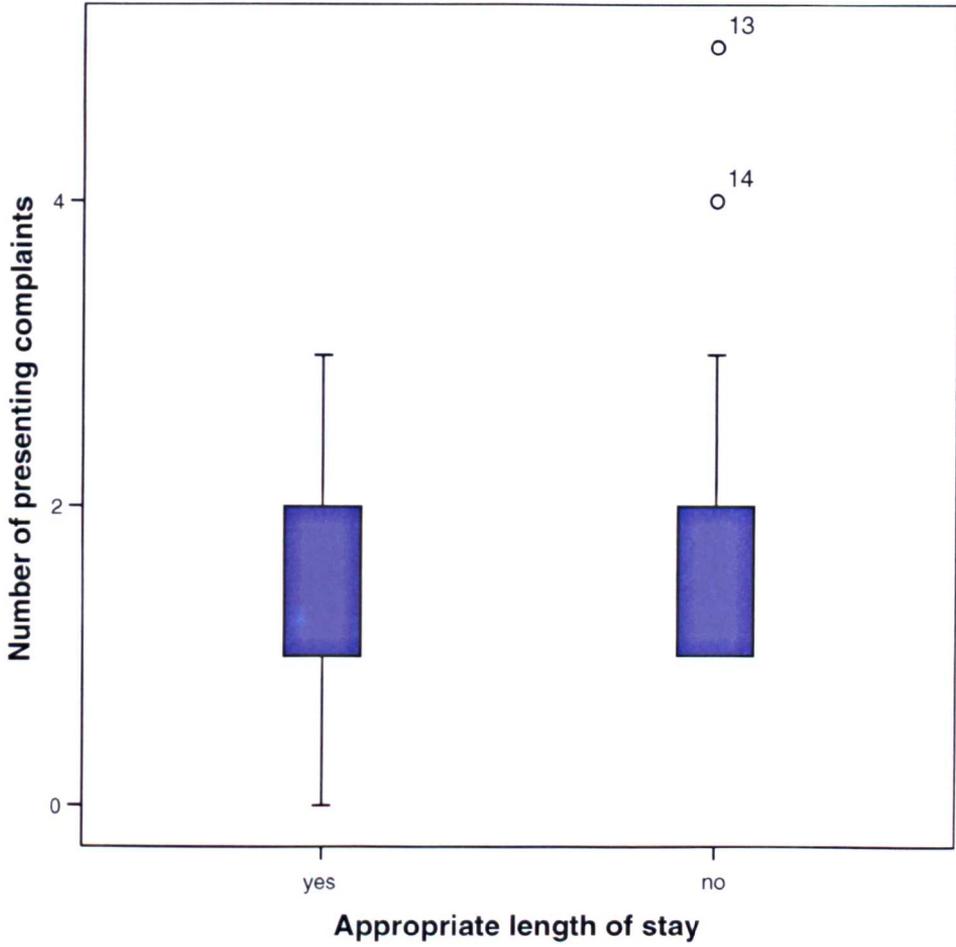
Admission details

The most common presenting complaints in those who experienced an appropriate length of stay were collapse (n=6), epileptic fit (n=3), chest pain (n=2), diarrhoea (n=2), unwell (n=2), shortness of breath (n=2), overdose (n=2) and high blood sugar levels (n=2). For the participants who

experienced an inappropriate length of stay the most common complaints were chest pain (n=4), fall (n=5), shortness of breath (n=4), vomiting (n=3), 'off legs' (n=3), high blood sugars (n=2), left sided weakness (n=2) and reduced mobility (n=2). Over half of participants (52.9%, n=27) who experienced an inappropriate length of stay were admitted as an emergency admission whilst approximately two thirds (60.0%, n=18) of participants who experienced an appropriate length of stay were admitted as an emergency (p=0.537).

Participants who experienced an inappropriate length of stay had a significantly higher number of presenting complaints; two presenting complaints (1-2) compared with one presenting complaint (1-2) (p=0.04) (see Figure 6). Also, over two fifths of those who experienced an inappropriate length of stay presented with a neurological related problem (44.9%, n=31) whilst almost one third of those (33.3%, n=10) who experienced an appropriate length of stay presented with a neurological related problem (p=0.282).

Figure 6: Number of presenting complaints according to appropriateness of length of stay



The most frequently used inpatient service, for both cohorts, was physiotherapy. There was a significant difference in the number of participants who saw a physiotherapist; over half of participants who experienced an inappropriate length of stay saw a physiotherapist (n=30, 58.8%) in comparison to approximately one third of participants (33.3%, n=10) who experienced an appropriate length of stay (p=0.027) (see Table 24 for more details). The cohorts differed significantly in the number of participants who were referred to social services; of the participants who experienced an appropriate length of stay one was referred to social services (3.3%) in comparison to 10 participants who experienced an inappropriate length of stay (19.6%) (p=0.039). Participants who experienced an inappropriate length of

stay also more frequently saw a specialist nurse, a speech and language specialist and a dietician, although differences were not significant. Those whose stay was inappropriate utilised a higher number of inpatient services in comparison to those whose stay as appropriate; one inpatient service (0-2) compared with 0.5 inpatient services (0.0-2.0) ($p=0.053$).

Table 24: Appropriateness of length of stay - inpatient services

	Appropriate length of stay		P value
	Yes n= (%)	No n= (%)	
Occupational therapy	9 (30.0)	14 (27.5)	0.806
Physiotherapy	10 (33.3)	30 (58.8)	0.027*
Specialist nursing	3 (10.0)	9 (17.60)	0.350
Speech and language therapy	3 (10.0)	6 (11.8)	0.807
Dietetics	2 (6.7)	8 (15.7)	0.233
Social services	1 (3.3)	10 (19.6)	0.039*

* Statistically significant

Discharge details

The length of inpatient stay differed significantly between the groups. Those who experienced an inappropriate length of stay had a significantly longer length of stay; ten days (5.0-14.0) compared to four days (2.0-8.0) for those who experienced an appropriate length of stay ($p<0.001$).

There was little difference between the days on which the discharge occurred. The majority of participants who experienced an inappropriate length of stay were discharged on either a Monday (25.5%, $n=13$), Friday (19.6%, $n=10$) or a Thursday (19.6%, $n=10$). The majority of participants who experienced an appropriate length of stay were discharged on a Friday (26.7%, $n=8$) or a Tuesday (23.3%, $n=7$). The cohorts differed significantly in terms of discharge mode. 93.8% ($n=30$) of those who experienced an appropriate length of stay were discharged or died compared with compared with 78.3% ($n=65$). Of those participants were who transferred 90.0% (18) had an inappropriate

length of stay ($p=0.050$). A smaller proportion of participants whose stay was inappropriate in length returned to their original place of residence when compared with those whose length of stay was appropriate in length (73.5%, $n=36$ compared with 88.0%, $n=22$), although this difference was not significant ($p=0.151$).

Post discharge outcomes - participant readmission and death

Participants with an appropriate length of stay differed little in terms of the number of readmissions to hospital. Both sub-sets of participants experienced an average of one readmission in the proceeding months following discharge (0.0-1.0) ($p=0.098$). Of those participants who experienced an appropriate length of stay over a quarter (26.7%, $n=8$) went on to be readmitted following discharge whilst almost a half (47.1%, $n=24$) of those participants who experienced an inappropriate length of stay went on to be readmitted ($p=0.070$). The number of participants who died following discharge did not differ significantly between the two cohorts. However, a slightly greater proportion of participants who experienced an inappropriate length of stay died following discharge (26.7%, $n=8$) compared to participants who experienced an inappropriate length of stay (27.5%, $n=14$) ($p=0.939$).

Causes of inappropriate length of stay

There were frequently multiple causes that led to an inappropriate length of stay. The most prevalent cause of an inappropriate length of stay related to delays in both the undertaking of investigations and receiving of investigation results ($n=12$). In ten cases, the length of stay in hospital was elongated unnecessarily due to a lack of discharge planning. In eight of these cases the delay was attributed to delayed medical treatment and diagnosis. For a further eight cases patients were not discharged when they were medically fit ($n=8$). There were frequent delays associated with specialist care and therapeutic care. There were delays in both the referral ($n=6$) and provision

(n=8) of such services. Equally prevalent were delays in transferring participants. In total eight participants had an inappropriate length of stay due to delays in the provision of a non acute/rehabilitation bed (n=5) or a bed in a long term care facility (n=3). Delays in the provision of new packages of care or increased care delayed the discharge of two participants. See Table 25 for a summary of causes of inappropriate lengths of stay.

Table 25: Causes of inappropriate lengths of stay

Cause of inappropriate length of stay	Frequency
Delayed undertaking/receipt of investigations	12
Delayed discharge planning	10
Delayed/inappropriate medical management	8
Not discharged when medically fit	8
Delayed provision of specialist medical/therapeutic services	8
Delayed referral to specialist medical/therapeutic services	6
Delayed transfer to rehab/sub acute facility	5
Further observation required	4
Delayed transfer to long term care	3
Delayed community social care provision	2
Suitable for outpatient care	2
Other	3
Total	71

Actions to facilitate an appropriate length of stay

When a participant was identified as having experienced an inappropriate length of stay, the expert panel was asked to specify what actions/services might have prevented this occurring.

Most frequently, changes in the inpatient acute management of participants were suggested as actions that may have facilitated an appropriate length of stay. Ensuring participants received timely treatment and that an accurate diagnosis was made were actions that may have aided a timely discharge for

eight participants. There was evidence in six cases that the care participants had received, in terms of organising investigations and interdisciplinary referral, was poorly coordinated. It was suggested that having one lead physician to coordinate and organise care may have facilitated an appropriate length of stay. This would also have improved efficiency and reduced the time taken by physicians to familiarise themselves with the participant and their case. In eight cases participants remained in hospital despite being medically fit for discharge. For three of these participants the panel felt that they could have been discharged with community support, e.g. ICS. However, the panel acknowledged that it can often be difficult, due to a lack of available resources, to arrange provision of care in the community. It was unclear in the remaining cases why the participants were not discharged, however, anecdotally the expert panel felt that less experienced physicians often awaited senior medical review before making decisions regarding treatment or prior to discharging a patient. If this were the case then the expert panel suggested that increased frequency of senior medical review, to include weekends, may ensure that patients are discharged at the appropriate time.

The undertaking of investigations and the time taken to receive results often elongated a participant's hospital stay. In the case of five participants it was evident that investigations had not been undertaken as soon as they possibly could. However, it was unclear whether the cause of the delay was due to a delay in ordering the investigations or due to a delay in the investigations being carried out. Improvements in the time taken to receive test results and investigation results may have aided an appropriate length of stay for seven participants.

Delays relating to the referral to, and provision of, specialist medical and therapeutic services were frequent. In terms of specialist medical services

the panel felt that four participants would have benefited from the input of a neurological clinician however, this was not provided. Involving neurological services, including neurology or neurological rehabilitation, were actions noted to have potentially aided an appropriate length of stay in these cases. There were problems associated with referrals for neurological services (n=2) and in four cases the provision of neurological services was delayed. Currently, neurology consultant cover is only provided on the Derby site four days per week. Outside of these days patients who required urgent neurological consultation would need to be transferred to Nottingham University Hospital. Patients who did not have a level of need which necessitated transfer would potentially have to wait several days for a neurological consultation. However, very few delays were caused by waiting for a neurological opinion. Nether-the-less, increased availability of such a service was a suggested action that may have resulted in an appropriate length of stay for these participants. Currently therapy services are not available over the weekend, as a result there were delays in the provision of therapy services for four participants.

In an additional ten cases there was evidence that planning for discharge did not begin until a late stage. Earlier planning, e.g. ensuring any existing services were informed of the patient's discharge date would have helped to optimise the length of stay. This would allow relevant services to be resumed promptly for example and for the patients transport to be arranged in advance.

Five participants were found to have had an inappropriately short length of stay. For one person it was felt that a longer period of observation was needed. In another two cases it was felt that psychiatry services should have been involved and in one instance this was to assess the person's capacity to discharge himself/herself. One participant was felt to need

specialist input (speech and language therapy). The remaining participant was thought to have been discharged without the admitting problem being examined thoroughly. It was felt that a senior review may have ensured the problem was investigated thoroughly before the discharge occurred.

In order to examine the reliability of the decisions made by the expert panel the agreement between the raters' preliminary decisions was assessed (inter-rater reliability). In addition, the reliability of each individual's baseline decisions (i.e., those made before the expert panel reached a decision) and the overall panel decision was assessed (intra-rater reliability). These findings are detailed below.

3.3.6 Modelling inappropriate admissions and lengths of stay

In order to model variables that were predictive of (a) an inappropriate admission and (b) an inappropriate length of stay, all variables that were found to be significantly associated with an inappropriate admission/length of stay (were $p < 0.05$) were entered into a binary logistic regression model. Using a Forward Stepwise Likelihood ratio selection method, variables were tested for significance. Entry of variables to the model was determined using the Log-Likelihood ratio test, with $p < 0.05$. The Hosmer-Lemeshow test was used for examining the goodness of fit for the model. Variables were deemed significant if the p-value was less than 0.05. Only one variable was significantly associated with an inappropriate admission.

- Patient residence - nursing/residential home versus own home

In order to produce a 'model' more than one variable must be entered into the regression model. A regression model was therefore not developed for

inappropriate admissions. Rather, a univariate analysis was performed. The results of the univariate analysis were that those who lived in their own home compared to a nursing home/residential home were three times (unadjusted OR 3.43) more likely to be admitted inappropriately. The 95% confidence interval however ranged from 0.95-12.39 meaning it is possible that those who lived in their own home were no more likely to be admitted inappropriately than those who lived in a residential/nursing home (see Table 26 for further details). As a result the finding was deemed not significant.

Table 26: Unadjusted odds ratios for inappropriate admission

Variable	Admission		
	Unadjusted OR	95% CI	P value
Lives in own home	3.43	0.95-12.39	0.036

All variables that were found to be significantly associated with an inappropriate length of stay (were $p < 0.05$) were entered into a binary logistic regression model. Therefore the following variables were entered into the regression model to ascertain variables predictive of an inappropriate length of stay:

- The number of LTNCs
- The number of presenting complaints
- Whether or not the participant lived alone in their own home
- Whether or not the participant was referred to inpatient physiotherapy
- Whether or not the participant was referred to social services
- Whether the patient was discharged, transferred or died

The first model included all variables listed above. As detailed in Table 27, referrals to social services and physiotherapy were not found to be predictive of an inappropriate length of stay when the other variables were adjusted for.

Table 27: Regression model one

Variable	Adjusted OR	Length of stay	
		95% CI	P value
Number LTNC	8.315	1.142-60.532	0.037*
Number presenting complaints	7.466	1.860-29.963	0.005*
Lives alone in own home	35.877	3.319-387.833	0.003*
Referred to social services	2.624	0.181-37.935	0.479
Referred to physiotherapy	3.348	0.696-16.093	0.131

(n=61, Hosmer-Lemeshow = 0.889), * statistically significant

The regression model was therefore reproduced with the referrals to social services and physiotherapy excluded (See Table 28).

Table 28: Final regression model

Variable	Adjusted OR	Length of stay	
		95% CI	P value
Number of LTNC	7.29	1.06-50.26	0.044*
Number of presenting complaints	7.55	2.05-27.81	0.002*
Lives alone in own home	38.72	3.86-388.10	0.002*

(n=61, Hosmer-Lemeshow = 0.989), * statistically significant

The final model included number of LTNCs, the number of presenting complaints and whether or not the participant lived alone (see Table 28). With each increase in the number of LTNCs and the number of complaints the risk of experiencing an inappropriate length of stay increased by seven times. Participants who lived alone in their own home, in comparison to those who lived with others were 38 times more likely to experience an inappropriate length of stay.

3.4 RESULTS SECTION TWO: A CASE SERIES OF PARTICIPANTS ADMITTED TO HOSPITAL INAPPROPRIATELY

A total of six interviews were conducted with patients. Following an examination of the appropriateness of their admission three out of the six patients were deemed to have been admitted to hospital inappropriately. The results relating to the three patients admitted inappropriately are presented here. For each case study the characteristics of the participant, the outcome of the assessments undertaken with the patient (i.e. disabilities), the complaint which led to the admission, the findings from the interview undertaken with the participant/family/friend and the findings of the expert panel regarding the appropriateness of their admission are given.

3.4.1 Case study one

Participant characteristics

Participant one (SH) was a white female aged 48 years. She was diagnosed with MS in 1983 and the condition was secondary progressive. In addition to this she had a diagnosis of lymphoedema and narcolepsy. SH lived in her privately owned home which was shared with her spouse and children. Current support included: formal home care (deemed by the participant to provide her main care) home visits from a physiotherapist; weekly counselling sessions; social services shopping service; private domestic carer. SH was also receiving outpatient care from the neurology service at Queens Medical Centre (QMC) (now referred to as Nottingham University Hospitals) and the neurological rehabilitation service at Derby Hospitals NHS Foundation Trust. SH felt that she was supported to a moderate degree by her family.

Disability

The MMSE indicated that SH's cognition was normal. In terms of activities of daily living (assessed through the FIM) SH was shown to be unable to transfer independently to the shower/bath and was unable to use stairs. SH reported suffering from memory problems. The GDNS showed that SH suffered from memory problems and required help from others to plan her daily affairs. When tired, SH occasionally suffered from slurred speech. A weakness in her hands prevented her from completing some activities. The participant mobilised using a wheelchair. She was occasionally incontinent of urine and experienced fatigue, which she deemed to be severe enough to prevent all usual activities.

Admitting complaint

The health records documented the presenting complaint as follows:

"Usually uses wheelchair but can transfer from bed and toilet. 1983 diagnosed secondary progressive now. Last steroids ten years ago. Under Prof X and Dr X at QMC (Queens Medical Centre). 2/12 history of increased weakness and reduced sensation in arm. Right arm not much use anyway, usually dependent on left arm. Falls increased recently – fallen off stair lift x 2 at weekend. Worried not coping at home. Falls out of bed and can't get back in. Is alone from 11am to all afternoon most days. Carers come in the morning to wash her and do housework. Seeing an ophthalmologist for eye problems."

SH was visited by an out of hours GP who advised admission to hospital. The admission occurred during October 2006 on a Monday evening and the participant was transferred to a neurological ward three weeks and four days

after being admitted. The interview took place the day after SH had been admitted.

Participant interview

SH believed that the main cause of her admission to hospital was deterioration in her condition.

"I know I have deteriorated the last couple of months, I know that the feeling has gone, I can feel that...I relied on my left hand so much, because my right hand had been out of commission for so many years, and now I've got no hands I'm like 'oh what do I do?'...I just don't know how I'll manage".

SH was asked if the admitting GP explained why the admission was necessary. SH was unaware of why the GP felt it was necessary to admit her, however, she thought it might have related to safety issues.

"Reading between the lines I just thought that she perhaps thought that I wasn't safe going up and down the stairs, and I was going to fall from top to bottom.....Even transferring from, from the stair lift I've got to transfer to another wheelchair at the top of the stairs and then transfer to the loo, and all the same when I come back down, loo to wheelchair, to the stair lift, to the downstairs wheelchair, it's all transferring and it's all so tiring"

SH was asked if they believed anything could have been done to prevent the admission from occurring. The participant described how she began experiencing double vision two months previously and believed that if she had been given steroids, as she had requested, the admission would have been

prevented. However, she had recently been seen by a neurological rehabilitation consultant who refused to prescribe steroids. SH then spoke with another consultant who agreed they would prescribe steroids but was not prepared to take over the participants care.

Following this SH was asked if she believed the admission had helped. She believed the admission had helped by addressing three issues: (1) prompting environmental issues to be addressed i.e. home adaptations, (2) increasing her husband's awareness of her coping difficulties, (3) receiving the medical treatment she desired i.e. being prescribed steroids.

"I think that something might get done now..... in terms of erm, getting either my bed moved downstairs or, getting, I don't know, somewhere that I can get to on my own that doesn't involve stairs....if I cant get the bedroom and the wet room downstairs I'm just going to fall out of the bed again, I'm going to have this problem come again because there's nothing I can do about it."

"I think one thing it will make my husband realise that I'm not doing very good at home on my own, and that I need a little bit more support from him...he wouldn't move house, he wouldn't get a different mortgage, he wouldn't, there's lots of things he wouldn't do."

Despite this SH went on to describe how she had been looking to move to a bungalow for the past six months, however, none had met their requirements. Also, SH's husband was not supportive of moving house. Following this, the occupational therapist assigned to her had been withdrawn.

Expert panel finding

The expert panel deemed SH's admission to hospital to be inappropriate. They believed that the SH's needs could have been met by other services; a nursing home placement with urgent input from the outpatient neurological rehabilitation team, or alternatively a planned, non acute, admission to hospital.

In order to avoid duplication the case study findings presented here are discussed together in section 3.5.2. The second case study, presented below, examines the admission of a man with PD.

3.4.2 Case study two

Participant characteristics

The participant (DW) was a white male aged 84 years who was diagnosed with PD. In addition to PD he also had problems with swallowing and angina and had suffered a myocardial infarction (MI). DW lived in his own privately owned home with his wife. DW was supported mainly by his wife, however, he also received formal care twice a day and support from his wider family.

Disability

Data relating to disability were provided in this case by DW's wife, as he was unable to complete the assessments himself. As DW's wife provided information about her husband's cognitive impairment, this was not assessed formally. However, DW was deemed by the caring staff to be unable to provide informed consent due to cognitive impairment. The extent of this impairment is unknown. Assessments of activities of daily living (assessed through the FIM) showed that DW needed considerable help with activities of daily living and transfers. He also had minor difficulties with comprehension and expression. In terms of neurological disability (assessed through the GNDS) DW was usually only partially orientated, he required help with his

daily affairs, occasionally suffered from aggression and required a modified food consistency due to dysphasia. DW was incontinent of urine daily and mobilised using a wheelchair.

Admitting complaint

The health records documented the presenting complaint as follows:

"Collapse/off legs".

DW was taken to the A and E department and was admitted to hospital on a Monday morning at 01.50 am. He was discharged home nine days later. The interview was conducted with the DW's wife the afternoon following his admission.

Participant interview

DW's wife provided further information of the admitting complaint when interviewed. DW had fallen whilst he was transferring, aided by his wife, using a standing aid. Once DW fell he was unable to stand and became entangled in the standing aid sling. DW's wife then rang for an ambulance. When the ambulance crew arrived they were able to transfer DW from the floor to a chair. They were unhappy however for DW to remain at home as they felt his inability to transfer (with aid) placed him at risk.

"We couldn't do anything with him...she said we can't leave you like this, he can't do anything, you can't manage him and it's a dangerous situation for you both".

DW was taken to the accident and emergency department. Following a series of blood tests the attending physician felt that the participant should be discharged, however, this was dependent on him being able to stand.

"He was seen by this young doctor and she said it was the blood, you know, the blood they took was alright, so she said, if he could stand up she thought perhaps we would be as well going home."

Following an assessment, DW was found to be unable to stand and was therefore admitted to hospital. When DW's wife was asked her views regarding her husband's admission she stated that she did not want her husband to be admitted as his drug regimen was not followed when he was in hospital, despite staff being made aware of his needs. However, due to the time of night DW's wife felt there was no alternative but to admit him to hospital.

"I would have liked him to go home because as I say I am terrified of these tablets...and it happens every time.... They just don't give...I mean he came in last night so he missed his teatime tablets and he didn't have anything last night and he's had nothing yet."

DW's wife described how her husband was prescribed medication to improve his movements and anti-depressants to help with his mood problems. If he was not given his tablets he suffered problems with his mobility and mood.

"He'll probably get stropky again... and not be able to move...he'll be in pain with his legs and it, it has a big effect.....if you're half an hour late with Parkinson's tablets you can tell."

When discussing her husband's admission to hospital she talked about how she hoped he would receive physiotherapy whilst an inpatient. She talked about

how he had been transferred for rehabilitation last time he had been admitted and how his mobility had improved.

"He would have physio here which would be marvellous, I mean the last time he came in here he went to Babington and he actually walked."

She then went on to talk about how she felt a special unit for PD patients would meet his needs better than a general medical ward. This was primarily attributable to the fact that she believed he would receive his medication on time in a specialist ward. Overall, DW's wife felt that admission to hospital was appropriate on the basis that her husband was unable to stand. Although she tried to remain positive and hoped that the hospital admission would benefit her husband's mobility, she frequently worried about whether or not he would return home when admitted to hospital.

"If they, if they can get him so he stands up again it will be marvellous won't it? I want him to come home.....I want him to be able to come home...this worries me that he will get worse and he won't be able to come home you know."

Expert panel findings

The expert panel deemed this admission to be inappropriate. They believed that DW did not require acute care, rather he required increased support at home to assist him with activities of daily living whilst he received occupational therapy and physiotherapy to address the mobility problems. The expert panel therefore suggested that the most appropriate course of action would have been to discharge him to his own home with emergency care support from

social services e.g. ICS, and referral to Social Services Occupational Therapy and to physiotherapy for home review.

Please see section 3.5.2 for a discussion of case study two findings. The findings of case study three are given below, and describe the admission of a woman diagnosed with epilepsy to hospital.

3.4.3 Case study three

Participant characteristics

The participant (BP) was a white female aged 72 years who was diagnosed with epilepsy. In addition to this BP had type II diabetes. BP lived in her own privately owned home with her spouse and received support from the district nurse daily for her diabetes. She received informal support from her daughter and her husband provided the majority of her care. BP had been admitted twice in the proceeding year with (1) reduced mobility and dehydration, (2) increased levels of potassium and leg pain. BP had also received ICS for three weeks when she was discharged from hospital the month before. The ICS had since stopped.

Disability

BP was unable to provide consent to take part in the study herself. However, her daughter provided assent for her admission to be examined and provided us with information regarding her levels of ability. In terms of cognition, a formal cognitive assessment could not be performed as part of this study, however, according to BP's health records the MMSE had been conducted by a therapy clinician. The results of MMSE showed that BP had moderate cognitive problems. In terms of activities of daily living (as measured by the FIM) BP needed help with most activities and required full help with transfers. Her daughter also reported that her comprehension and expression were

poor. In terms of neurological disability (as measured by the GNDS) BP had problems with her memory, she was partially orientated and had problems with her arms and hands which in turn affected her ability to perform activities. She mobilised with a wheelchair and was able to walk a few steps if given help. She was incontinent of urine on a weekly but not daily basis and experienced severe fatigue.

Admitting complaint

The health records documented the presenting complaint as follows:

"The patient had been sleeping a lot – when the district nurse came to administer insulin she was concerned about this and arranged an admission. Daughter reports step-father does not look after patient well".

The district nurse visiting BP had telephoned for an ambulance. BP was then taken to the A and E department and was admitted to hospital on a Wednesday afternoon at 15:00. BP was discharged 10 days after admission. The interview was conducted with the BP's daughter the day of admission.

Participant interview

BP's daughter was unclear about why her mother had been admitted to hospital, however, she described the social problems her mother was experiencing in depth.

"My step-dad don't know what to give her to eat...he has been told time and time again what to give her but he still gets confused...at night times she don't get undressed, she just stays on the settee in

the clothes what she has been wearing....She just won't walk, all she walks to is the commode and back again, which is in the front room...and she don't go upstairs and she doesn't use the stairlift...she don't go to bed, she's been on the settee for two years" (ID 124)

Her mother had frequently suffered with dehydration and she believed this was because her mother's husband did not provide her with sufficient drinks to maintain her fluid levels.

"I don't think he's been giving her, you know like you've got to drink a lot of fluids. Because when she came in here she was lacking fluids and she had to go on a drip for that and even now I have had a word with the nurse and she said that's what she is lacking as well."

BP's daughter went on to describe how her mother had been receiving ICS at home following a number of admissions to hospital and felt that the removal of this service may have contributed to her mother being admitted to hospital. However, she also explained that ICS had been removed primarily due to the fact that all tasks designated to the carers had already been completed by BP's husband when they arrived. As a result there was no work for the ICS workers to complete, the service was therefore stopped.

"She stayed in for three weeks and social services came in. But they only came in for two weeks and then they said he was capable of doing things for her...they stopped it because they said my step-dad was capable of doing it. It sort of went back to square one again. He says he's not coping now."

"Well the reason why they stopped coming was because my step-dad used to have everything done by the time they come and they

couldn't do anything. So that's how they stopped coming. And sometimes they didn't answer the door, but I don't know if he hadn't heard the bell or whatever, I don't know. He says he's not coping now. He says that even when she comes home now it will go back to square one. But he don't want her going to a nursing home, not really, it it's their own house so, he doesn't know where he will get the money from"

BP's daughter was asked if she believed hospital was the most appropriate place for her mother to be treated. She believed it was as she would be 'looked after' whilst in hospital.

"I think she can get looked after better here. Because she will be getting, err, the meals and the tablets as well. And they will make her walk hopefully.....she likes it here...well a lot of people are looking after her aren't they...and asking her is she is alright and stuff like that...yeah I think she likes coming here." (ID 124)

In terms of alternative care, BP had been offered respite care in a nursing home several weeks prior to the admission to hospital. It was not clear as to why this service was not provided. BP's daughter talked about her mother's health behaviour and described how her mother was happy to follow advice given from health care professionals whilst admitted to hospital, however would fail to follow the advice once discharged. This exacerbated her problems. BP's daughter worried that her step father was unable to cope with her mothers condition and this would result in reoccurring hospital admissions. When asked what actions might be needed to prevent admissions in the future, she stated that a full package of care (to include three visits per day) would be required. Carers would support the BP to manage her condition, prevent further deterioration (ensuring BP mobilised

and took fluids regularly) and also to help with washing, dressing and preparation of meals.

Expert panel findings

The expert panel believed that BP did not require acute care; rather she required some form of respite care. The expert panel also suggested that due to the complex social problems BP was experiencing she would benefit from social services case management. In terms of managing her diabetes, which seemed to be a recurring problem, the panel suggested that she be referred to a specialist diabetes nurse.

The findings of case study three are discussed alongside case study one and two in section 3.5.2.

3.5 DISCUSSION

A brief discussion of Phase I findings is given below. In order to avoid duplication and to enable the findings from all phases to be discussed together (therefore offering the reader a more complete picture) a full discussion, including comparisons with existing literature is made in Chapter 6.

3.5.1 Quantitative examination of appropriateness of admission and length of stay

Approximately one third of admissions were inappropriate amongst a population of patients with LTNCs and this is consistent with previous findings of studies of general and older adults (1, 4, 5). The proportion of inappropriate lengths of stay, approximately three quarters of inpatient stays, is relatively high in comparison to studies focusing on general or older adults

and stroke patients (5, 6, 11-13). However, this figure is comparable to a study examining the last 24 hours of inpatient stay for patients admitted to a London hospital (3).

A number of studies identify factors associated with inappropriate admissions and lengths of stay in general and older adults. Factors mainly relate to the age, health status and social circumstances of adult patients, and the availability of formal and informal support amongst elderly patients (7, 208, 209). The age and health status (as measured by the FIM, GNDS and MMSE) were not significantly associated with an inappropriate admission amongst this population, however, the analysis was based on a relatively small number of participants. In terms of the social circumstances, participants admitted inappropriately were significantly more likely to live in their own home rather than a nursing or residential home. In such cases participants living in a residential or nursing home may have presented with more complex problems. Also, provision of 24 hour care in these settings may facilitate discharge from emergency departments, forgoing the problem of limited informal support faced by patients living alone, something shown by previous studies to be associated with inappropriate admissions (209).

Previous studies report that living alone, difficulties with activities of daily living and lack of informal support, for general and older adults, place patients at risk of an inappropriate length of stay (7-9, 210, 211). Whilst provision of social care and transfer to long term care facilities are reported to place stroke patients at risk (13, 14, 107, 212). In our study, participants who lived alone in their own home were at a significantly greater risk of an inappropriate length of stay. This may relate to the availability of informal support and the ability of patients to care for themselves. There was no significant difference in ability to self care or functional ability in the month preceding admission for those who experienced a length of stay that was

inappropriate compared to those who experienced an appropriate length of stay. Those who experienced an appropriate length of stay did more frequently however have greater difficulties in activities of daily living. It must be noted that activities of daily living scores were only collected for participants who were physically and mentally able to take part in a structured interview and were therefore only collected for 65% of participants. It is possible, therefore, that participants who were unable to take part in a structured interview (due to physical or cognitive impairment) were those who experienced difficulties in activities of daily living. Also, previous studies that have found those with reduced activities of daily living to be at greater risk of an inappropriate length of stay may have measured short term reductions in ability to self care. In this study, the participants ongoing difficulties (in the preceding month) with activities of daily living were assessed rather than short term difficulties. It may also be possible that staff were less willing to discharge patients who present with an atypical inability to perform activities of daily living and who live alone. Such patients may remain in hospital to receive short term convalescent care prior to discharge, whereas, patients who live with others can be cared for at home. It is clear that not discharging patients who are unable to complete activities of daily living, and therefore protecting patients from unsafe discharges is a value of clinicians (actors in the health care system). Retaining patients in hospital in order to convalesce remains normalised amongst clinicians, despite structural changes in the provision of health care which promotes convalescent care being provided in the community rather than the hospital setting. Therefore, the clinicians who retain patients in hospital to convalesce may share the same values as officials (policy makers, health care managers etc), to ensure patients are not discharged into unsafe circumstances, but then differ from 'officials' in the way they achieve this (norms). Please see Chapter 2 for a discussion of social system features.

The findings showed that with each increase in the number of LTNCs and the number of complaints the risk of experiencing an inappropriate length of stay increased. Those with a greater number of LTNCs and presenting complaints may represent more medically/socially complex cases. As Derlet described, patients who have comorbidities often require a complicated and time consuming evaluation process (189). Also, they may be more likely to require inpatient physiotherapy and/or social services, factors adjusted for in the multivariate analysis.

Within the sample it was apparent that participants with MS, dementia and PD were experiencing both inappropriate admissions and inappropriate lengths of stay more often than others. Conditions of this nature can result in considerable functional, neurological and cognitive impairment. Patients with these conditions may also have required a more complex assessment and have required specialist neurological advice, although an additional analysis according to condition would be needed to confirm this. With limited access to specialised neurological services at the 'front door', patients who require neurological review may be admitted to await neurological review.

The findings from this study have highlighted a number of areas where delays were impacting on the appropriateness of length of stay. Overall, delays were caused by poor coordination of inpatient management. Specifically, tests, investigations and service referrals were not undertaken in a timely manner. A number of potential interventions to reduce the occurrence of inappropriate lengths of stay were highlighted including: one lead physician to coordinate care; improvements in the time taken to receive results and investigations; and effective planning for discharge. Having one lead clinician may work towards preventing multiple transfers of care and therefore improving the efficiency. Likewise, planning inpatient care on admission, to include identification of likely service requirements, may help improve inpatient

efficiency. However, further in-depth research would be needed to identify if having multiple physicians involved in a patient's care does indeed lead to delays. An examination of the causes of delays in the ordering of tests, investigations etc would also be needed to be conducted as failure to undertake these actions in a timely manner may relate to a lack of capacity/time rather than ineffective planning. The intervention needed would therefore differ according to cause (i.e. interventions to improve planning versus increases in capacity).

In terms of reducing inappropriate admissions it was not possible to identify what had caused patients to be admitted inappropriately. It was clear that in many cases provision of secondary care services and detailed assessment in a clinical decision unit would have offered appropriate alternative forms of care. However, it is unclear why these types of services were not accessed. It would be necessary then to identify the barriers to the use of secondary care services and the interplay of such barriers.

3.5.2 Qualitative examination of three patient cases

The case study findings presented are designed to provide readers with a greater insight into a small number of cases where admission to hospital was deemed inappropriate. It is not an aim to produce findings that are generalisable to patients with LTNCs who are admitted inappropriately to hospital.

Case study one (SH) highlights a variety of psychosocial issues. The reasons for admission appeared multi-factorial. The participant believed that the admission was appropriate. The justification of the admission by SH was that the admission had led to three important outcomes for her. Firstly, the admission would highlight the difficulties she was facing, perhaps due to the

perceived 'seriousness' of a hospital admission. Secondly, the admission may compel physicians involved in her care to prescribe steroids. Thirdly, the admission may compel social services staff to provide her with a downstairs bedroom and wet-room. In all three cases there appears to be a discrepancy between SH's service/treatment wishes and the services/treatment she is receiving. The justification of the inappropriate admission by SH highlights the differing ways in which patients/clinicians/researchers may view appropriateness. Clinically, the avoidance of inappropriate admissions is well justified. However, this case demonstrates that clinical outcomes may not be the top priority of many patients and therefore may not be a norm or value for patients. This potentially highlights a discrepancies between the norms and values of clinicians and patients. It could be argued that if the patient achieved the outcomes she desired it would have led to an improved quality of life for the patient. However, improvements in quality of life have not been used in this study, or previous studies, as a determinant of appropriateness. Patient preferences for care (e.g. norms and values), and an exploration of their motivations for care, are therefore important factors which need to be considered when admitting a patient.

Case study two (DW) highlights the often difficult situation faced by clinicians. Although we can only speculate as to why the services suggested by the expert panel were not accessed, it may relate to the time of night and the availability of services to respond within a timeframe that would have enabled DW to have been discharged. Although the expert panel and indeed the A and E clinician (as reported by the participant's wife) did not feel admission was necessary, the situation they were faced with meant that discharge home without support would have placed the participant and his wife in a hazardous situation. If support could not be provided following discharge then admission to hospital seems unavoidable. However, as we can see in this case, admission to hospital can have negative consequences. DW's wife reported that her husband

frequently did not receive his medication on time, if at all, and in turn this led to her husband experiencing mood and mobility problems. In this case then, the preferences of care of the patients wife (norms) would be to avoid admission because of the reduced quality of life the patient would experience as a result of admission. On a practical level, this case highlights factors that can lead to an inappropriate admission, namely the time of day, the availability of support services (which will also relate to the time of day) and the patients safety (a value of clinicians) if discharged, in this case relating to the ability to mobilise safely.

The participant studied in case three (BP) was admitted to hospital due to the concerns of BP's district nurse. Although the expert panel found no evidence of need which required acute care, it was evident that BP was suffering from social difficulties which were affecting her health e.g. dehydration. It was unclear if BP's husband was caring adequately for her. BP's daughter believed that her mother was in need of permanent care support. However, support services had been removed in the past, albeit temporary services (ICS). There also appeared to be concerns over the financing of services (nursing home care). During the interview, BP's daughter reported that her mother and step-father owned their own home. If this is the case the participant may not have qualified for provision of Local Authority funded care. If BP and her husband were unable or unwilling to finance the services personally, this would further exacerbate the situation. It could be argued that achieving financial wealth is a value of UK citizens and therefore a value of both patient and clinicians/policy makers/managers. A compromise has been to provide social care free to those who would be considerably disadvantaged if they had to fund their own care. However, it is important to understand that patient preferences for care, will be influenced by their wish to maintain their financial position. This case highlights how inadequately met social needs can lead to inappropriate hospital admissions. Furthermore, it highlights how provision of

non acute services (ICS), which appeared to have met the patients social needs, can fail to prevent an inappropriate admission. Again, understanding patients preferences and motivations for care in this case will be important.

These three case studies demonstrate that patients, like clinicians, clearly want to achieve the best quality of life they can and therefore share the same values. However, the way in which this should be achieved (norms) differ.

3.5.3 Limitations of the study

There are a number of limitations that affect the findings of this study. The limitations are discussed below and these concern the representativeness of the sample, the sample size, the recruitment of participants, the composition of the expert panel, the definition of appropriateness that was used, the examination of appropriateness of length of stay and the method of assessment for determining appropriateness.

Representativeness of the sample

When examining the type and prevalence of conditions for those admitted into this study and those admitted to Derby Hospitals between October 05 and September 06 there were notable differences, see

Table 29. CVA was the most prevalent condition in our study, from the start of data collection (June 06) through to 29th September 06 35 participants with a CVA were enrolled. However, medical coding data show that only 23 patients with an existing CVA were admitted to Derby Hospitals during the one year period between October 2005 and September 2006. This demonstrates that the data collected by medical coding were inaccurate.

Table 29: Prevalence of LTNCs of patients admitted to Derby Hospitals NHS Foundation Trust 05-06

	Primary diagnosis (frequency)	Not primary diagnosis (frequency)	Total frequency	Percentage
Epilepsy	176	1077	1253	68.4
Dementia	1	837	838	25.7
Parkinson's disease	39	513	552	16.9
Multiple sclerosis	91	205	296	9.1
Alzheimer's disease	11	194	205	6.3
CVA	99	23	122	3.7
Total	417	2849	3266	100.0

Participants with dementia were considerably less prevalent in our study than the number admitted to Derby Hospitals between 2005 -2006. This may relate to the process of consenting and assenting. Patients with severe dementia are unlikely to be able to give informed consent and it may be difficult to establish adequately if patients with mild dementia are able to give informed consent. As a consequence of this patients with dementia often require assent from a relative/friend. As discussed later, it can often be difficult to obtain assent. Also, participants with epilepsy appear to be underrepresented in our study.

Sample size

The optimum sample size for the study (based on the estimated figures, see section 3.2.2) would have been 368 (with 95% CI and 5% precision). However, in this study the percentage of inappropriate length of stay was 72% (83 out of 115 participants). Therefore, the 95% confidence interval that we estimated had a precision of 8%. As a result of this the confidence intervals produced were relatively wide. The clinical importance of the factors

identified as significant predictors for an inappropriate length of stay are therefore affected. For example based on the analysis of data conducted in this study it is estimated that patients who lived alone in their own homes were 30 times more likely to experience an inappropriate length of stay. However, the using a 95% confidence interval patients could be as little as four times more likely to experience an inappropriate length of stay or as much as 261 times more likely. A larger sample size would have enabled the range of figures included in the confidence interval to be smaller and therefore offer a more precise finding.

Recruitment

A large number of participants were not enrolled as consent could not be obtained prior to discharge. This often related to participants who were unable to give consent due to cognitive impairment. In this situation the family was approached to assent. However, the times in which relatives/friends were able to visit were restricted (two hours in the afternoon and two hours in the evening) and the research included two hospital sites. In order to optimise the opportunities of enrolling patients a letter of introduction was designed for relatives. This letter communicated to relatives that the patient was eligible for recruitment into the study and was left at the patient's bed side with a copy of the information sheet and assent form. It was hoped that this would ensure that relatives/friends were approached despite the researcher not being present. However, only two patient's relatives/friends responded to the letter of introduction and provided assent for their family member to be enrolled on the study in this way. Ethical permission was given to enrol patients where consent could not be obtained and when no family members were visiting. The data of such patients could only be obtained by a member of staff who was involved in the patient's care and therefore had routine access to the patient's medical record. A specialist nurse was recruited on one site to collect data for such patients. However, time

constraints placed on the specialist nurse meant that the data of a number of patients were not collected. At the other hospital site the researcher could approach any member of staff to collect data, however, due to limited time which was further exacerbated by an unfamiliarity with the study, clinicians were often unable to collect data. It was also a condition of ethical approval that adequate time was given to ascertain that assent could not be obtained (e.g. that a family member/friend was not visiting). The researcher therefore allowed a minimum period of three days in which to ascertain if relatives/friends were visiting. A number of patients were discharged during this time.

Expert panel composition

Two of the three physicians who determined appropriateness of admission and length of stay worked within Derby Hospitals. One of the physicians was an acute clinical lead of the MAU at the study hospital. It is possible therefore that he was involved in the care of a number of participants. Likewise, it was evident that a small number of participants were being cared for (as an outpatient) by the neurological rehabilitation medicine consultant who may have been involved in the inpatient care (e.g. when a neurological rehabilitation opinion was required). Whilst the inpatient notes were anonymised it is possible that the case details were recognised by either member. Both members were also involved in securing the funds for the PhD and acted as supervisors to the PhD student (as a formal and informal supervisor) it could be argued then that there may have been a motivation for finding significant results. Potential sources of bias were therefore introduced. To have avoided this the expert panel members should have worked outside the Derbyshire area and not have been involved in the conduct of the research. However, funds were not available to cover travelling expenses nor to reimburse employers for staff time. Those working outside of

the Derbyshire area may therefore have been less willing to take part in the expert panel.

Definition of appropriateness

'Appropriateness' is an extremely vague term and despite a working definition being provided to panel members, members may have made decisions that were based on their interpretation of 'appropriateness'. It was evident that on several occasions panel members lost sight of the definition adopted for the study. The researcher chairing the meetings however was able to identify when this occurred and remind members of the definition being used.

The definition used for the study of appropriateness of admission and length of stay did not take into account local service availability. It is acknowledged therefore that this may have led to higher numbers of patients being found to have experienced an inappropriate admission/length of stay than definitions that take into account existing services. It is possible that for a number of patients there was no other alternative but to admit the patient due to a lack of available services. However, in order to identify structural causes of inappropriate admissions/lengths of stay it was necessary to utilise a definition that did not take into account service availability.

Assessment of length of stay

The number of inappropriate inpatient days was not examined due to time constraints. Identification and examination of individual days would have increased the time needed to discuss patients substantially. Lengths of stay that were deemed inappropriate therefore had a minimum of one day delay. Given the cost of one inpatient day and the restricted capacity of acute beds, it was felt that even a one day delay had great clinical significance. However, it is acknowledged that data relating to the number of inappropriate delays would

have enabled a more detailed analysis of variables relating to appropriateness of length of stay to take place.

There are additional limitations that relate to the conduct of interviews with patients. However, these limitations are applicable to all interviews conducted as part of this thesis and will therefore be discussed in the general limitations section of chapter 6, see section 6.3.4.

3.6 CHAPTER SUMMARY

The research detailed in this chapter has shown that patients with LTNCs are admitted to hospital when it is not medically necessary. Furthermore, when patients are admitted to hospital their length of stay can be inappropriate. In the majority of cases the discharge of the patient was delayed, although a small number were discharged when they continued to require acute care. Patients who lived in their own home compared to a nursing or residential home were three times more likely to experience an inappropriate admission. Patients who lived alone in their own home were 30 times more likely to experience an inappropriate length of stay. The number of LTNCs and presenting complaints can be seen to predict an inappropriate length of stay. For each increase in the number of LTNCs the chance of having a length of stay that is inappropriate increased by five times, this is also the case for the number of presenting complaints. For the majority of patients admitted inappropriately in this study the clinical decision unit would have met their needs. Following this nursing care only in the community or management by the patient's GP would have most frequently met the needs of the patients admitted inappropriately. A large proportion of delays in discharging patients from hospital were caused by delays in carrying out investigations or results being received. There were problems with the planning required for discharge and the transfer of patients to sub acute facilities for a large proportion of patients. Three case studies of patients who had been admitted inappropriately showed that there can be a multitude of factors that may lead to a patient being admitted inappropriately, including social circumstances, time of day, unavailability of services, concerns over safety and patient preferences for care.

CHAPTER 4: PHASE II -
CLINICIAN PERCEPTIONS OF INAPPOPRIATE ADMISSIONS AND
LENGTHS OF STAY

OVERVIEW

As discussed in Chapter two, many studies exploring appropriateness of admissions and/or length of stay fail to explore the wider causes and solutions in-depth. Chapter three highlighted a number of alternatives to admissions (when they were deemed inappropriate) and a number of actions that would facilitate an appropriate length of stay, however it is not clear why these services/actions are not accessed/undertaken. Furthermore, following a systems theory framework it is important to understand the relationships and interdependency between the various parts of the acute care/community sector. These relationships cannot be examined, however, by quantitative methods alone. A qualitative examination of the perceived causes of, and solutions to inappropriate admissions and lengths of stay amongst patients with long term neurological conditions (LTNCs) was therefore undertaken.

The study design including the method of data collection and analysis is given in section 4.1. The findings of the study are presented in section 4.2 and discussed in section 4.3 and the chapter culminates with a discussion (section 4.4).

4.1 INTRODUCTION

In order to examine the wider causes of inappropriate admissions and inappropriate lengths of stay clinicians were recruited to take part in a focus group. The participants included in the study were clinicians working for either Derby Hospitals NHS Foundation Trust or Derbyshire County NHS. Data were collected through two focus groups, one comprising a multi-disciplinary group of clinicians and the other with neurological clinicians only.

4.2 METHODS

4.2.1 Aims

1. To examine, in depth, the perceived causes of inappropriate admissions and lengths of stay where a delay was experienced (referred to as delayed discharge to aid clarity in this chapter).
2. To explore practical solutions or strategic changes which may reduce the occurrence of inappropriate admissions and/or inappropriate lengths of stay.

4.2.2 Participants

Eight clinicians were recruited to take part in two focus groups, three men and five women. The composition of the focus group was considered carefully. The participants were selected in order to ensure (a) the focus group represented clinicians who were involved in the care of patients with LTNCs, (b) represented primary and secondary care clinicians, (c) represented a variety of medical specialities. Clinicians representing the specialities: care of the elderly, respiratory medicine, neurology, general practice and acute care were recruited. In order to ensure that clinicians were familiar with the functioning of the Hospital Trust and available services, participants had to have been employed by the Trust for a minimum period of a year.

4.2.3 Data collection

Data were collected through two focus groups. See Table 30 for details of each participant's occupation and ID number. The focus groups were guided by a brief schedule designed specifically for the study. The schedule was flexible in order to allow discussion of issues that were relevant to the topic. The schedule consisted of four topics which related to the aims of the Phase II:

- Identify perceived causes and issues relating to inappropriate admissions/lengths of stay;
- Examine possible interventions;
- Consider intervention suggested by members and potential barriers to implementation;
- Discuss potential barriers to implementation and practical considerations.

The schedule was not piloted prior to use. The areas for discussion aimed to add further depth to the findings of Phase I and therefore directly reflected the overarching aims of Phase I: To determine (a) the causes of inappropriate acute hospital admissions and lengths of stay for people with a LTNC/s condition(s) and (b) the types of services/actions that may facilitate an appropriate admission and length of stay.

All participants were given a copy of the schedule prior to the focus group meetings (see Appendix 7) and participants were asked to consider the topics listed in the schedule.

Table 30: Occupation and ID of each focus group member

Clinician	ID Code
<i>Focus group 1</i>	
GP	1
Nurse consultant for older people	2
Acute care charge nurse	3
Consultant in respiratory medicine	4
<i>Focus group 2</i>	
Specialist neurology nurse	5
Epilepsy nurse (community based)	6
Consultant neurologist	7
Parkinson's disease nurse	8

4.2.4 Procedure

Clinicians who were eligible for inclusion were selected at random and sent an invitation to take part in the study via email. Invitations were sent out during the first two weeks of December 2006. The email gave a brief explanation of the study and outlined the aims of the focus group. Clinicians who expressed an interest in participating were sent an electronic copy of the study information sheet and were asked to consider the information for a minimum of 24 hours (see Appendix 8). They were also asked to provide a date during the month of February in which they could attend the focus group. Those who agreed to participate were asked to sign a consent form agreeing to take part in the study and for the meeting to be recorded digitally (see Appendix 9). The process of selecting clinicians at random and emailing the invitation was repeated until the sample was achieved. Following unsuccessful recruitment of

a GP, GPs geographically closer to the hospital and known to the study team were purposefully selected and approached.

4.2.5 Analysis

With the permission of all participants the focus group meetings were recorded. The meetings were then transcribed verbatim. Focus group transcripts were analysed using the method of thematic content analysis. For a full description of thematic content analysis please see section 3.2.10. All those who participated were given an opportunity to review the results and gave permission for quotes to be used. Approval for the study was obtained from the Derby National Research Ethics Committee (NREC).

4.3 FINDINGS

4.3.1 Causes of inappropriate admissions and delayed discharges

Many of the themes discussed by members of the focus groups were interrelated, however, the issues focused primarily on the following broad themes: the admitting (generalist) clinician's lack of knowledge of the patient or the condition; patient preferences; a lack of knowledge by secondary care clinicians of how to manage patients with Parkinson's disease (PD); a lack of health and social care resources; communication difficulties between primary and secondary care clinicians; and the perceived benefits of admission to hospital.

Admitting clinicians

The decision making processes admitting clinicians used was thought to have a direct impact on the appropriateness of some admissions. Clinicians who were not familiar with the patient (such as 'out of hour's staff') were thought to act conservatively when managing patients with LTNCs and as a

consequence would admit patients to hospital inappropriately. This conservative approach was thought to be attributable to the fact that visiting clinicians were unfamiliar with the patient's baseline state of health and were therefore more cautious. It was explained that people with LTNCs frequently had physical and mental impairments, which can fluctuate and vary in type and severity. Clinicians who were unfamiliar with the patient may mistakenly interpret the patient's problems as acute rather than chronic, and therefore have chosen to admit patients to hospital. Also, due to the complexity of LTNCs, it was felt that clinicians who were not trained in, or familiar with, LTNCs acted cautiously when attending to a patient in the community. The quotes presented below typify the issues discussed.

"You've got clinicians who, although are highly trained, don't particularly know the patient and don't particularly know the circumstances and have to make an on the spot decision based on what's in front of them.....and therefore make quite appropriate decisions in terms of the clinical illness they see, but don't know the background and don't know what the patients have coped with before." (ID 2)

"Some of these conditions are quite specific...when I was working with stroke patients. For instance we worked out that the average GP maybe saw one, or no more than two stroke patients per year, that's it. So a lot of these things like MS [multiple sclerosis] and MND [motor neurone disease] you might see one patient a year or you might never see motor neurone disease... you're often dealing with clinicians who have very limited knowledge." (ID 2)

Patient preferences

An important factor that was thought to have an impact on a clinician's decision to admit a patient to hospital was the patient's preferences for care. It was believed that the costs associated with respite or long term care to a nursing or residential home often acted as a disincentive and as a consequence patients would prefer admission to hospital (which was free) to a stay in a nursing/residential home. It was felt that such preferences could lead clinicians to admit patients to hospital, to reflect patient preferences, when they did not require acute care.

"Also the other thing is that the patients don't really like being admitted to residential or nursing homes by us [GPs] because of the cost implications. If they've got assets of more than £60,000 they have to pay a substantial amount. So a hospital admission is certainly a cheaper option for the family. That's low on my list of priorities but I think it colours the relatives thinking sometimes." (ID 1)

Secondary care clinicians

Once patients had been admitted to hospital it was felt that the management of PD patients whilst in hospital was frequently inadequate. The participants in the 'neurological focus group' believed that there was a particular problem with PD patients being admitted inappropriately and experiencing inappropriate lengths of stay. The PD specialist nurse detailed how many PD patients were admitted to hospital because secondary care clinicians were unaware of how to manage PD patients. Furthermore, once admitted, patients often experienced problems unrelated to their admitting diagnosis as they rarely received their medication on time, despite appeals from relatives. It was explained that PD patients were often dependent on a strict regimen of drugs. One participant explained that it was difficult for such a strict regimen

to be followed on an acute ward due to time limitations of staff and set drug rounds. Also, in addition to problems with medication the participants felt that relatives' views were not listened to by the nursing staff. Given the lack of knowledge regarding PD management, it was felt that the input of relatives was vital; however, this did not appear to occur.

"Parkinson's patients I think are often admitted because when they actually turn up at hospital with a problem no one knows what to do with them so they are just kept onto a ward." (ID 8)

It was felt in order to ensure that the medication needs of patients with PD admitted to hospital are effectively addressed, staff would need to be educated to appreciate the importance of ensuring PD patients receive their medication on time. Also, staff would need to work with patients and their families to help them manage their own medication.

"But this is more to do with the education with the nurse the staff on the wards knowing the importance of the medication for people with Parkinson's disease." (ID 8)

Health and social care services

Causes of inappropriate admissions and inappropriate lengths of stay were viewed as multi-factorial. In addition to the factors already discussed, which relate to individual clinicians, the focus group members discussed structural factors. Participants discussed how a lack of health and social care services frequently led to patients being inappropriately admitted and to delays in discharge. Specifically, there were a lack of community services that offered alternatives to admission, delays in the provision of health and social services required for patient discharge, limited neurology cover at Derby Hospitals, a lack of sub acute services and a lack of specialist nurses.

A lack of health and social care resources in the community was thought to be one of the main causes of inappropriate admissions and delayed discharges. Specifically, there was a lack of resources which could be accessed in an urgent fashion (within one day). Due to associated problems of some LTNCs (poor functional status, cognitive impairment, and susceptibility to infection) patients were reported to deteriorate rapidly if left untreated. It was believed that in situations where services could not be accessed rapidly there was frequently no other choice but to admit patients to hospitals. Alternatives to admissions in these situations would therefore need to be provided if inappropriate admissions were to be avoided.

"I mean even Intermediate Care now they've got, they've only got a buy to respond in 72 hours. I [GP] referred somebody on a Monday once and went back on the Wednesday, and I thought you know, it would all be sorted and she was just lying there on the settee in the same way." (ID 1)

"If you've got somebody who is on the brink, yes they don't need acute services but they could tip very easily... You would need a quick response resource available to us. So the resources are out there but sometimes because of capacity there's just not enough." (ID 2)

"You have got to provide them [admitting clinicians] with what they should do instead of admitting them...and whether that's next day access to clinic appointments or access to me [specialist nurse]... or rapid access you know in out patients, like day hospitals or something like that." (ID 8)

In terms of delayed discharge, patients with LTNCs were perceived as frequent users of health and social care services. Upon discharge from hospital, patients often required increases in the packages of care they were receiving (prior to admission and/or additional services). Limited community health and social care resources, with community physiotherapy and community occupational therapy were noted as particularly scarce resources in Derbyshire, which led to delays in provision of care and therefore delays to discharge.

Also, within Derby Hospitals NHS Foundation Trust, neurology cover was limited to four days of the week. If a patient was admitted on a day when there was no neurology cover and had presented with a neurological complaint that was deemed critical the patient would be transferred to Nottingham University Hospital (known previously as Queens Medical Centre). However, patients who were admitted to Derby Hospitals with a neurological complaint and did not require a transfer may have to await neurological review prior to decisions regarding discharge being made, which could take several days.

"In a neurology setting... we are here Monday, Tuesday, Wednesday and Friday... and Thursday there is no neurological group here... and Saturday and Sunday there isn't so they will have to rely on the transfer to QMC [Queens Medical Centre] so if someone wasn't quite poorly enough... and if some of our registrars are a little bit more reticent than I was when I was a registrar about taking the patient over [to QMC] then somebody could languish for a while, three days." (ID 7)

Due to the associated functional and physical problems arising from LTNCs, once acute care had finished patients would frequently require a period of 'convalescent nursing care'. Due to the structuring of services in the

Derbyshire region, there were limited services that provided 'sub acute care'. Therefore patients who required nursing care, yet did not require acute care, frequently remained in hospital to convalesce. Also, the availability of rehabilitation beds was perceived as limited due to poor uptake of beds in community hospitals by GPs.

"Although Intermediate Care was looked at in terms of rehabilitation the drawback with Intermediate Care was that it was funded at a residential care level... any patient that is in any of our wards, including MAU [medical assessment unit], who need that modicum of nursing while they're are improving can't go there, because that modicum of nursing is not available... We need a service that will provide a small amount of nursing input, perhaps for a week or two weeks or six weeks." (ID 2)

One participant (ID 7 - consultant neurologist) described how specialist nurses were often fundamental in ensuring that the admissions of patients with LTNCs were prevented and when admission occurred they were cared for appropriately in hospital and did not experience prolonged hospital stays. The participant felt that in his opinion through preventing inappropriate lengths of stay, specialist nurses often led to decreased hospital costs. However, despite this they were often the victim of budget cuts leading to reduced numbers of nurses. Increases in the number of specialist nurses would be a means of reducing delayed discharges, and preventing admissions from occurring.

"So with a struggling financial trust like QMC ... the first places that were hit was specialist nurses... talking about shooting yourself in the foot this is unbelievable because this costs more..... it's specialist nurses who made the whole system tick. You know a referral to the PD nurse and it will all be sorted out within 24 hours and everyone will have the right medication and it would be their chest infection that would be the problem and not the PD. And you just know that there is not going to be a second or third inpatient epilepsy specialist nurse. It's definitely how your service would run better from a neurological point of view." (ID7)

Communication between primary and secondary care

The participants went on to discuss the connectedness of the health care system and how primary and secondary care worked together. The participants discussed communication difficulties as a cause of inappropriate admissions and lengths of stay.

The type, level and responsiveness of communication between departments and key individuals were thought to have a significant impact on the timeliness and outcome of many hospital discharges. Participants who worked in the community felt that there were frequent problems with communication between secondary and primary care. Clinicians involved in the day to day care of the patients were rarely informed when a patient had been admitted. The participants who worked in primary care felt that their input into the patient's inpatient management would aid a timely discharge.

"There's never any communication backwards of when someone's been admitted and why they've been admitted... Because it is always us and them. We're in primary care, you're in secondary care and never the twain shall meet." (ID 6)

In line with this it was suggested that an alert system, where relevant clinicians were informed of a patient admission (which was currently being used by one of the participants) should be made more widely available.

"We are trying to develop a protocol that says when those patients come in one of us will get notified, so we can go and check everything is alright... That's what we've been thinking of doing just because of the deterioration that happens [whilst in hospital] because their bowel management goes off and their positioning goes and they deteriorate." (ID 2)

The benefits of admission to hospital

Whilst participants were in agreement concerning the causes of inappropriate admissions and lengths of stay, they expressed different opinions when asked to consider the seriousness of inappropriate admissions. One participant (an acute care clinician) (ID3) believed that although some hospital admissions were inappropriate on medical grounds they often enabled a problem to be resolved quickly. The GP participant (ID 1) agreed that GPs often felt reassured when patients had been admitted to hospital for this very reason. However, a hospital respiratory consultant (ID 4) highlighted that whilst admission may have this benefit, inappropriate admissions often lead to elongated hospital stays. Another member (ID 2) raised the issue of how acute bed resources should best be used. They believed that there was often disagreement between clinicians about what care should be provided in an

acute setting and what should be provided in a community setting. It was emphasised by several members within the group that unless all problems were addressed (whether it be in an acute or community setting) patients would be readmitted to hospital.

"I sometimes think that perhaps we ought to look at it from the other way around... Bring them into to hospital, sort them out as best you can, but then make the discharge of the patients a bit swifter and a bit easier rather than making the admission more difficult. I sometimes wonder if that wouldn't be a better way." (ID 3)

"We are very good at dealing with the presenting problem, but particularly with geriatrics, underlying that presenting problem is a whole lot of other issues... I'm often saying to colleagues 'but I know you've dealt with the problem but this and this is an issue and unless we can sort it out the patient is coming back' and he often, quite appropriately, says to me 'but that shouldn't be our problem' that should be the GPs problem. These things should be sorted in the community. I can see entirely what he is saying, how should we best use our beds and the resources in an acute hospital?" (ID 2)

4.3.2 Strategies to prevent inappropriate admissions and delayed discharges

Once participants had identified the perceived causes of inappropriate admissions and delayed discharges they went on to identify strategies that might reduce such causes. Suggestions typically sought to improve communication and thus the relatedness of primary and secondary clinicians, specialist knowledge, and structural inefficiencies. Suggestions included: education sessions, summaries of specialist consultations retained in the

patients' homes, letters advising GPs of the appropriateness of future admissions and the provision of services including the introduction of sub acute services and auxiliary support for specialist nurses.

Education sessions for GPs

As outlined above, it was felt that GPs and out of hours staff often had a relatively limited exposure to, and therefore knowledge of, LTNCs. Providing opportunities to increase or update training in the management of neurological conditions was recommended as one method by which inappropriate admissions might be avoided. One participant (ID2) commented, however, that this type of post-registration education was already available to 'out of hours' staff and in her view, the issue of appropriateness was already a high priority. In terms of GP education, concerns were raised about how to target and incentivise those who would benefit most from education. The participants felt that in their experience the GPs with the greatest need for training in this field were least likely to attend educational sessions. It was suggested that targeting GPs with high numbers of patients with LTNCs, or where there were high admissions of such patients may be effective. In practical terms GPs were noted to have specific time dedicated to continued learning and it was felt that this time would allow GPs to attend an education session/s.

"Well I think a general education plan would be useful for the out of hour's staff. I mean a lot of patients don't even see a doctor now. Sometimes the call's triaged and they're advised to ring for an ambulance. So I think there is room for education there." (ID 1)

Summaries of specialist consultations

It was felt that many people were admitted inappropriately because out of hours clinicians were unfamiliar with the patient's condition and current health state. A participant who was a respiratory consultant (ID 4) believed that if

patients retained summaries of their inpatient and outpatient consultations then the decisions out of hours staff made would be better informed.

"One thing we could do as clinicians is just copy letters of erm, letters we write to GPs, for patients with very difficult or specialist conditions... Because what happens sometimes when you are assessing a patient, the diagnosis is not clear, you don't know what the patient has been like... it is... very useful for whoever is assessing them... If you have four letters ... telling you this patient has been very stable it's very different from four letters saying the patient is clearly declining." (ID 4)

In practical terms it was suggested that these letters could be produced simultaneously when letters to the patient's GP were produced, which would prevent additional work and costs. Concerns were raised however as to how such letters would be integrated with existing records (e.g. district nursing/community matron records). Consideration would also need to be given to the confidentiality of the letters and what would happen in situations where patients had not informed their family about their condition or related issues.

In line with this, written management plans, which were currently being developed by community matrons in the area, were thought to be an effective way of reducing inappropriate admissions. Management plans, like consultation summaries would aid clinicians unfamiliar with the patient to make informed decisions regarding admissions.

Appropriateness of future admissions

Informing GPs about the appropriateness of admissions was suggested as a potential strategy to reduce inappropriate admissions in the future. It had

been discussed how there was little communication between primary and secondary care physicians. Feedback regarding the appropriateness of admission and whether patients required future admission if the complaint were to reoccur would educate GPs as to when admission was and was not necessary for a specific patient. However, it was promptly raised by the participant who was a GP that primary care clinicians are often unaware of the admitting circumstances and would frequently only have limited information to base their decision of appropriateness on, further highlighting the communication problems between primary and secondary care provides. It was felt that such a letter would not be received gladly by the GP community and may be viewed as a criticism of their medical ability. The time it would involve to complete the letter would also act as a barrier. The letter would need to be detailed enough for the judgement to be justified yet brief enough to keep time to complete minimal. It was also felt that as patients frequently 'pushed' for admission, if they were to be informed that future admissions were not recommended, this may cause distress and anger.

"... the medical staff aren't with the patient when they are admitted so they don't know the whole circumstances. All we have time to do is really a brief letter. We don't put all, you know, the circumstances on... so I think we'd be rather irritated." (ID 1)

"I've been a GP for 25 years and I wouldn't want a house officer to tell me something is inappropriate." (ID 1)

Sub acute facilities

A paucity of sub-acute services often resulted in delayed discharges. It was suggested, therefore, that beds could be allocated to provide 'sub acute' care, in conjunction with relevant care pathways. The pathway could depict at what stage of the admission a patient's care should transfer to a 'sub acute' facility

and this would allow patients to be 'stepped down' to a less resource intensive environment:

"There are a number of patients who could be stepped down, not for rehab, but for their ongoing clinical management, so almost straight away from MAU, or even from GPs straight in, who don't need acute hospital management ... we need to look at pathways that suggest patients could go to a community hospital environment, not for rehab but for Intermediate Care clinical management ..." (ID 2)

It was suggested that nursing homes and two community hospitals in Derbyshire may be suitable environments to provide sub acute care. Also a facility known as The Grove (at the time of writing this) based in the grounds of one Derbyshire Royal Infirmary was felt to be appropriate. It was noted that currently the beds at the community hospitals and at the Grove were assigned primarily for rehabilitation, as a consequence patients with few or no rehabilitation needs were excluded from the service. Participants emphasised that due to the specific needs of patients with LTNCs it would be essential to ensure staff were trained appropriately and equipped to deal with the needs of such patients.

"... you need slightly more skill in terms of positioning, in terms of preventing complications with people with long term neurological conditions than you would for an average older person or an average young person. The skill ratio is potentially missing, you end up disadvantaging the patients as much as when you bring them into hospital because they completely ignore their bowel management, they completely ignore their positioning and they end up a lot worse than they generally are." (ID 2)

In order to ensure that providers of sub acute care were supported adequately community matrons and neurological clinicians were suggested as potential sources of support. Participants believed there would be a large demand for sub acute services. In order to ensure that such a service did not become overwhelmed with numbers an eligibility criteria would need to be employed to ensure patients who would benefit most received the service. Specifically, the eligibility criteria would help to ensure the service catered for patients who required short term care to enable them to recuperate to their previous functioning rather than patients who required long term care and would be unlikely to return to their original place of residence following sub acute care.

Specialist nurse support

In addition to this, it was suggested that to maximise the impact and efficiency of specialist neurological nursing services, auxiliary nurses (now referred to as health care assistants), could be trained to provide a basic level of care to patients with LTNCs alongside specialist nurses. Auxiliary nurses, it was suggested, could care for stable patients allowing specialist nurses to concentrate their (limited) resources towards unstable patients. In order to support specialist nurses effectively they would need to be trained in, for example, the basic principles of management for LTMC such as suitable positioning, feeding and hydration. However, it was acknowledged that such a service would involve considerable resources.

"We need to also differentiate between those who obviously need nursing home care in the long term and therefore should go straight to a nursing home. To go into that Intermediate Care environment would be inappropriate." (ID 2)

"... giving all the nurse specialists one or two auxiliary nurses to work with them so that ... the patients who were stable and just needed monitoring could be monitored. They [nurse specialists] could deal with the very high risk patient. They could also free up time to go into things like residential care, nursing homes, monitor some of those patients and do more of their proactive work ..." (ID 2)

4.4 DISCUSSION

The findings of this study highlight a number of areas relating to service provision and patient care that can contribute to inappropriate admissions and delayed discharges. The clinicians involved in this study demonstrated that there is an awareness of, and a concern regarding, inappropriate admissions and delayed discharges. Key areas impacting the appropriateness of admission to hospital include the availability of services in the community, the time in which they can respond to requests and the difficult task admitting clinicians are faced with (e.g. unfamiliarity with the patient and their condition) when making decisions regarding patient care. Slow statutory provision has been reported previously as a cause of inappropriate lengths of stay and was perceived to impact on appropriateness of admission for LTNCs patients (74). Limited accessibility of social care services is perhaps one of the most consistent causes of inappropriate admissions/lengths of stay reported in the literature (6, 71, 88, 160-162). Participants in this study confirmed that provision of social care services remains a problem despite the reimbursement system introduced by the 2003 Community Care Act. Provision of social services to prevent delayed discharge can be further complicated by the changing needs, sometime rapid, of patients with LTNCs. The individual skills of referring clinicians, particularly GPs have found to be a

major determinant of referral behaviour and views expressed by clinicians in this study confirm that knowledge of long term condition management and assessments of a patients health state are determinants of referral behaviour (164, 165, 185).

Participants described how patients with LTNCs could be resource intensive due to associated impairments. Limited capacity of therapeutic services, such as occupational therapy and physiotherapy were also a problem. It was felt that when patients with LTNCs were admitted to hospital they often did not receive specialist care, particularly if they remained on a general medical ward. Without specialist care patients with LTNCs suffered problems which were additional to their admitting complaint, highlighted by the problems faced by PD patients. The limited capacity of specialist clinicians, for example specialist nurses and poor communication between primary and secondary care services, frequently meant that such advice was not accessed or is inaccessible. Transference of information about patients across health care settings has been reported as a problem in the past and was confirmed by this study (166, 167)

The suggestions to reduce inappropriate admissions related to improving the care of patients in the community and/or medical decisions made in the community which frequently relied on improvements in access to information and communication. Training of out of hour's staff and GPs, patient held medical summaries and letters communicating the appropriateness of future admissions were also identified as strategies to prevent inappropriate admissions. The strategies were perceived as involving relatively few costs, with the exception of auxiliary support for specialist nurses. Participants identified a number of issues relating to the feasibility of the suggestions, for example the need to target clinicians where training/education would be the most beneficial and how to maintain confidentiality when producing patient

retained specialist consultation summaries. The results produced by this study highlight key issues and areas where intervention is needed. However, it would be necessary to explore patients preferences for care and explore further the barriers that prevent services being accessed (to prevent an inappropriate admission). A full discussion of Phase II findings, along with the finding of Phase I and Phase III is given in Chapter 6.

Limitations

There were a number of study limitations which are discussed below. The limitations centre on the composition of the focus groups and the number of participants in each focus group.

The multi-disciplinary focus group did not contain a neurological physician or a care of the elderly physician. Whilst a care of the elderly physician had agreed to participate they were unable to attend on the day, whereas a neurological physician could not be recruited to take part in a focus group during the month of February (despite invitations being sent to seven neurologists). Having a neurological and a care of the elderly clinician would have added another perspective and therefore further enhanced the discussion. However, given the difficulties with recruitment, the separate focus group with neurological clinicians ensured that the views of neurological clinicians were obtained nevertheless.

The number of participants in a focus group is recommended to be between eight and 12, our study numbers are therefore relatively low. When focus group numbers are low there is a risk that one or two participants will dominate conversation (213). In this study to address this issue participants were provided with a schedule of topics to be discussed, were asked to consider the information in preparation for the study, and were asked if they had contributed all they had hoped prior to the end of discussions. It was

evident that particular members of the group appeared more confident in discussing the area of inappropriate admissions and delayed discharge and this was reflected in the contribution of members to the group discussion. Given the small number of participants a technique such as the Nominal Group Technique (67), could have been used to ensure a relatively equal distribution of contributions by participants. However, allowing the discussions to flow rather than forcing responses provided a more naturalistic environment (to the extent that is permissible within a focus group). Also, the focus group was designed to provide usable and practical suggestions for strategies to prevent inappropriate admissions. It was therefore more important to obtain descriptions of the types of interventions perceived as useful rather than who was providing them. It is also acknowledged that the area directly related to member's knowledge of inappropriate admissions/lengths of stay and LTNCs. Knowledge of such areas may not have been equal throughout the group, the contribution of those with greater knowledge would therefore be expected to be greater.

4.5 CHAPTER SUMMARY

The results of this study focus mainly on the causes of inappropriate admissions and potential interventions to reduce the occurrence of such admissions. Key causes of inappropriate admissions as perceived by clinicians included the decision making processes of admitting clinicians, the lack of community services particularly those that can be accessed urgently and sub acute facilities. Limited exposure to patients with LTNCs was thought to lead to conservative management strategies, generalist clinicians would benefit from education sessions examining the appropriate management of such patients. Furthermore, a summary of specialist consultations that had taken place with the patient would further inform generalist clinicians and out of hours clinicians particularly of appropriate management strategies. It was suggested by acute care staff that communicating the appropriateness of an admission to GPs in retrospect might aid their decision making in the future. However, there were a number of objections to this. Addressing the shortfall in the provision of sub acute facilities and the introduction of specialist auxiliary roles to work alongside specialist nurses were also suggested interventions.

**CHAPTER 5: PHASE III -
BARRIERS TO SERVICE USE**

OVERVIEW

A key finding reported in Chapter three and Chapter four was that patients were admitted to hospital despite the existence of non acute services that could meet their needs. It was therefore felt necessary to determine what was preventing non acute services from being accessed to prevent inappropriate admissions. Following a systems theory framework this allowed the interdependency and relationships of the various parts of the acute care/community sector to be explored further. Participants recruited to take part represented (a) those clinicians who are involved in the decisions to admit patients to hospital and (b) patients with conditions representative of those that experienced inappropriate admissions disproportionately in the previous study (Phase I).

The study design and methods of data collection are described in section 5.2 and details of the analysis are outlined in section 5.2.5. The findings of the study are presented in sections 5.3 – 5.5 and are discussed in section 5.6. The chapter concludes with a summary (section 5.7).

5.1 INTRODUCTION

In order to examine potential barriers to the access of non acute services to prevent a patient with a long term neurological condition (LTNC) from being admitted to hospital, the views of clinicians and of patients with a LTNC were obtained. Clinician participants included community matrons, emergency care practitioners, general practitioners (GPs), accident and emergency (A and E) clinicians and medical assessment (acute care) clinicians. Patient participants included those with multiple sclerosis (MS) and Parkinson's disease (PD).

Both quantitative and qualitative data were collected via an online questionnaire and qualitative data only via in-depth interviews.

5.2 METHODS

5.2.1 Aims

Overall aim

1. To determine the barriers to use of existing health, social or community services for patients with LTNCs.

Specific aims

1. To determine the barriers to use of existing health, social or community services for patients with LTNCs from a clinician's perspective.
2. To determine the barriers to use of existing health/social or community services for patients with LTNCs from a patient's perspective.
3. To determine patient preferences for care when an exacerbation occurs.
4. To explore potential explanations for the disproportionate occurrence of inappropriate admissions amongst patients with MS and PD from a clinician's perspective.

5.2.2 Participants

The participants recruited to take part in the study are described below. In order to increase clarity the participants are described according to the method of data collection they contributed to.

Clinician participants completing a questionnaire

All Derbyshire GPs (n=530), emergency care practitioners (n=30), community matrons (n=36), A and E clinicians (approximately n=60) and acute care clinicians (n=55) working in the Derby Hospitals NHS Foundation Trust

medical assessment units (MAU) were invited to complete a questionnaire. The occupational groups were selected on the basis that they represented the clinicians who would (a) access services to prevent admissions and would therefore have personal experience of barriers to service use, (b) make the decision to admit a patient. The responses of a minimum of 100 clinicians were sought.

Clinician and patient participants completing an in depth interview

A subset of the above clinicians (n= 11) were recruited to take part in a semi structured in-depth interview. See Table 31 for details.

Table 31: Clinician participant occupation and ID code

Occupation	ID Code
Acute care consultant	1
Acute care charge nurse	2
Acute care charge nurse	3
Accident and emergency consultant	4
Accident and emergency charge nurse	5
Community matron	6
Community matron	7
Community matron	8
Emergency Care Practitioner	9
General Practitioner	10
General Practitioner	11
General Practitioner	12

Please note that the ID codes given above do not relate to those given in Chapter 4 (Phase II), the two samples are independent of each other.

Nine patients were recruited and were asked to complete a semi structured interview. Findings from the prospective study conducted previously (see Chapter three) found that participants with MS and PD frequently experienced inappropriate admissions and/or inappropriate lengths of stay, in comparison to those with other LTNCs. Also, in order to examine potential

barriers to use of services designed to prevent admission to hospital, it was felt that patient participants should have a recent experience of being admitted to an acute ward (e.g. general medicine) for unscheduled care. Therefore, in order to be eligible to participate in the study, patient participants needed to have a diagnosis of either MS or PD, and to have been admitted acutely (referring to an unplanned admission to an acute ward) to hospital in the past year.

Patients diagnosed with PD, who attended a PD clinic at Derby Day Hospital, were approached to take part in the study. Patients with MS who were patients of the Derby Hospitals Neurological Rehabilitation and Review Team were also approached.

5.2.3 Data collection

Two methods of data collection were used in Phase III including in depth interviews and questionnaires.

a) Data collection method - in depth interviews

Qualitative data were collected through in-depth interviews. The content of the interviews e.g. topic areas, were guided by an interview schedule (see Appendix 10 and

Appendix 11).

b) Data collection method - questionnaires

A combination of both quantitative and qualitative data were collected via a questionnaire. The questionnaire sought to examine clinicians' experiences and/or perceptions of services key to preventing admissions of patients to hospital.

Questionnaire design

The questionnaire design was based on two previous studies which examined barriers to use of palliative care services (187, 188). The first study entitled 'Referral of terminally ill patients for hospice: frequency and correlates' explored how physician factors related to the referral, or non referral, of patients to palliative care services, specifically the questionnaire examined Physician specialty and physicians' knowledge of services (188). The second study entitled 'physicians' ratings of their knowledge, attitudes, and end-of-life-care practice' explored both knowledge and attitudes. Both studies were used to ascertain the topic areas of the questionnaire: knowledge, attitudes and experiences.

The specific services that were examined in the questionnaire were decided alongside clinical colleagues including a neurological rehabilitation medicine consultant, a neurological rehabilitation nurse and a neurological occupational therapist. Once the questionnaire had been designed a pilot study was completed (during Nov/Dec 2007). In total, eight clinicians completed the questionnaire: one neurological rehabilitation medicine clinician, one community matron, one occupational therapist, one A and E physician, one emergency care practitioner and two GPs. Those who completed the questionnaire were asked to focus their feedback around particular questions:

- Was the purpose of the questionnaire clear?
- Were the questions clear and phrased correctly, using correct terminology? (if not please note question number and what was unclear about it)
- Was the questionnaire easy to navigate?
- How did the questionnaire look? e.g. visually pleasing, distracting colours?
- How long did it take you to complete?
- Was the questionnaire too long?
- At what time point did you begin to lose interest (if at all)?
- If you were to reduce the length of the questionnaire which sections/questions would you remove?

The feedback centred around two main issues: (1) the questionnaire was too long and participants lost interest relatively quickly, (2) examples of the services were needed in case clinicians were unfamiliar with the service. The questionnaire was amended in order to take account of the comments, specifically the number of services examined were reduced and examples were given of the types of services. Also, the questionnaire was set up so that the results were collected after each page, ensuring that results would not be lost if the participants did not complete the whole questionnaire.

The final questionnaire was made accessible online and in paper format. The questionnaire consisted mainly of closed questions which examined clinicians' knowledge, perceptions and behaviours adopted with respect to service use (see Appendix 12). A small number of questions were open ended and examined clinicians' experiences of barriers to accessing services and actions that could improve access to services. In order to determine clinician participants' knowledge of what type of care/advice the services provided they were given a number of statements and asked to indicate which ones applied to the service (see question 2, Table 34). A representative of each service was contacted in order to determine the statements that would

appear in the questionnaire. However, without speaking with all providers the accuracy of the statements cannot be determined fully due to potential variations in service provision across the County, the statements were designed therefore to be as generic as possible. See Table 32 for details of the questions asked.

Table 32: Service specific questions

1.	Have you ever used the service?
2.	What does the service provide?
3.	How simple is the referral system?
4.	How much time does the referral process consume?
5.	How accessible is the service during working hours?
6.	How accessible is the service out of working hours?
7.	How quickly is the service provided after referral?
8.	Are your recommendations followed?
9.	Does the service deliver what is stated?
10.	Is the outcome of the service fed back to you?
11.	How instrumental is the service in preventing inappropriate admissions?

5.2.4 Procedure

The procedure, referring to the way in which participants were recruited and data were collected, is given below.

a) Procedure for questionnaire data collection

Where an email address was available, clinicians were invited to complete the questionnaire and were given a link to the online questionnaire and an information sheet (see Appendix 13). Completion of the questionnaire was deemed as providing consent to take part in the study. Invitations were sent during April and May. Completion of the questionnaire was deemed as providing informed consent. Clinician participants who consented to take part in a semi-structured interview were not invited to complete the questionnaire. This was in order to prevent bias occurring from completing the questionnaire (which indicates potential barriers) prior to the interview, and to prevent clinician participants becoming overburdened. Two weeks after the initial email was sent a second email was sent, this was in order to raise awareness of the study and increase the response rate.

GPs were sent a letter inviting them to complete the questionnaire rather than an email as informal consultation with GPs found that they are more likely to read a letter than an email. The letter provided the link to the questionnaire and an information sheet. A reminder letter was sent four weeks after the initial invitation was sent.

In the case of A and E or MAU nurses, who rarely access their email during working hours, a letter of invitation and paper copy of the questionnaire were provided. They were also provided with a self addressed envelope to return the questionnaire. Ethical approval was given by Derby National Research Ethics Committee (NREC) to conduct the study.

b) Procedure for in depth interview data collection

Two clinicians from each occupational group were selected at random and emailed an invitation to take part in the study. Initial invitations were sent in February 2008, however, recruitment continued until the end of May 2008. The email invitation consisted of an introductory letter describing the findings of the previous study (Chapter 3) and gave clinician participants an information sheet (see Appendix 14). Those who agreed to take part were then contacted to arrange a suitable time and place for the interview to take place. Those who agreed were asked to sign a consent form to take part in the study and for the interview to be recorded digitally (see Appendix 15). The process of selecting clinicians at random and emailing an invitation to take part in the research were repeated until the desired sample was achieved. Due to difficulties recruiting GPs purposive sampling was used and those familiar to the University of Nottingham Graduate Entry Medical School were approached. See section 6.5 for a discussion of recruitment challenges.

Patients meeting the study criteria were identified by a clinician involved in their care (either the Day Centre or the Neurological Rehabilitation Review Team). The Patient Administration System (PAS) was used to identify patients who had been admitted to hospital in the previous year. The responsible clinician determined if the patient was able to provide informed consent. In order to obtain a representative sample, patients with cognitive impairment were not excluded. In situations where the patient was unable to give informed consent their main carer was approached to take part in the study.

Patients were initially selected at random, and invitation letters were sent out to five patients with PD or their main carer and five patients with MS or their carer. Patients who were deemed able to provide informed consent by their caring clinicians were sent an invitation letter, an information sheet explaining the study (see

Appendix 16) and a consent form (see Appendix 15). When patients were deemed unable to provide informed consent their main carer was sent an invitation letter, an information sheet explaining the study (see Appendix 17) and an assent form (see Appendix 18). However, due to non response it was decided that patients would first be approached by a person involved in their care to determine if they were happy to consent for the researcher to contact them via telephone. For patients who provided their preliminary consent (for the telephone call) the researcher contacted the patients to explain the study. An invitation was then sent out to the patient explaining the study further. Patients and/or their main carer (where applicable) were provided with a pre paid, self addressed, envelope and were asked to sign and return the consent or assent form if they were willing to participate. Where consent was given an interview was arranged to take place at a convenient location and time for the patient. The semi-structured interviews, with the consent of the patient/main carer were recorded and transcribed verbatim.

5.2.5 Analysis

a) Analysis of questionnaire data

Data were analysed using the Statistical Package for Social Scientists (SPSS) version 15.0. Descriptive statistics [means (\pm Standard Deviation), medians (Interquartile Range) and proportions] were used to describe clinician participants and summarise questionnaire responses. When examining barriers to service use responses of 'don't know' were excluded from the analysis. A sub-group analysis of data, according to occupational group, although beneficial, was not conducted. Rather, respondents views are reported together.

b) Analysis of in depth interview data

The interviews were recorded and transcribed verbatim. Thematic content analysis was used to analyse data. This is when the transcripts are read and data are summarised and assigned to analytical categories, referred to as themes (214). For a full description of thematic content analysis see section 3.2.10.

5.3 RESULTS PART ONE: FINDINGS FROM AN ONLINE QUESTIONNAIRE

5.3.1 Recruitment

Clinician participants were recruited from April to July, 2008. A total of 117 clinicians out of a possible 730 completed the questionnaire, a response rate of 16.5%. The highest response rate received was from the community matrons (27.7%) followed by A and E clinicians (21.6%). See Table 33 for further details.

Table 33: Response rate

Occupational group	Sample size	Number of respondents	Response rate (%)
GPs	530	77	14.5
A and E clinicians	60	13	21.6
Medical assessment unit clinicians	55	11	20.0
Emergency care practitioners	30	6	20.0
Community matrons	36	10	27.7
Total	711	117	16.5

5.3.2 Participants

The majority of participants were female (n=65), were aged 31-40 (n=47) and had been qualified for either 11-15 years (n=20) or 21-25 years (n=20), see Table 34 for further details.

Table 34: Characteristics of questionnaire respondents

	N	(%)
Gender		
Female	62	(53.0)
Male	55	(47.0)
Age (years)		
21-30	15	(12.8)
31-40	47	(40.2)
41-50	34	(29.1)
51-60	18	(15.4)
61+	3	(2.6)
Number of years qualified		
1-5	21	(17.9)
6-10	19	(16.2)
11-15	20	(17.1)
16-20	11	(9.4)
21-25	20	(17.1)
26-30	19	(16.2)
31+	7	(6.0)

Over a quarter (29.1%, n=34) of clinician participants had undertaken training in the management of patients with neurological conditions. Of those who provided details, the majority had undergone training through attending a conference (n=7), completing a short course (n=7), completing a postgraduate qualification/course (unspecified) (n=6), or completing a BMJ learning course (n=6).

5.3.3 Service use

Clinician participants were asked whether or not they had ever referred patients to any of the following services/places: Intermediate Care Service (ICS) services; physiotherapy (community only) (CP); occupational therapy (OT); social work (SW); community matron service; district nursing (DN)

service; specialist chronic disease nursing (SCN) service; community hospital (CH). The most frequently used service was district nursing (n=82, 85.4%), followed by OT (n=76, 76.8%). The least used services were specialist chronic disease nurses (n=31, 26.5) followed by the Community Hospital/s (n=32, 29.9) (See Table 35).

Table 35: Services used in the past

Service	Yes		No		Total	
	N	%	N	%	N	%
District nursing	82	(85.4)	14	(14.6)	96	(100.0)
Occupational therapy	76	(76.8)	23	(23.2)	99	(100.0)
Social work	72	(72.7)	27	(27.3)	99	(100.0)
Intermediate Care Services	55	(51.9)	51	(48.1)	106	(100.0)
Community matrons	36	(43.4)	47	(56.6)	83	(100.0)
Community Hospitals	35	(38.0)	57	(62.0)	92	(100.0)
Specialist chronic disease nurses	31	(26.5)	58	(65.2)	89	(100.0)

5.3.4 Services preventing inappropriate admissions

Clinician participants were asked to rate, using a scale of one to ten, how instrumental each service had been in preventing inappropriate admissions. Overall, district nursing services were deemed to be most instrumental in preventing such admissions whilst social work (4.00, 3.00-7.00) and specialist community nurses (4.00, 2.00-6.00) were the least (See Table 36).

Table 36: Perceived importance of services in preventing inappropriate admissions

Service	N	Median score (n)	IQR
District nurses	82	7.0	5.8-9.0
Intermediate Care Services	81	6.0	4.0-8.0
Community matrons	63	6.0	4.0-8.0
Occupational therapy	82	5.0	3.0-7.0
Community hospitals	52	5.0	2.0-9.0
Community physiotherapy	78	4.5	3.0-6.0
Social work	83	4.0	3.0-7.0
Specialist community nurses	56	4.0	2.0-6.0

5.3.5 Service specific barriers

Intermediate Care Services

Approximately half of the respondents (n=55, 51.9%) had used ICS in the past. A larger proportion of community matrons (n=8, 80.0%) and emergency medicine clinicians (n=8, 66.7%) had accessed ICS previously in comparison to the occupational groups surveyed. The GP (n=34, 49.3%) and acute care (n=3, 27.3%) sub-groups included the smallest proportions of clinicians who had used the service. Of those who had used ICS previously, 18 had used the service in the past year, 11 in the past six months, 15 in the past three months and six in the past year.

A total of 70 (59.8%) respondents provided explanations for what they thought ICS provided. Over one third of respondents (n=40, 34.2%), said they did not know what ICS provided. The majority of those who were able to answer, thought that the service provided personal care (n=46, 65.7%) and short term interventions (n=65, 92.9%), which is correct. Just over half thought correctly that the service did not provide domiciliary care (n=40, 57.1%). The majority of respondents knew that they did not provide ongoing

management (n=49, 70.0%). Half of the respondents (50.0%, n=35) thought the service did provide home adaptations.

Of those who were able to comment (n=69) the majority found referring to the ICS to be moderately (n=26, 37.7%) or very (n=22, 31.9%) easy. Similarly, the majority found it took only a small (n=33, 48.5%) or moderate (n=26, 38.2%) amount of time to refer to the service. The service was deemed moderately (n=30, 44.1%) or very (n=28, 41.2%) accessible during working hours. However, out of hours access was deemed to be difficult by the majority of respondents (n=11, 29.7%). Provision of ICS were perceived to be delivered moderately (n=23, 37.1%) or very (n=22, 35.5%) quickly. Only a small proportion of respondents commented on how frequently they felt their recommendations were followed (n=46), however of those that did three quarters (n=32, 69.6%) felt their recommendations were sometimes followed, and a quarter felt they were always followed (n=11, 23.9%). For the majority of respondents ICS delivered what they stated sometimes (n=28, 53.0%) or always (n=23, 43.0%). A third of clinician participants stated that the outcome of the service provision was reported back rarely or never (35.5%, n=22).

Community physiotherapy

Out of 101 clinicians two thirds had used CP (n=66, 65.3%). It was typically community clinicians who used the CP service. Many GPs and community matrons had used the service in the past, 87.3% (n=55) and 80.0% (n=8) respectively. None of the five emergency care respondents had used the service. Similarly, only two emergency medicine practitioners out of 13 and one acute care clinician out of ten had used the service. Of those who had used the service (n=66), 17 respondents had used it in the past three months, 15 respondents in the past six months and 11 respondents in the past month.

A total of 81 (69.2%) respondents described what they believed CP provided. Information about the number of respondents who did not know what the service provided is missing, due to an error with the online survey. A total of 36 respondents did not complete the information, a proportion of these people may have answered don't know. The majority of respondents correctly knew that the service provided rehabilitation therapy programmes (n=77, 95.1%), mobility advice (n=72, 88.9%), positioning and spasticity management (n=59, 72.8%). Respondents were less clear as to whether or not they provided respiratory advice with just over half of respondents stating that they did (n=46, 56.8%). Likewise 56.8% (n=46) thought correctly that they did not provide home adaptations. The majority knew that CP did not provide medication advice (n=72, 88.9%).

The referral system to CP was viewed as moderately (n=34, 48.6%) or very (n=22, 31.4%) easy. Few saw the referral process as hard (n=5, 7.1%). The time taken to refer was considered a small (n=36, 51.4%) or moderate (n=20, 28.6%) amount. The service was seen as moderately accessible by the majority of people (n=40, 62.5%) followed by very accessible (n=12, 18.8%). Only a few commented on out of hours provision (n=31) with most of them seeing the service as very inaccessible (n=23, 74.2%). The responses to the time take to provide CP service was variable, the majority thought it was neither quick nor slow (n=19, 29.7%), 17 thought it was moderately quick (26.6%) whereas 12 respondents (18.8%) thought it was moderately slow. For details of respondent's perceptions relating to how often: recommendations are followed, it delivers what is stated and it feeds back outcomes see Table 37.

Table 37: Summary of responses to questions 8, 9 and 10: Community physiotherapy

Question	Community Physiotherapy	
	N	%
Are your recommendations followed?		
Always	3	6.8
Sometimes	40	90.9
Rarely	1	2.3
Never	0	0
Does the service deliver what is stated?		
Always	14	25.9
Sometimes	38	70.4
Rarely	2	3.7
Never	0	0
Is the outcome of the ICS service fed back to you?		
Always	19	29.2
Sometimes	33	50.8
Rarely	11	16.9
Never	2	3.1

Occupational therapy

Over three quarters of respondents (n=76, 76.8%) had used OT in the past. In comparison to the other occupational groups surveyed community matrons (n=9, 90.0%) and GPs (n=52, 85.2%) had the largest proportion of clinicians who had used the service. Almost three quarters of acute care clinicians (n=7, 70.0%) and over half of emergency care clinicians (n=7, 53.8) had used an OT service. However, only one emergency care practitioner had used the service (20.0%).

Over two thirds of respondents (n=82, 70.1%) provided explanations for what they thought OT provided. A total of 15 (15.5%) respondents stated they did not know what the service provided. A large majority of respondents (n= 77,

93.9%) knew correctly that OT provided specialist home equipment and assessment or advice for home adaptations (n=78, 95.1%). Likewise the majority of respondents knew that occupational therapists did not provide benefit advice (n=75, 91.5%), funding for personal/domestic packages of care (n=69, 84.1%) or pressure care assessments (n=62, 75.6%).

Within Derbyshire OT services are provided by both the health service (inpatient and community) and by social services. Respondents were asked which service they were referring to. A total of 45 respondents were referring to community OT when they provided their answers, nine were referring to inpatient OT, six were referring to social services OT, five were referring to both and the remaining seven failed to state which service they were referring to.

For community OT the largest proportion found it was moderately easy to refer to (n= 23, 57.5%), followed by neither easy nor hard (n=10, 25.0%) to refer to. Over three quarters spent a small amount of time referring patients (n=23, 85.2%) whilst over half found the service to be moderately accessible during working hours (n=22, 56.4%) and two fifths found it neither accessible nor inaccessible (n=8, 20.5%). Of those who were able to comment out of hours the service was very inaccessible (n=9, 64.3%). The response time of the service moderately quick for a quarter of respondents (n=13, 28.9%), with a similar proportion finding it neither quick nor slow (n=12, 26.7%). The recommendations of clinicians were sometimes followed (n=21, 60.0%) or always followed (n=14, 40.0%) with no clinicians stating that recommendations were rarely or never followed. The majority of respondents stated that the service delivered what it stated sometimes (n=31, 88.6%) or always (n=4, 11.4%). Likewise the outcomes of the service were fed back sometimes (n=16, 40.0%) or always (n=14, 35.0%).

For the nine respondents who had used inpatient OT the majority stated that the referral process was very easy (n=6, 66.7%) and took a minimal amount of time (n=7, 77.8%). The service was very accessible during working hours (n=7, 77.8%) however out of hours was very inaccessible (n=6, 87.5%). Over half of respondents thought the service was provided very quickly (n=5, 62.5%) and three quarters thought that the recommendations of clinicians were sometimes followed (n=6, 75.0%). The inpatient OT service delivered what was stated always (n=5, 55.6%) or sometimes (n=4, 44.4%). Similarly, the service outcomes were fed back to clinicians sometimes (n=5, 55.6%) or always (n=3, 33.3%).

The findings relating to social services OT are not given due to the low numbers of clinicians commenting on the service. Also, the results of those who were referring to both community and social services OT are not given as their experiences/perceptions cannot be attributed to one service alone.

Social work (case management)

A total of 72 (72.7%) clinicians had used the SW service in the past. Community matrons (n=9, 90.0%), GPs (n=49, 81.7%) and emergency care practitioners (n=4, 80.0%) were the clinicians who had used the service the most. Acute care clinicians (n=3, 27.3%) and emergency medicine clinicians (n=7, 53.8%) had used the service the least.

A total of 86 (73.5%) respondents provided explanations for what they believed the service provided whilst 14 (12.0%) respondents stated they did not know what the service provided. A large majority thought the SW service provided assessments of need (n=80, 93.0%), which is correct. Over three quarters (n=70, 81.4%) correctly knew that social workers (case managers) identified care support for patients. A similar proportion (n=74, 86.0%) answered correctly that the SW service identified funding for care and

provided benefit advice (n=71, 82.6%). The majority of respondents knew that social workers (case managers) did not provide assessments for equipment (n=62, 72.1%) and every respondent knew correctly that they did not provide counselling (n=86, 100.0%).

The majority of respondents (n=36, 43.9%) found that referring to the SW service was moderately easy to refer to, however almost one fifth (n=16, 19.5%) found it was moderately hard to refer to. The time taken to refer to the service was considered a moderate (n=30, 36.1%) or short (n=26, 31.3%) time. The majority found that the service was moderately accessible during working hours (n=40, 47.6%), however a proportion (n=17, 20.2%) found it to be moderately inaccessible. Out of hours the majority of respondents found the service to be moderately accessible (n=18, 31.6%) or very inaccessible (n=18, 31.6%). The responses to the time taken to provide the SW service after referral were variable, over a third thought it was moderately quick (n=25, 35.2%) whilst a similar proportion thought it was moderately slow (n=23, 32.4%). Recommendations by clinicians were sometimes followed (n=42, 79.2%) and the service delivered what was stated sometimes (n=47, 85.5%). The outcomes of SW service provision were rarely (n=33, 28.2%) or never (n=21, 27.3%) fed back to clinicians.

Community matrons

A total of 36 clinicians had used the community matron service in the past. GPs had the highest proportion of clinicians who had used the service (n=32, 58.2%) whilst acute care clinicians had the lowest proportion with none using the CM service. Two of the 11 emergency medicine clinicians had used the service (15.4%). Likewise, two of the five emergency care practitioners had used the CM service (n=2, 40.0%).

A total of 64 (54.7%) respondents provided explanations for what they believed the community matron service provided. This section was inapplicable to the nine community matron respondents. The number of respondents who did not know what the service provided was missing, due to an error with the online survey. The majority of respondents stated that the community matron service provided medication management (n=56, 88.9%), which was correct. All of the respondents correctly knew that they provided chronic disease management (n=64, 100%). Over two thirds of respondents (n= 43, 67.2%) knew that the community matrons did not provide funding for, or arrange, packages of care. The majority of respondents thought that the community matron service provided specialist disease management (n=41, 64.1%) which was incorrect. Respondents correctly knew that they did not provide formal counselling (n=56, 87.5%).

Respondents, excluding community matrons themselves, felt that the community matron service was very easy (n=28, 54.9%) or moderately easy (n=10, 19.6%) to refer to. Time taken to refer to the service was deemed to be a minimal (n=23, 45.1%) or small (n=18, 35.3%) amount. Half of all respondents felt the service was very accessible during working hours (n=28, 50.9). Out of hours however the majority thought the service was very inaccessible (n=23, 74.2%). The majority of respondents thought the service was provided either very (n=22, 44.0%) or moderately (n=22, 40.0%) quickly. For details of respondents' perceptions relating to how often: recommendations are followed, it delivers what is stated and it feeds back outcomes see Table 38.

Table 38: Summary of responses to questions 8, 9 and 10: Community matrons

Question	Community matrons	
	N	%
Are your recommendations followed?		
Always	19	41.3
Sometimes	27	58.7
Rarely	0	0
Never	0	0
Does the service deliver what is stated?		
Always	23	48.9
Sometimes	19	40.4
Rarely	4	2.1
Never	1	2.1
Is the outcome of the ICS service fed back to you?		
Always	27	51.9
Sometimes	14	26.9
Rarely	6	11.5
Never	5	9.6

District nursing

A large proportion of all respondents had used the district nursing service (n=82, 85.4%). GPs had the largest proportion who had used the service (n=57, 98.3), in comparison to the other occupational groups surveyed. Over three quarters of community matrons (n=8, 80.0%) and emergency care practitioners (n=4, 80.0%) had used the service. Proportionally emergency medicine clinicians (n=8, 61.5%) and acute care clinicians (n=5, 50.0%).

Over three quarters of respondents provided explanations for what they thought the DN service provided (n=93, 79.5%). A small proportion (n=5, 5.4%) stated they did not know what the service provided. A large majority of respondents stated that the DN service provided pressure care (n=86,

92.5%) and dressing and bandage management (n=89, 95.7%), which was correct. The majority correctly knew that the DN service provided continence advice (n=82, 88.2%) and did not provide benefit advice (n=79, 84.9%). Due to an error with the online survey answers relating to whether or not the DN service provided care packages and funding arrangements were not collected.

Referring to the DN service for the majority of respondents was very easy (n=68, 78.2%), and took a minimal amount of time (n=56, 63.6%). The service was deemed very accessible during working hours (n=67, 77.0). The responses to the accessibility of out of hours provision were varied, the largest proportion thought the service was very accessible (n=29, 24.8%), followed by moderately accessible (n=23, 19.7%) and inaccessible (n=10, 13.9%). Over half of respondents found that the service was provided very quickly (n=57, 68.7%) after referral. Likewise, over half of respondents thought that the service delivered what was stated sometimes (n=40, 52.6%) whilst just under half stated it delivered what was stated always (n=35, 46.1%). The recommendations of clinicians were always or sometimes followed, 64.0% (n=48) and 36.0% (n=27) respectively. Feedback of service outcomes was provided always for the largest proportion of respondents (n=38, 46.9%) followed by sometimes (n=30, 37.0%) although a proportion felt the outcomes were never fed back (n=12, 14.8%).

Specialist chronic disease nurses

Approximately one third of respondents had used the SCN service in the past (n=31, 34.8%). Community matrons had the highest proportion of clinicians who had used the service in the past (n=7, 70.0%) followed by emergency medicine clinicians (n=5, 38.5%) and GPs (n=18, 34.6%). Only one acute care clinician had used the service (11.1%). No emergency care practitioners had used the service.

Due to an oversight with the questionnaire the correct statements for what the SCN service provided were not inserted, only incorrect statements. This was reflected in the fact that 32 respondents did not complete the information and of those that did 67.7% (n= 54) stated they did not know. The remaining results are not presented as they would be misleading.

The referral system to the SCN service was viewed as moderately easy (n=18, 48.6%) followed by neither easy nor hard or moderately hard (n=7, 18.9%). The time taken to refer to the service was deemed a moderate (n=14, 40.0%) or small (n=12, 34.3%) amount. In working hours the service was moderately accessible (n=19, 57.6%) followed by neither accessible nor inaccessible (n=10, 30.3%). No clinician thought it was very accessible. Out of hours the service was very inaccessible (n=15, 71.4%). Over half of the respondents thought the service was provided moderately quickly (n=18, 56.3%), whilst a quarter thought it was provided neither quickly nor slow (n=8, 25.0%) after referral. For details of respondents' perceptions relating to how often recommendations are followed, it delivers what is stated and it feeds back outcomes see Table 39.

Table 39: Responses questions 8,9,10 – specialist chronic disease nurses

Question	Specialist chronic disease nurses	
Are your recommendations followed?	N	%
Always	2	8.0
Sometimes	21	84.0
Rarely	0	0
Never	2	8.0
Does the service deliver what is stated?		
Always	7	24.1
Sometimes	19	65.6
Rarely	3	2.6
Never	0	0
Is the outcome of the ICS service fed back to you?		
Always	7	21.2
Sometimes	19	57.6
Rarely	3	9.1
Never	4	12.1

Community hospitals

Over a third of respondents (n=35, 38.0%) had used the community hospital. Emergency medicine clinicians and GPs had the highest proportion of clinicians who had used a CH, 46.2% (n=6) and 42.9% (n=24) respectively. No emergency care practitioners had used the community hospital, and only two community matrons (22.2%) and three acute care clinicians (30.0%) had.

Over half of respondents provided explanations for what they believed the community hospitals provided (n=66, 56.4%). One fifth of respondents did not know what the community hospital provided (n=16, 19.8%). The

majority of respondents answered that the CHs provided sub acute care (n=49, 74.2%), which was correct. A large majority correctly knew they provided rehabilitation therapy (n=61, 92.4%). Over half of respondents correctly knew that the CHs provided medical management (n=39, 59.1%) and did not provide long term management (n=38, 57.6%). The majority of respondents also correctly knew that the community hospitals did not provide acute care (n=54, 83.1%).

The responses to the complexity of the referral process were varied. The majority of respondents thought it was moderately easy (n=16, 33.3%), 11 (22.9%) thought it was very hard and nine (18.8%) thought it was moderately hard. The time taken to refer was considered a moderate amount of time (n=20, 42.6%) followed by a large (n=11, 23.4%) amount of time. The service in hours was moderately (n=19, 38.8%) or very accessible (n=12, 24.5%). Out of hours almost half of respondents found it was very inaccessible (n=18, 48.6%), however in contrast 13.5% (n=5) and 10.8% (n=4) found it to be moderately accessible or very accessible, respectively. The largest proportion of respondents felt the service was provided moderately quickly (n=15, 34.1%) followed by moderately slowly (n=11, 25.0%) after referral. The service delivered what was stated sometimes (n=24, 66.7%) or always (n=11, 30.6%). Recommendations were followed sometimes (n=27, 71.1%) or always (n=10, 26.3%). Likewise, the outcomes of the service were fed back to clinicians sometimes (n=16, 36.4%) or always (n=14, 31.8%).

5.3.6 Experiences and views of inappropriate admissions

Respondents were asked if they had ever had difficulty securing support for patients with LTNCs. Two thirds of respondents had experienced difficulties (n=60, 65.9%) and more importantly, of these, 48 (82.2%) felt that

difficulties in securing support had led to the patient being admitted to hospital when they believed they could have remained at home. In these situations respondents were asked what were the three main barriers to accessing the services required. A variety of barriers were given. The most noted barrier (n=17) was that there were not enough services available. A slow response from services was also a key barrier noted by 13 respondents and no out of hours provision was noted by nine respondents as a barrier. See Table 40 for further details.

Table 40: Barriers to accessing services

Barrier	Frequency
Lack of non acute services	17
Response time of non acute services	13
No provision for out of hours service	9
Knowing how to refer to the service required	5
Time taken to organise the services required	3
Knowledge of what the available services provide	3
Contacting and speaking with someone from the service	2
patient not eligible for the service	2
Patient demanding admission	2
Other	3
Total	59

Respondents were asked to indicate whether they: (a) strongly agreed; (b) agreed; (c) neither agreed nor disagreed; (d) disagreed or (e) strongly disagreed with a number of statements. The responses to the statement 'patients should not be admitted to hospital unless it is absolutely medically necessary' were varied. Whilst the greatest proportion strongly agreed (n=26, 28.6%) or agreed with this statement (n=25, 27.5%), 24.2% (n=22) neither agreed nor disagreed with it and 13.2% (n=12) disagreed. The majority of respondents disagreed or neither agreed nor disagreed that admission to hospital is the most prompt means of addressing medical issues, 35.2%

(n=32) and 24.2% (n=22) respectively. Respondents were relatively unified in their disagreement that admission to hospital was the most prompt means of addressing social issues, with 57.1% (n=52) strongly disagreeing and 26.4% (n=24) disagreeing. The majority of respondents (n=30, 33.7%) neither agreed nor disagreed with the following statement 'whenever possible I try to access alternative, non acute, services prior to admitting a patient to hospital' or agreed (n=27, 30.3%). The majority of respondents acknowledged that it was often easier to admit a patient to hospital than arrange provision of non acute services with 37.4% (n=34) and 20.9% (n=19) agreeing and strongly agreeing respectively. For the following statement 'I worry that specialist personal care cannot be provided as easily in a hospital setting' the majority of respondents neither agreed nor disagreed (n=36, 40.4%), however, a quarter agreed with this statement (n=23, 25.8%) and a fifth disagreed (n=17, 19.1%). Only a minority of clinician participants agreed (13.7%, n=16) or strongly agreed (9.4%, n=11) that they worry that specialist medical care cannot be provided as easily in a community setting.

Respondents were asked what three things would improve their ability to manage patients with LTNCs appropriately. The overarching action was to have improved knowledge of available services (n=20). This included knowing how to access services and understanding referral criteria for each service and a brief description of what the services offered. Respondents (n=15) also wanted to have increased communication with, or access to, specialist staff and most respondents wanted contact with specialist nurses (n=6) or consultants (n=2). Additional suggestions included having telephone access to specialist advice (n=2). A number of respondents felt that an increase in the capacity of services (n=16) would help them to manage patients with LTNCs with 13 of these referring to provision of social services in urgent circumstances. Seven respondents stated that improvements in the

response time of services would help them manage patients with LTNC, with physiotherapy, OT, social service and rehabilitation services being noted specifically, (see Table 41 for further details).

Table 41: Actions to improve management of patients with LTNCs

Action	Frequency
Knowledge regarding local services	20
Increased capacity of services	16
Increased communication/access to specialist staff	15
Improved service response time	7
Specialist training/knowledge	7
Services extending to out of hours	3
Patients having access to services themselves	3
One point of contact who could coordinate package of care	3
Other	2
Total	73

5.4 RESULTS PART TWO: FINDINGS FROM IN-DEPTH INTERVIEWS WITH CLINICIANS

5.4.1 Barriers to accessing services

Clinician participants identified that a wide range of barriers had prevented them from accessing services in the past. These barriers included: out of hours services; the 'red tape' associated with accessing services; limited capacity of non acute services; the time constraints of clinicians; clinician knowledge of and/or familiarity with services; the response time of services; the strict eligibility criteria of services and the limited referral rights of clinicians.

Lack of service provision out of hours

All clinician participants noted that few services provided care out of working hours (Monday to Friday, nine until five) and this could act as barrier when trying to utilise non acute services to prevent an inappropriate admission.

Services noted specifically in this context included hospital based occupational therapy and physiotherapy, social services, and the hospital mental health review team. As a result, when patients were admitted to A and E or a medical assessment unit (MAU) outside of those hours, and required assessment or support at home prior to discharge, they were frequently admitted to hospital (at least overnight) until the relevant services could be arranged. Clinician participants noted that weekends were particularly difficult due to services not operating on Saturdays and Sundays. If a patient were admitted on a Friday and required a service prior to discharge they would have an inappropriate stay of at least three nights.

"If something, if something happens within hours . . . if something happens within hours, then, yeah, you can often get round it somehow. If it's out of hours, if it's outside of 5 o'clock, or if it's a long weekend, that's it. There's no chance of anything working at all 'cause there's no one there. That's usually the problem." (ID 4)

One clinician participant also highlighted that when patients are moved to a base ward, they cannot be discharged due to the unavailability of services, their discharge can be further delayed due to hand over of patient care following a staff shift change.

"Somebody might then move to a base ward and then they tend to get lost in the system and they might not always get discharged the following day - it might take them two or three days to actually discharge that person if they've moved twice." (ID 2)

Policies and procedures

Four clinician participants (ID 2, ID 3, ID 5, ID 8) discussed how policies and procedures frequently acted as a barrier to accessing services. For example,

one MAU clinicians, ID 2, discussed the lengthy paperwork that was involved in completing a referral to social services. Three out of the five clinicians worked in accident and emergency/MAU. It is likely that due to the time constraints placed on accident and emergency clinicians and the fast-paced environment of the MAU, delays caused by completing 'lengthy paperwork' are likely to be particularly important. For example, clinician participant ID 2 felt that the new referral forms for social services were extremely lengthy. They believed that in an environment where they are trying to assess and discharge patients within a short timeframe, i.e. one to two days, it was difficult to find the time to complete the form. Clinician participant ID 3 also explained that in the past they had telephoned for a social services assessment and the response time had been relatively prompt. However, since the introduction of the new paperwork there appeared to be an increased delay in the response time of social services. It was unclear though if this related to delays in completing the paperwork, or delays in the response time of social services.

"I think there's been issues with the new, erm, paperwork they've got to fill in, because at one time because assessment area, we would get a same day, same day response and if we made a request for social services to come and assess somebody in the morning, they would come either in the morning or in the afternoon, whereas now we have to fill in paperwork now and there has been some delays in getting them to come the same day." (ID 2)

"Apart from this new social service thing where you've got all this form to fill in, you know, erm, and that just takes for ever and I think that puts people off, you know. It, it might be where a nurse, I could well, quite imagine a nurse looking at her workload and leaving that to the bottom of the pile because they are complex and if you start doing that, it's going to push everything else back." (ID 3)

Limited resources

A number of clinician participants (ID 6, ID 4, ID 7, ID 8, ID 10) noted that the ability to provide the service was impacted by the capacity i.e. availability of staff, which often varied at different times of the year. This was particularly a problem during school holidays when members of staff take annual leave. All but one of the clinicians who raised this as an issue were based in the community. It is fair to say therefore that the limited capacity of staff related in main to primary care, rather than secondary care.

"Services fall down 'cause there's nobody else there when they're on holiday, that's always the same things really." (ID 10)

One clinician participant ID 3, a MAU nurse based at the city hospital, explained how the availability of occupational therapy and physiotherapy services were limited at the Derby City General Hospital and as a result there were no therapists assigned to work on the MAU which was the case at the Derbyshire Royal Infirmary. The clinician participant also felt that there were a limited number of nurses available to assess patients for ICS and this was a barrier when trying to discharge patients.

"But for other things like the outreach nurses or the physio or the OT, erm, we haven't particularly had a brilliant service, ever. They're, they're all ward based and it's all down to funding – I understand that. Recently we've had a trial that's still in progress which has allowed us to have our own physio and it's made a huge impact on the amount of people that we can get out." (ID 3)

Time restraints

A key barrier to accessing services was the limited time clinicians had and the time associated with arranging for services to be provided. This was a particular difficulty in A and E where the time clinicians could dedicate to accessing services was restrained by aims to meet the four hour A and E target (patients to be discharged or admitted within four hours). Time constraints related strongly to the response time of services. For example, one clinician participant (ID 5) discussed the provision of social services and how the response time of the service frequently exceeded four hours and was therefore not possible to access from A and E. When the response time of the service was relatively fast, i.e., within a four hour threshold, the clinician participant stated that successful attempts were made to access services from the A and E department.

"I only know this from experience and common sense, but for A & E it's not a barrier for us because as soon as they need social service input they're admitted.... I wouldn't expect from A & E that you get that sorted out. It's got to be in and out within four hours 'cause that's the government target." (ID 5)

"We've got the phone number for Intermediate Care and we do use it, but with, I have to say, with the fast turnover of getting patients in and out within four hours, we get the patients sorted and they go to – it's having time to do that. You can make the phone call, but it's having time to get the feedback and everything and if they can't get back to us in a certain time, that patient reaches the four hour target, the government are on our backs." (ID 5)

One clinician participant, a community matron, also believed that GP's were extremely limited in the amount of time they had and that as a consequence they rarely visited patients at home. When GPs did visit patients in their own home they had little time in which to organise provision of non acute services (to prevent an inappropriate admission) leading them, to admit patients to hospital inappropriately.

"When it's the GP, you know, they'll go out and I suppose they haven't got the time, to sort of, you know, use the other resources within the community, so they'll just telephone – they'll sometimes, yeah, they just don't go out. So, erm, there's that side of things." (ID 6)

This point was confirmed by clinician participant ID 10, a GP, who acknowledged that their time was limited and they didn't always have time to access services.

Time constraints were only reported to be a problem for two clinicians, which was surprising. It may be the case that working in a time constrained environment had become normalised and therefore accepted amongst

clinicians. Also, limited time was reported to be a problem in both primary and secondary care environments.

Lack of knowledge regarding the provision of non acute services

Five clinician participants, one MAU physician (ID 1), one A and E physician (ID 4), two GP's (ID 10, ID 12) and an ECP (ID 9) noted that limited knowledge of local services and familiarity with what they provided, or how to access them, acted as barriers when trying to use services. Clinician participant ID 1 discussed how there were a great number of services and it was almost impossible for clinicians to know when it was suitable to access them and how to make a referral. The following quotes were made by clinician participant ID 1, ID10 and ID 12.

"When a patient comes in, it may not be immediately apparent which, which services you should be trying to contact and you may not, you know, it may not be easy to find the contact number of the correct service....you may not know the exact criteria for accessing that service. The criteria will vary between different services and you may not know the contact team, they may not be available out of hours, and all these kind of things." (ID 1)

"I don't think I would've known what was available or how to access it really, because a lot of the problem is that people set up services, erm, and they send us a little bit of paper telling us about their service and you think, oh, that all sounds jolly good, and then by the time you come to actually want to refer someone to it, erm, you probably either can't remember what it was or where the piece of paper was. Or the other thing is that you try and refer to it and the service has either changed its name or stopped existing, basically, really." (ID 10)

"Clearly, GPs, or what is mine, total ignorance of, of their services. Erm, you know, if you don't, if I don't know they exist, then I can't use them. If they don't publish, you know, they, if they don't publicise themselves, erm, then I can't use them." (ID 12)

Clinician participant ID 9 acknowledged that in the past they had admitted patients to hospital when it was likely that non acute services could have met the patient's needs. This was due to a lack of knowledge about what local services existed. Talking about a patient with PD in the past:

"They don't want to go into hospital, but he couldn't, all of a sudden he just couldn't get out of bed, and there are probably services out there that would come and provide extra help to save him going into hospital, but I don't know where to go to get that." (ID 9)

Limited knowledge of available services was common amongst all clinicians, irrespective of occupational group.

Eligibility criteria

One clinician participant, a physician working in the MAU commented on the eligibility criteria of services and how they were often quite restrictive. Also, they found it frustrating when services were restricted along geographical boundaries. The restrictive eligibility of services was therefore seen as an additional barrier to accessing services.

"With some of the services is that their, the criteria that they have is sometimes a bit too, in my view, a bit too restrictive, right? Erm, and, and some of the services are also restricted along geographical boundaries." (ID 1).

Referral rights

A barrier that was specific to the A and E department was the inability of physicians to refer patients for an outpatient appointment. Clinician participant ID 4 described how they believed that if they were able to refer patients for an outpatient appointment they would be able to discharge patients from the A and E department. Outpatient referrals provided the physician with reassurance that the patient would be followed up by a health care professional, enabling them to discharge the patient with certainty that the problem would be addressed, in a more appropriate setting. Currently, within Derby Hospitals, A and E physicians were unable to refer patients to out-patients and instead would have to send a patient to the clinical decision unit or the MAU to be referred. As discussed earlier this would involve a hand over of staff and therefore a further delay to discharge. Likewise, ID 11, a GP, discussed how in the past they had been unable to refer to a neurological physiotherapist, and instead would have to refer to the neurological consultant who would then place a referral for physiotherapy, elongating the process.

"You want somebody just to have outpatient follow-up even, we don't have access to outpatient follow-up [medical outpatient], so I, I would have to send somebody to CDU [clinical decision unit] or get the medical reg to see them if I . . . and I know that they just need to go home and come back for outpatient follow-up, but I can't do that. I, I, I don't, I don't have rights to outpatient clinics." (ID 4)

Clinician participant ID 7, a community matron, described how in the past patients had been admitted to hospital as a result of a breakdown in social support. The clinician participant believed that in such situations it was more appropriate to provide the patient with respite care, in order to alleviate the

stress carers were experiencing. However, community matrons reported that they did not have direct access to respite care, which acted as a barrier to accessing the service.

Facilitators

A number of clinician participants discussed situations where they had been able to access services without problems or had been able to discharge patients effectively. Clinician participants were asked to identify what aspects, in those situations, had facilitated access. One community based clinician participant (ID 6) explained how they had a close relationship with ICS through appropriate use of the service and this had led to the development of a mutual respect. They believed that because of this mutual respect the service would respond quickly to a referral by the clinician participant.

"I suppose it's the relationship, because I know the people, you know, and, er, they know me, er, they know that you're not going to, erm, er, refer inappropriately, you know, they know you're really stuck if you, you know, if you're contacting them on a Friday afternoon at 3.00 o'clock, sort of thing." (ID 6).

In terms of being able to discharge patients effectively from A and E one clinician participant praised the seven bed unit attached to the A and E department that was available at Derby Hospitals. The unit was overseen by A and E physicians and allowed patients to be moved from the A and E department, therefore reaching the government target, whilst allowing patients to remain under the care of the A and E physician. This streamlined the patient's discharge as it prevented duplication of assessments associated with the handover of patient care from one department to another.

"We do 2 ward rounds for our ward a day and we manage to keep ticking over with a 6, 6 or 7 bedded unit, er, and we take most things, er, but then that's 'cause I can, I go and see someone after 5 hours, 6 hours, whatever and say, well, I think you're alright now..... Somebody that I might have admitted had I not got those beds, I can turn round really quickly, erm, and it, and, and I would be able to do more of that if I had access to outpatients. (ID 4)

Patients with multiple sclerosis and Parkinson's disease

Clinician participants were asked to think of reasons why patients with MS or PD may be admitted to hospital more often than others when it is not medically necessary. Clinician participants identified a number of potential reasons including ineligibility for 'elderly' services, increased dependence, need for increased assessments when admitted to hospital, lack of specialist community services and occurrence of a rapid decline in symptoms.

The management of patients with MS and PD was perceived as being relatively complex by both emergency care clinicians and general practitioners (ID 5, ID 9, ID 11). It could be expected that the limited time available to assess patients in an emergency setting would further exacerbate the complexity of caring for patients with MS or PD, however this trend was not evident. Patients with MS and PD were thought to be prone to experiencing a rapid decline in their health which, in turn, impacted their ability to complete activities of daily living (ID 5, ID 9, ID 12, ID 11). In such situations clinician participant ID 5 described how it can be difficult to discharge patients from the A and E department without additional support at home, which as discussed previously can be difficult to arrange within a short timeframe. Clinician participant ID 12 also explained that MS is a condition which frequently affects younger patients. Due to this, families found the condition and the associated symptoms difficult to accept. When a crisis occurred

patients and their families would frequently want the GP to intervene quickly. Patients and families would therefore be unwilling to wait for an outpatient appointment and would demand action, normally an admission. Another GP, ID 11, also believed that patients often wanted to be admitted when deterioration occurred.

"It's mobility, I think, more that makes you admit, because if you can't get them to the toilet and you haven't got the services there or the equipment there to help them, or the carers in to help them get there, you end of having to send them in, erm, and I think that's probably the greatest reason why some people." (ID 9)

"These patients is that there illnesses are often fluctuant and they are very variable, they, they have episodes of really good function and then it often sort of collapses into a crises quite, quite rapidly. Er, many of these patients still maintain some work and are often fairly young people as well and suddenly when they start to get another symptom and become quite unwell, and they start to lose function and they start to lose, you know, ... it's a big deal and then there's a lot of pressure on us, er, to do something about it.. I think would, would be an important factor as to why they often end up being admitted rather than just being expedited or, or put into the next clinic or something like that." (ID 12)

Clinician participant ID 7, a community matron, perceived patients with MS and PD as often requiring increased provision of non acute services and informal care when a health problem occurred. For the reasons outlined in the above section i.e., lack of out of hours service provision, this placed them at increased risk of being admitted inappropriately (ID 7). Clinician participant ID 1, a MAU physician, also believed that a number of services

that were suitable for patients with MS were aimed predominantly at elderly patients. As a result, patients with MS frequently failed to qualify for such services. Unfortunately, this clinician participant did not specify what services they were referring to.

"They're very demanding people and we haven't got the facilities, we haven't got a specialist nurse, we haven't got the Macmillan nurses to come in, we haven't got as many Parkinson's nurses or MS nurse specialists that come or where they are..... you know they're not accessible." (ID 7)

Clinician participants ID 7 and ID 11 also believed that the caring role of family members or friends for patients with MS and PD could be extremely demanding, placing them under stress. It was not uncommon, therefore, for breakdowns to occur in a patient's support mechanism. The clinicians who noted this were community based. Given that patients with MS and PD may require a large amount of informal support to maintain independence in the community, something which is not required in the hospital setting, community clinicians may be more sensitive to carer issues. When patients were not supported at home adequately they were reliant on the provision of urgent social support to enable them to remain at home, which (as highlighted earlier) could be difficult to access. If social support could not be provided quickly, patients would frequently have to be admitted to hospital where they could receive 24 hour care.

"So, you've got, erm, somebody who's got a long term deteriorating condition, a carer who's just at the end of their tether and just can't cope anymore and so, er, it may be that's particularly bad with those two conditions." (ID 11)

In practical terms, clinician participant ID 4 described how PD and MS patients frequently had problems with their mobility. When admitted to A and E or the MAU patients would be more likely to require an occupational therapy or physiotherapy assessment prior to discharge. As noted above, such services were only available between the hours of nine to five; if the patient was admitted out of hours they would therefore need to remain in hospital until the assessment could take place.

5.4.2 Actions to improve access to services

Importantly clinician participants were asked what would help make services more accessible. Clinician participants identified a number of changes that could be made in order to improve access. Changes included improving the response time of services, having a single point of contact for accessing services, extending the working hours of services, improving communication with specialists, having a document retained by the patient detailing those involved in their care and extending the referral rights of clinicians.

Improving response times

One clinician participant, a community matron, felt that social services should seek to improve their response time. Improved response time would allow community matrons to avoid many inappropriate admissions from occurring.

“I think social services need to get back together and to be more swift in their response to assessments and if we put an assessment in, we’re not just putting an assessment in because we’ve got nothing better to do, that needs responding to.” (ID 7)

Single point of contact

As discussed previously, five clinicians, three based in the community and two hospital based (ID 1, ID 4, ID 9, ID 10, ID 11) reported that they had gaps in their knowledge regarding local service provision and that this was acting as a barrier to accessing services. The clinician participants believed that the conventional methods of informing clinicians of new/existing services were ineffective. For example, clinician participant ID 4 described how they had been sent information about new services in emails, however due to the wealth of information they received, they were unable to remember the information. Leading on from this one clinician participant (ID 1) believed that having a single contact point in order to access all services would enable them to access a wider range of services. Elaborating on this, the clinician participant described how it would be extremely helpful if clinicians were able to contact one person or service who would determine what specific service/s would be suitable for the patient and who could make contact with the service. If such a service were to be created then it could ensure that changes in local service provision were monitored and updated, something that clinicians were unable to do within the time constraints of their daily jobs. Alternatively, clinician participant ID 11 thought if it was not possible to have someone who could coordinate services on behalf of clinicians, then a single document with service information and contact details would be helpful.

"Erm, so you're not having to ring lots of different people all the time, there's perhaps one central co-ordinating person, that might help. You know, one of the problems is that we just have so many numbers and so many pieces of paper, erm, guidelines and ... so that might put you off really." (ID 11)

"I hesitate to say providing paperwork, but, you know, but, sort of, kind of a co-ordinated kind of like say a list of, erm, the neurologists, the specialist nurses for Parkinson's, erm, epilepsy, stroke, erm, and so a list of who they are, access numbers that were easy, sort of, where you could easily access somebody." (ID 11)

24 hour working

Four clinician participants believed that the biggest barrier to accessing services was the limited hours that key services operated. Two clinician participants, MAU nurses (ID 3, ID 2), believed that extending the working hours of key services e.g. social services, would enable clinicians to discharge patients from MAU more effectively. One clinician participant (ID 2) believed that extending working hours to eight o'clock would be helpful, particularly social services. The others, however, believed services should be available 24 hours a day seven days a week.

"Well, I'd just like to see all the services working 24/7 like we do, because I don't think you can have one service that works 24/7 if it's relying on services to prop it up and those services aren't available."
(ID 3)

Hospital based clinicians viewed the limited hours of services as a problem and this was readily acknowledged by clinicians, who themselves worked daytime hours only. For example, two clinician participants, ID 6 and ID 7, who were community matrons believed that their role should be extended to 24 hour working. In their experience a number of their patients had been admitted to hospital inappropriately and this was usually when they, as a community matron, were unavailable e.g. outside of normal working hours, or when the community matron had not been contacted. In their view an

extension of the role to 24 hours working would help to reduce inappropriate admissions.

"Erm, well I suppose it'll come anyway, whereby we'll be working, I think we'll be covering weekends and out of hours eventually, so I think that'll be one aspect that'll alleviate it." (ID 6)

"I think sometimes it would be nice to ... probably, maybe till eight o'clock at night would be useful, and probably a bit more cover at weekends. Er, you can have emergency social services...out of hours....somebody on call." (ID 2)

Communication with specialists

Two clinician participants (ID 9, ID 6), both based in the community, believed that they would benefit from having access to specialist advice when caring for patients with LTNCs. Clinician participant ID 7, another community matron, felt that they would benefit from closer working with specialist nurses. Specialist nurses could provide them with specific neurological advice aiding them in their clinical decision making. Also, in terms of access rights, they believed that specialist nurses may be able to access additional services to those which a community matron could at that point.

"There's also, in the hospital, I think, a big barrier is about communication and if we had the nurses, the MS specialist nurses and Parkinson's disease specialist nurses on board to come and do joint visits out with us and get to know that patient well that would help as well because sometimes they would have access to, direct access to, consultant's beds and they would be able to discuss on our behalf whether that patient was appropriate to come in or not or what could that consultant recommend on keeping them in the community." (ID 7)

Clinician participant ID 11, a GP, also explained how they had found speaking with consultants in the past extremely helpful, but explained that like many clinicians who were extremely busy they were often inaccessible. The clinician participant spoke about the various ways consultants had worked to improve their accessibility, for example providing a mobile number, an email address or having set hours where they could be contacted, and how this was helpful.

"it can be very difficult to get hold of people and it may be that, erm, I know that quite a few consultants, like the eye consultants now, will have on their letter, you can contact us between these hours on this number. The orthopaedic, erm, back pain pathway, they have mobile numbers that you can ring people on. Erm, it, it, I mean, I suppose email would be another way, erm, so it's just finding ways of easily accessing someone. Erm, and once you get that one to one discussion between yourself and another clinician it's fantastic, you, you know, you really feel you're making progress." (ID 11)

This highlights the difficulties clinicians based in the community experience when trying to access/gain specialist advice, something which is more readily accessible in a hospital setting.

Communication document

One clinician participant, a GP (ID 11), explained how there was little communication between services. GPs visiting patients frequently did not have the time to investigate which other clinicians were involved in the patient's care and gain their views on how the patients' problems should be managed. The clinician participant believed that it would be helpful for all the contact details of those involved in the patient's care to be recorded collectively in a single document. This documentation could also be used to facilitate communication between individuals.

"Yeah, I suppose if the patient had like a book, like, what we tend to have is the district nurses, for example, will have a book and a communications book, so they'll, write, er, whenever they do a visit, they'll write down. There's also a page within that that another professional, like I, could write in to communicate with them. Erm, and I suppose if you had a bit like I suppose and Intermediate Care type of situation, if you had, er, one point where everyone could communicate, er, with everyone's phone numbers and, er, that probably would be quite good." (ID 11)

Extended referral rights

A suggestion made by one clinician participant (ID 4) who worked in the A and E department was to extend their referral rights i.e., to allow A and E physicians to make a direct referral for a medical outpatient appointment. Specific outpatient clinics included a falls clinic and chest pain clinic. The clinician participant was aware that it may not be appropriate for all

physicians, namely junior physicians, to have such access. Access could be restricted, however, to senior physicians if necessary.

"So, I don't know, a rapid access off legs, fall over clinic, collapsing clinic. I know there's a falls clinic, but that's different from, erm, a rapid, you know, a fairly rapid, within two weeks, sort of collapsing sort of clinic....If you had access to certain outpatients, like a rapid access outpatient appointment – like the GP's have rapid access, erm, chest pain clinics and rapid access, erm, for cancer I mean, I don't think it should be, we shouldn't all, I wouldn't expect that any of our juniors should have access to these clinics or anything, but the consultants should have access to them." (ID 4)

Similarly, as discussed earlier, clinician participant ID 7 believed that if patients could be provided with respite care then the number of patients who were admitted inappropriately to hospital for social causes may be reduced. Extending the power of community matrons, to allow them to refer patients directly to respite care would help to reduce inappropriate admissions. Clinician participant ID 11 also felt that being able to refer patients directly to specialist services, such as neurological physiotherapy, would help reduce inappropriate admissions.

"Direct access into respite would help; just to have the availability of a respite bed would just be fab..... If there were places readily available that would be so easy to get them in, we'd use them."(ID 7)

"If somebody's known to have MS, known to have epilepsy, or whatever it happens to be, then I'd have thought having direct access to the neuro-physio would be a good idea." (ID 11)

One clinician participant, an MAU nurse (ID 3), explained that in the past the Derby City General Hospital had conducted a trial where a nurse assessor for ICS visited the MAU every morning during the ward round to see if any patients were suitable for the service. The clinician participant felt that this had worked very well, however this practice had not continued due to limited funding. A regular structured provision like this may therefore prevent patients from being admitted onto a hospital base ward inappropriately.

"They did try a system where they came to us each morning to see, as the ward round was in progress and that worked quite well, because they were able to pick people up straight away while the ward round was still in progress, but unfortunately, again, because of lack of staffing, they, they're not available to do that all the time."
(ID 3)

5.4.3 Impact of inappropriate admissions

In order to assess the views of clinician participants regarding inappropriate admissions they were asked what they believed were the advantages and disadvantages of inappropriate admissions.

Advantages of inappropriate admissions

Very few clinician participants believed that there were advantages to inappropriate hospital admissions and believed that they should be avoided at all costs. However, three clinician participants, one a community matron (ID 6), one a GP (ID 10) and one an A and E nurse (ID 5) highlighted some benefits. Clinician participant ID 6 felt that whilst inappropriate admissions were of detriment to patients, an inadvertent benefit was that it reduced the work load of community services. Two clinician participants (ID 10, ID 5)

explained that if patients were experiencing social problems then an admission to hospital, albeit, not appropriate, had the benefit of ensuring they were cared for socially and speeding up access to social service provision. Due to the necessity to discharge patients swiftly, the care required for discharge, e.g. social care, would be arranged in a shorter timeframe in comparison to a patient waiting for it in the community.

"Do I think there's any advantages? Well, sometimes there are. I mean, you know, if their social situation isn't up to much really, then it may be advantageous from a nursing care point of view to admit them." (ID 10)

"It lightens the load on the other resources that were actually going in initially, but that's, sort of, it's an advantage to, like, you know, your care workers and that, that were, you know, its taken, it's alleviated them a bit, er, of the pressure, but otherwise there's not really any." (ID 6).

One benefit of inappropriate admissions, for clinicians based in the community view, was that it reduced the workload required by community clinicians to maintain the patient in the community. This perhaps highlights the disjointedness between primary and secondary care (system components) and indicates that clinicians do not view the health care system in a related manner, rather as two separate parts. For example, whilst inappropriate admissions may in the short term reduce the workload of community clinicians, in the longer term it may lead to increased costs for the health care system and potential de-conditioning of patients who as a result of this may require increased provision of the care in the community.

Disadvantages of inappropriate admissions

Participants highlighted a great number of disadvantages. Key disadvantages included the financial cost of inappropriate admissions to hospitals and the risk of developing adverse complications as a result of being admitted. Three participants, two MAU clinicians (ID 1, ID 3) and a community matron (ID 6) stated that hospital beds were extremely expensive and it was therefore essential that they were only utilised when they needed to be.

"I mean, yeah, I mean, I guess they, they, a few people may be using, using our resources that, er, that don't need to use. They may be using hospital beds which are very expensive and that kind of thing." (ID 1)

An additional concern of all the participants was that patients were subjected to the risk of developing hospital acquired infections when admitted. Five clinician participants (ID 1, ID 2, ID 5, ID 6, ID 9) explained that due to the unfamiliarity of the hospital environment patients often became confused and disorientated. In the case of the elderly or those with disabilities they would frequently become dependent on the 24 hour care provided to them in hospital. As a result patients would lose confidence in their ability to care for themselves and would frequently become reliant on nursing or care staff. Furthermore, clinician participant ID 12 explained that admitting a patient to hospital when it was not appropriate from a GP's perspective, would reinforce negative health seeking behaviour, in that the next time a similar problem occurred the patient would expect to be admitted. This made it very difficult for GPs to try and treat the patient in another way as patients would pressurise the GP into admitting the patient.

"They [inappropriate admissions] reinforce bad behaviour, I think, a bad way of managing their problems. It escalates crises, erm, you know, they were admitted last time, they expect to be admitted the following time and if you then come really saying I'm not going to admit you this time I'm going to actually, erm, treat you in a different way in the community, erm, erm, you know, that can often be met with, you know, disbelief, erm, or annoyance or a loss of confidence from the relative or the patient." (ID 12)

Talking specifically about patients with PD, one MAU physician (ID 1) spoke about how PD patients were very dependent on their drug routine. If this drug routine was disturbed it could impact negatively on the patient's symptoms. The clinician participants explained how it was very difficult to manage such drug regimen when patients were admitted to hospital. Inappropriate admissions for PD patients could therefore be very negative.

"There are disadvantages to hospital admission, particularly with Parkinson's patients, complicated drug regimes which carers manage nicely at home, can get interrupted when they get, come into hospital because, it's, you know, the, the way the nurse organise their time, it's not easy for them to give a particular patient medications every two and a half hours, for example, because the ward rounds only happen, the drug rounds only happen four times a day, so they have to make special provision for that particular patient." (ID 1)

Clinician participant ID 10, a GP, explained how hospital admissions disrupted patients' medications generally. From a community physician perspective they felt that when patients were admitted their medications were nearly

always altered by hospital staff. They believed that this undid all the work that the patient's GP had undertaken to ensure they were on the correct dosage etc and this was a negative aspect of inappropriate admissions.

"The hospital nearly always fiddle round with the medication, erm, for an often no apparently good reason. Instead of finding out why somebody's on a particular regime, they just assume that we're stupid and have, like, you know, haven't bothered to, sort of, do X, Y or Z, and that's incredibly frustrating, because often people, you know, you've spent a lot of time titrating drugs up and down, changing things 'cause of side effects, erm, and so that is really, really annoying." (ID 10)

Two clinician participants, ID 6 and ID 7 also described how inappropriate admissions affected the patient's family and caused distress.

In practical terms, one clinician participant, an A and E physician (ID 4), commented that it was essential that the flow of patients between the A and E and other departments (such as the MAU) was maintained. The clinician participant explained how A and E could become a dangerous place if it became overcrowded as availability of staff would become limited. Patients who were admitted inappropriately were therefore occupying beds that should be available for those who did require admission.

"They go into hospital and then you've got, say an elderly relative that's then got to go and visit them in a hospital. So it, it's the whole impact on the family really." (ID 6)

"Disadvantages would be loss of beds for elective work as well if we run out of, erm, beds for, erm, acute stuff, erm, and from our point of view, the impact on our department is when people aren't moving through the hospital it becomes very dangerous in the emergency department because you can't actually see anybody, there's no space to see anybody and that, that means that you end up seeing people in corridors and waiting rooms and things and it's, erm, not ideal, in fact it can be quite dangerous, overcrowding. Nurses spend all their time then taking them to the toilet and, erm, dealing with people being sick and actually nothing gets done at all. So from our point of view, loss, you know, no space in the hospital for whatever reason is a nightmare scenario." (ID 4)

5.4.4 Commonalities/differences according to primary care and secondary care clinicians

Commonalities

All clinicians, irrespective of occupational group noted that day time working only was a barrier to accessing services to prevent an inappropriate admission. It was evident that limited knowledge regarding the availability of local services was common amongst all clinicians, irrespective of occupational group. Also, limited time was reported to be a problem in both primary and secondary care environments.

Differences

In terms of barriers/issues that were specific to secondary care clinicians it was evident that the time required to complete paperwork was a specific barrier to clinicians working in the accident and emergency department/MAU.

A barrier that was specific to the A and E department was the inability of physicians to refer patients for an outpatient appointment.

The limited capacity of staff, was a barrier that was reported in main by community clinicians rather than secondary care. It is unclear why this would be specific to community based clinicians only. Also, carer issues and the unavailability of informal support was a particular barrier to providing care in a community setting, and was therefore specific to community based clinicians. It was also noted that accessing specialist advice was a particular problem for community based clinicians, and was perhaps more readily accessible in a hospital setting.

5.5 RESULTS PART THREE: FINDINGS FROM IN-DEPTH INTERVIEWS WITH PATIENTS

5.5.1 Characteristics

The patient participants had a range of disabilities, most needed help with activities of daily living from their partner or from formal carers. (See Table 42 for further details.)

Table 42: Characteristics of patient participants with multiple sclerosis and Parkinson’s disease

Condition	Description of disabilities	Interviewee/s	Gender	ID No
MS	Difficulties with speech, walking and needs assistance with activities of daily living	Participant	Male	1a
		Wife		1b
MS	Several cognitive and physical disabilities. Limited comprehension and communication. Unable to walk. Needs full help with activities of daily living.	Participants wife only	Male	2
MS	Difficulties with walking, unable to weight bear, continence problems, needs assistance with activities of daily living	Participant only	Female	3
MS	Walking difficulties, needs basic assistance with activities of daily living	Participant	Female	4a
		Husband		4b
MS	Unable to walk, problems with bowel continence, needs assistance with activities of daily living	Participant only	Female	5
PD	Problems with walking, anxiety and memory. Needs moderate assistance with activities of daily living	Participant	Male	6a
		Wife		6b
PD	Difficulties with walking and speech, needs moderate help with activities of daily living	Participant	Male	7a
		Wife		7b
PD	Difficulties with walking, able to perform most activities of daily living	Participant only	Male	8
PD	Difficulties with walking, speech problems, fatigue, can perform most activities of daily living independently	Participant only	Male	9

5.5.2 Symptoms experienced when admitted

The patient participants had experienced a range of symptoms which had contributed to their admission to hospital. Both patient participant ID 1 and ID 2 had experienced vomiting. Patient participants ID 3 and ID 7 were admitted following a fall. Patient participant ID 4’s walking difficulties had

exacerbated and she was unable to weight bear. Patient participant ID 6 had recently been discharged from hospital and was experiencing recurring stomach pains. Patient participant ID 5 was generally unwell. Patient participant ID 8, had experienced problems with a pump that delivered apomorphine. Patient participant ID 9 reported having acute stomach pains.

5.5.3 Primary contact when ill

When discussing their previous admission to hospital patient participants had mainly utilised the ambulance service, however, this was when the admission occurred out of hours (ID 2, ID 4, ID 6, ID 8). One patient participant (ID 6) had attempted to contact an out of hour's clinician, however, they were forced to call an ambulance when the clinician did not arrive. For patient participant ID 3 and ID 7 the ambulance had been called following a fall, and was therefore deemed an emergency situation. For patient participant ID 8 he believed that only those who were specifically trained in the management of PD were able to manage his problems effectively. The patient participant's GP, who was not specifically knowledgeable in this area, was therefore deemed ineffectual. The patient participant was therefore taken to hospital via an ambulance and admitted.

The services or clinicians that patients contacted when a health problem occurred were often determined by the urgency of the problem. Patient participants generally preferred to use primary care services, namely their GP, when the problem was not an emergency. For two patient participants (ID 8, ID 3) they preferred to contact specialists involved in their care e.g. PD specialist nurses. For patient participant ID 3 they firstly and foremost contacted their specialist MS nurse who would be able to advise them on whether or not their symptoms required acute treatment or if they were a consequence of their ongoing condition. Such advice would then enable the patient participant to contact a service appropriate to their need. As stated,

ID 8 believed that the problems he experienced in relation to his PD were specialist and he therefore preferred to contact the specialist PD nurse involved in his care. In contrast patient participant ID 9 who also had PD spoke about how his GP had a particular interest in PD and felt that because of this he received excellent treatment. Quotes given by patient participant ID 8 and 9 detail this below.

"Yeah. I, I think the, the GP that I've got, firstly, is absolutely first class, er, I've confidence in him. So I think that might affect whatever decision I might make. Cos he, he himself is interested in Parkinson's. Er, I might be mis-, you know, misplacing my, er, my thoughts on that but I think because he has that interest in, in Parkinson's he perhaps goes a bit further than, than others might."
(ID 9)

"No. I usually phone the ambulance up straight away because my GP doesn't know anything. If I go to the GP he goes: "Phwww, don't ask me, I don't know anything about it". I doesn't ... I'd sooner him be honest like that than try and give me something that doesn't, doesn't take." (ID 8)

One patient participant who cared full time for her husband (ID 2) described her dissatisfaction with her husband's GP. The wife of the patient participant frequently utilised a number of services for her husband, including GP services, out of hour's services and ambulance services. The preferred contact for the patient participant however was out of hour's doctors or ambulance staff. This was because the patient participant felt that her husband's GP failed to conduct a detailed assessment of his problems. Out of hours clinicians or ambulance staff, unfamiliar with the patient's symptoms,

would therefore conduct a full assessment and/or admit the patient to hospital.

"I find that I get better attention from emergency doctors because they've not seen him and they do the full check over." (ID 2)

5.5.4 Alternatives to admission

Understandably, patient participants appeared to be unaware of alternative services to acute admission. Patient participants were asked if they felt that any other services could have dealt with their needs effectively. All patient participants did not believe there were. When discussing alternatives a few patient participants (n=2) described how they felt it was inappropriate to query a GP's decisions regarding appropriateness of admission as they, in comparison to the patient and/or their family, were the qualified health professional. The two quotes below typify this.

"You don't really argue with my doctor, you know,if he says you're going, you're going and that's it, you know." (ID 1)

"I was going in and I just accepted I'd got something wrong with me and it was going to be put right." (ID 9)

5.5.5 Barriers to accessing services

Following in depth interviews with patient participants is it possible to identify a number of barriers to accessing services. The barriers discussed include: limited access to specialist advice, a reluctance to use community services and patients' preferences for admission.

Limited access to specialist advice

As stated, one patient participant (ID 8) was dependent on specialist PD services when they experienced difficulties with their condition. Access to such services out of hours was a key barrier for this patient. The PD nurse who cared for the patient was available during working hours only. When problems occurred out of hours they felt they were forced to contact the ambulance service who would admit them (to hospital) to await the specialist care they required.

Reluctance to use community services

Although there was no evidence that patient participants had refused services in the past, reluctance to receive community services may act as a barrier in the future for a number of patient participants. This related to perceived ineffectiveness of services (ID 1) and intrusion of services on the patient participant and their families' home life (ID 6). Specifically, patient participant ID 1 perceived that community physiotherapy was ineffective and that it had not helped in the past. For ID 6 they described how they would be reluctant to receive social support in the future as they felt this was an intrusion on their privacy. The quote given below typifies this.

"Physiotherapy does absolutely nothing for me." (ID 1)

"I suppose it's because we've, you, you, I don't mean this unkindly, but I think, like the people that come every morning, they come and do things for you, it's like, not an intrusion – I don't like that word – but you know, erm, how can I explain it? You, you, your house wouldn't be your own if you think, oh, I've got, I've got to get up – although we're up early – but, you know, it, it's you think, oh, it's eight o'clock or seven o'clock, we've got somebody coming." (ID 6b)

Patients' preferences for admission

Patient participants understandably experienced great worry and anxiety when they experienced health problems. The services hospital provided, including a thorough medical assessment, were viewed as the 'gold standard' of care and therefore reassured patients and their families that there were no serious problems. Patients and their families were often keen to be seen at hospital for this reason. In one case the wife of patient participant ID 3 explained that they knew there was nothing the hospital could do for her husband's symptoms but that admission to hospital provided her with the reassurance that nothing more serious had arisen.

"I didn't know what to do – and that's gospel truth – I didn't know what, I, I suppose it's like a panic attack for me. I didn't know what to do with X [patient]. There's nothing they can do. And I know there is nothing they can do, but it's reassurance." (ID 2)

Hospital admissions were also viewed as a means of addressing a range of problems and as a result offered patients an all encompassing service. This may have led patients to prefer admission to hospital than receiving alternative non acute services. For example participant ID 2 and ID 7b felt that admission to hospital allowed her husbands medication needs and rehabilitation needs to be addressed whilst ID 7 felt that their social care needs were also addressed whilst they were in hospital and this often led to their social support provision being reviewed and increased.

"They did look after him. They did look after him. He had physio as well, for his legs, 'cause he couldn't walk when he went in with the infection. He, er, he just wasn't the same person altogether, so they brought him back with his walking and physio and his medication, and he had rehabilitation as well." (ID 7b)

"Then I get a proper feedback by social services for care package and then I can build up a care package even more." (ID 2)

For two patient participants (ID 1b, ID 2) they discussed how in the past they had had to visit hospital on a number of occasions as an outpatient to undergo a series of tests. They discussed how in such cases they would have preferred to have been admitted to hospital, in order to reduce the time taken to travel back and forward to the hospital.

"But having no transport, [patient] was struggling to get backwards and forwards to the hospital with tests. It was a waste of time really." (ID 1b)

For one patient participant they explained that admission to hospital provided their family with respite. The patient participant explained how his exacerbations could be upsetting for his young daughter. Although he acknowledged that clinicians were unable to help him when admitted and that they would have to wait to see a PD nurse, admission to hospital removed him from the home environment during the worst of his exacerbation.

"She [talking of wife] can't handle me when I'm, when my legs are, me legs go, that's it, I can't, can't, she can't, she can't pull me about. She's not strong enough, you know....I start getting worried and my wife, I've got an 11 year old daughter as well..... it frightens her so best thing is to get out of the way." (ID 8)

5.5.6 Disadvantages of admission

The patient participants highlighted a number of disadvantages to being admitted to hospital. These included fear of developing hospital acquired infections (ID 1, ID 5), boredom whilst admitted (ID 1), lack of privacy (ID 1), sleep disturbance (ID 1), problems with receiving medication (ID 8) and the inconvenience visiting caused for family members (ID 2). One patient participant was also prone to falling whilst in hospital due to the spasms they experienced as part of their PD which was a worry. However, overall patient participants felt that the benefits of admission outweighed the disadvantages.

5.6 DISCUSSION

The findings from the study are discussed below. Firstly, the findings from the questionnaire and clinicians interviews are discussed followed by a discussion of the patient interviews. The findings of this Phase, including a comparison with existing literature, are also discussed along with the findings from Phase I and II in Chapter 6.

The findings from the questionnaire show that the clinician's knowledge of local services, the inaccessibility of services out of hours and the response time of services may be acting as barriers to service use. There may be uncertainty amongst clinicians as to whether or not ICS provide domiciliary care or home adaptations. A worryingly large proportion of respondents did not know what

the service provided, indicating a lack of knowledge about this service. Overall, few barriers to the use of ICS were highlighted. Irrespective of this few GPs or acute care clinicians appear to be using the service. Respondents highlighted few barriers to the use of community physiotherapy, although a number did feel that the time taken to respond was moderately slow. Hospital clinicians do not appear to be using community physiotherapy, however this may relate to the fact that there is physiotherapy provision within the hospitals. Although there appeared to be no obvious barriers to the use of community OT, there may be a potential for improvement in the referral process and in their response time. An examination of the SW service found that for a proportion of clinicians the referral process was not easy and moderately time consuming. The service provided both during, and out of hours, was inaccessible and the time taken to provide the service was moderately long. Also feedback of outcomes was rarely given to the referrer. Although this was only the case for a proportion of the respondents, and not the majority, such problems may prevent use of the service. There appeared to be few barriers to the use of the community matron service. The referral process was easy and did not consume a great deal of time. The service was accessible during working hours and delivered what was stated. The DN service was used by a large proportion of all the occupational sub-groups studied. There did not appear to be any barriers to use of the DN service. The service was easy to refer to, accessible both in and out of hours and the DN service delivered what they stated. The recommendations of clinicians were followed and the outcomes of the service were fed back, although for a few feedback was not given. For the SCN service the majority of responses were positive, however a proportion of respondents did highlight barriers. The process for referral was of varying difficulty, and was inaccessible for some. Also the response time of the service was for a proportion neither quick nor slow. There were a number of potential barriers to use of CH's relating to the complexity of referral and the time taken

to refer, although this was only the case for a minority of respondents. Out of hours access also seemed to be relatively inaccessible.

The results of the questionnaire show that clinicians believe failure to secure services for patients can lead to patients being admitted inappropriately, with 48 clinicians stating this. The findings from the questionnaire and the in-depth interviews show overall that the greatest barrier to service use is out of hours availability. The majority of services examined were very inaccessible out of hours. District nursing was the only service that was deemed accessible out of hours. It was evident from the in-depth interviews that out of hours access greatly affected those services that did deliver a 24 hour service, such as hospital A and E and MAU departments. With services operating during different periods there is inevitable fragmentation, which influences the care that patients receive. The clinicians called for services to become more unified and for there to be an extension of working hours or, ideally, an extension to 24 hour working for key services, such as social services and inpatient therapy services. Community matrons themselves called for their roles to be extended and saw this as an inevitable development of their role.

There is evidence that there are problems with knowledge of referral processes for local services, with a number of clinicians stating this had prevented services being accessed in the free text section of the questionnaire. Findings from the in-depth interviews also confirmed that clinician knowledge of services was a key barrier. They highlighted that it was nearly impossible to be aware of all service developments and that the current means of informing clinicians of developments e.g. via email, were ineffective. If clinicians were not aware of services then the potential for their use was nil regardless of any other barriers. A central list with basic information about what the services provide and how to contact them would therefore be valuable to clinicians. The list would have to be updated regularly however

and would need to take geographical boundaries into consideration in order to be of use. Alternatively, a role dedicated to coordinating services would tackle the problems of knowing what local services are available, how to access them, and then finding the time to execute such tasks.

One of the key barriers to service use was that clinicians had limited time. Clinicians had to consider whether or not it was feasible to dedicate time to accessing local services. Although the questionnaire did not show that the processes for referring to services were overly long, clinicians did highlight in the in-depth interviews that they felt that the securing (non acute) services for patients often took a disproportionate amount of time. If a disproportionate amount of time was devoted to one patient this may have inadvertently reduced the time, and therefore care, that could be given to other patients. It is important, therefore, that when clinicians do use their time in this manner, that their effort is worthwhile e.g. that the service is secured. Also, primary and secondary care clinicians both emphasised that they work in a fast paced environment and therefore need services that are fast paced in response, in order to prevent admissions to hospital. However, the response rate of services can be poor. The findings confirm the findings of Tierney et al who found that slow statutory service provision was perceived as causing delayed discharges (74). The findings of this study show that this problem is not isolated to those patients requiring discharge and that the time in which services are provided is perceived as affecting whether or not an inappropriate admission occurs. This failure to respond rapidly may explain why few secondary care clinicians surveyed, particularly MAU clinicians accessed community services. Failure to respond rapidly may relate to services having a limited amount of staff, or may be caused by inefficiencies in the delivery of the service. Clinicians perceived that there was a greater demand for key services than their capacity allowed, particularly rapid

response social service and community therapy services. Clinicians therefore called for an increased provision of these services.

The disproportionate inappropriate admissions of patients with MS and PD were examined by clinicians. The main finding was that patients with MS and PD often experienced an accumulation of risk factors for an inappropriate admission. The main factor that clinicians perceived as placing them at increased risk was their dependency on health and social care services and informal care. Alongside this, admitting clinicians were perceived as acting cautiously in the management of patients whom they were unfamiliar with. In addition, clinicians, particularly GP's, felt there was often a pressure to admit a patient experiencing a rapid decline in their health as the disease trajectory could be difficult for patient and family members to accept. This finding challenges the finding of Campbell that patients were willing to wait to access alternatives to admission and were less impatient than their doctors (1). However, this may relate to the emotive and distressing nature of crises when they occur for patients with LTNCs. The findings of Campbell, based on a non disease specific population, may therefore not be applicable to a population of patients with LTNCs (1).

The attitudes of clinicians towards inappropriate admissions and service use to prevent such admissions appear positive. By and large, the findings of the questionnaire and in-depth interviews showed that clinicians view inappropriate admissions as negative. There were two inadvertent benefits of inappropriate admissions highlighted. Inappropriate admissions temporarily reduced the workload of primary care services, particularly social services. Also, inappropriate admissions were perceived as providing leverage to patients and their carers in seeking to secure social care provision, as the arrangement of discharge services became a priority. The leverage may have been further increased by the introduction of the reimbursement charges

social services departments faced if discharges were delayed through failure to provide social services. Clinicians appeared to be willing to prevent inappropriate admissions but stated that that given the barriers highlighted they did not always go to the lengths required to avoid such admission. For example, clinicians reported during the interviews that due to time constraints and anticipated poor response time they did not always try to access services. Practically, clinicians did not view admission to hospital as the most prompt means of addressing medical issues and appeared confident that specialist medical care could be provided in the community. Patients' medical needs could therefore be met effectively in the community by existing services.

The findings from the patient interviews highlighted no obvious barriers to service use. GPs and ambulance service clinicians appeared to be the gatekeepers to other services. For patient participants whose symptoms were relatively complex GPs could be ill-equipped to deal with their problems. Only one GP who had a specific interest/knowledge of LTNCs was deemed able to address the patient's neurological related problems in the community. This confirms the findings of de Marco who found that the individual skills of GPs were a major determinant of referral behaviour (185). When GP's did not have specific skills in managing neurological patients, patient participants preferred to utilise specialist services, e.g. PD/MS nurse. Overall, it appeared that patient participants and their families were willing to be admitted to hospital when this was advised by a health care professional. Whilst the patient participants highlighted a number of disadvantages of admission to hospital, they appeared to be only minor. In contrast there were many benefits to hospital admission. The greatest benefit was that the patient would receive a detailed assessment, therefore ruling out serious medical problems. This related very much to the perception that hospital care was the gold standard of care. The patient participants did not highlight any barriers to use of services, other than not being able to access specialist clinicians out

of hours. The patient participants and their family did not appear to be acting as a barrier to clinicians accessing services. They appeared happy overall to follow the advice of their GP or of the ambulance service. There was no evidence that patient participants and/or their family had refused services offered to them, although preferences may lead to refusal in the future e.g. unwillingness to receive social support. This reflects the findings of Swinkels who reports, following a qualitative study of older patients whose discharge was delayed, that: 'older inpatients are traditionally inclined to be uncritical, 'grateful' patients who only express dissatisfaction at the point where quality is judged to be extremely poor' (151). Although, the participants who took part in the Phase III study were not isolated to elderly patients, it highlights that patients frequently are unwilling to question the decisions of clinicians.

All of the proposals discussed need to be explored further. Consideration needs to be given to the whole system. A change in one area inevitably impacts on another so, in order to reduce negative consequences, changes have to be carefully considered. The most obvious considerations would be the capacity of services to take on an increased number of referrals. Presumably, if services have a slow response rate, the capacity of the service is constrained or there are inefficiencies in the delivery of the service, or both. In either situation the capacity would need to be increased in order to take on additional referrals or speed up existing referrals. Whilst clinicians appear keen to try and access non acute services, consideration needs to be given to how well established behaviours can be changed and specifically how clinicians can be encouraged to seek service use prior to admission.

The patient participants with MS and PD who were interviewed highlighted a greater number of positive factors of being admitted to hospital than negative factors. Although the patient participants were happy to follow the advice of the clinician coordinating their care, their preferences for care when a health

problem occurs may be hospital admission rather than non acute care. This would be consistent with a previous study conducted by Nakano which showed that when admitted to hospital patients valued efficiency and professional competence (215). Although preferences for treatment were not explored within this study, it highlights that efficiency and the speed at which tests and investigations are performed and results received are important to patients. If patients were to prefer treatment in hospital for the reasons outlined then this would contrast the preferences of clinicians. If this were the case then it may be necessary to educate patients regarding the benefits of receiving non acute services in comparison to being admitted inappropriately to hospital.

Limitations

The study limitations are discussed below and examine the response rate to the questionnaire, the validity of the statements used to explore clinicians knowledge of services and potential bias in the recruitment of participants.

The response rate of the questionnaire was 16%, which is relatively low. However, given the occupational groups of the respondents, a poor response was anticipated. The aim was to achieve a sample of 100. In order to achieve this a large number of clinicians had to be approached. The response rate of each occupational group was comparable. However, as the number of respondents was relatively small in comparison to the overall potential sample the respondents may not have been representative of the varying characteristics of clinicians.

It terms of the statements used to examine respondents' knowledge of the services, it is noteworthy that such statements were designed to be generic and therefore applicable to all services. However, without speaking with individual clinicians employed by the services, it was not possible to

determine with certainty what they do and do not provide. The validity of the findings relating to respondents' knowledge of services cannot therefore be confirmed. Also, as many clinicians chose not to answer the questions relating to service knowledge, their responses were missing. Due to this it is not possible to determine the full extent of this problem. It may have been the case that only those who were confident of their service knowledge provided answers. If this was the case then the findings of the questionnaire may be underemphasising the extent of the problem. Also, technical problems with the online questionnaire meant that for a number of services the number of clinicians who answered 'don't know' to the questions that examined service knowledge was not available. Informal feedback from clinicians who completed the questionnaire highlighted the fact that many clinicians who had not used the service deemed the section to be inapplicable, and therefore rarely completed the related section. However, they may have not used the services due to a lack of knowledge about what the service provided or because they found it inaccessible. It would have therefore been useful to determine the reasons as to why clinicians had not used the service quantitatively. The answers given in relation to the key services may therefore be more representative of those who have used the service in the past.

Those who completed the questionnaire were self-selected. It may be the case then that those who responded had a specific interest in neurological conditions or inappropriate admissions, or both. If this was the case the results would reflect those with an interest rather than those without. There was no evidence however to suggest that those who completed the questionnaire had a specific interest, as only a quarter had undergone training in neurological conditions. It may be fair to assume that those with a particular interest would have undergone additional training. Overall, the results were designed to provide an insight into the common barriers

clinicians experience rather than assessments of individual services. Examination of individual services also served to aid clinician participants in their recall of service use. The targeted findings of the questionnaire are therefore complimentary to the broader examination of barriers in the in-depth interviews. However, due to likely variations in individual services the findings cannot be deemed an audit of services.

A subgroup analysis of responses, according to occupational group, was not completed due to time limitations. It is acknowledged that the experiences of clinicians in a community setting will be different from those based in a hospital setting. It would be beneficial then to complete an additional analysis according to occupational group, and this is an area for future research.

There are limitations that relate to the conduct of interviews. However, as these limitations are applicable to the findings in this phase and in Phase I they will be drawn together and discussed in the general limitations section of the final chapter, see section 6.3.4.

5.7 CHAPTER SUMMARY

The results of this study focus on the barriers that prevent non acute services from being accessed to prevent a patient being admitted to hospital inappropriately. Key barriers perceived by clinicians included knowledge of local services, the inaccessibility of services out of hours, the response time of services and the limited time clinicians have to organise services. Clinicians believed that patients with MS and PD experienced inappropriate admissions frequently due to their reliance on non acute service provision, to avoid an inappropriate admission. Clinicians described a variety of ways in which access to non acute services could be improved. Key methods included improving the response time of services, having a single point of contact when seeking to arrange services, extending the working hours of key services, increasing communication between generalist and specialist clinicians, having one document retained by the patient detailing the clinicians/service providers involved in the patients care, extending the rights of clinicians to refer directly to services. See Chapter six for recommendations.

The interviews undertaken with PD and MD patients did not highlight any obvious barriers to use of non acute services. The patient participants appeared happy to follow the advice of clinicians, frequently a GP or an ambulance worker. The patient participants described how they were often reassured when admitted to hospital as they would receive a detailed assessment, therefore ruling out serious medical problems.

**CHAPTER 6: DISCUSSION, RECOMMENDATIONS AND
CONCLUSIONS**

OVERVIEW

This chapter is a general discussion with draws together all the results of the three phases: appropriateness of acute admissions and lengths of stay (Phase 1), clinician perceptions of inappropriate admissions and lengths of stay (Phase 2) and barriers to service use (Phase 3). The chapter begins by providing an overview of the research carried out. Key findings are highlighted in section 6.2 and the limitations of the study methods are examined in section 6.3. Key recommendations for future research and service changes are listed in section 6.4. The chapter ends with a reflection of the research process, a description of the challenges and the unique contribution to knowledge the outcomes of this thesis makes (section 6.5).

6.1 OVERVIEW OF RESEARCH CONDUCTED

The research conducted consists of three phases. The primary aim of the research conducted in Phase 1 was to examine if patients with long term neurological conditions (LTNCs) were admitted to hospital inappropriately or for an inappropriate duration. This was achieved by using an expert panel to conduct an examination of patient case notes. A patient was deemed to have been admitted inappropriately if the panel of experts believed that the needs the patient presented to hospital with could have been managed effectively in an alternative, non acute, setting. Similarly, if there was evidence that the patient no longer had a level of need that required continued hospital admission their length of stay was deemed inappropriately long. If there was evidence that the patient was discharged yet remained to have a level of need that required continued admission their length of stay was deemed inappropriately short. The expert panel assessed whether or not the patient had experienced an inappropriate admission or inappropriate length of stay,

the causes of an inappropriate length of stay and the alternative forms of care that would have met the patient's needs, for both inappropriate admissions and inappropriate lengths of stay. As information was not available about events that occurred prior to the admission, it was not possible to determine the causes of inappropriate admissions. A sample of 119 patients were recruited to take part in this study. A sub-sample of patients (n=3) were interviewed and the interview findings, circumstances of admission and expert panel findings were presented as case studies in order to gain a more detailed and in-depth picture of the results obtained from the quantitative investigation. See Table 43 for a summary of the methods used in each phase of the study.

In Phase II, a study exploring the wider causes of inappropriate admissions and lengths of stay was undertaken. This ensured that the perceived causes of inappropriate admissions, which could not be determined in the prospective study, were examined. Two focus groups were conducted: one consisting of four multi-disciplinary clinicians and one consisting of four clinicians specialising in neurology. Once perceived causes of inappropriate admissions had been ascertained, potential interventions to reduce inappropriate admissions and inappropriate lengths of stay were explored.

The third phase of the study, sought to examine why alternative services were not accessed, e.g. barriers to preventing inappropriate admissions. The views of clinicians and patients regarding this were explored. A questionnaire completed by 117 clinicians examined their past use of key services, their knowledge of key services and their perceptions regarding the referral processes, feedback mechanisms and the effectiveness of key services in preventing inappropriate admissions, among others. This was complemented by in-depth interviews with 12 clinicians representing those who routinely admitted patients to hospital to determine the wider barriers/issues to use of

services. In-depth interviews with patients with MS and PD (the conditions of patients identified as experiencing inappropriate admissions disproportionately in Phase I) were conducted. The interviews examined their past experiences of being admitted and potential barriers. Five interviews with patients with MS and four interviews with patients with PD were undertaken.

The methods utilised in each research phase are presented in Table 43.

Table 43: Summary of Phase I, II and III aims and method

Phase I		Phase II		Phase III	
Aim:	To examine appropriateness of acute hospital admissions and lengths of stay for people with LTNCs.	Aim:	To examine, in depth, the perceived causes of inappropriate admissions and lengths of stay and to explore practical solutions or strategic changes which may reduce the occurrence of inappropriate admissions and/or inappropriate lengths of stay.	Aim:	To determine the barriers to use of existing health, social or community services for patients with LTNCs
Sample recruited:	Patients (n=119)	Sample recruited:	Clinicians (n=8)	Sample recruited:	Patients (n=9), Clinicians (n=117)
Data collection method:	Health record review, structured interviews (n=119) Patients: Various LTNCs	Data collection method:	Focus groups (n=2) Focus group 1 (n=4): <ul style="list-style-type: none"> • GP • Nurse consultant for older people • Acute care charge nurse • Consultant in respiratory medicine Focus group 2 (n=4): <ul style="list-style-type: none"> • Specialist neurology nurse • Epilepsy nurse (community 	Data collection method:	Interviews (n=9, n=12) Patients (n=9): <ul style="list-style-type: none"> • MS patients (n=5) • PD patients (n=4) Clinicians (n=12): <ul style="list-style-type: none"> • GPs (n=3), • Emergency Care Practitioner's (n=1) • Community

			<p>based)</p> <ul style="list-style-type: none"> • Consultant neurologist • Parkinson's disease nurse 		<ul style="list-style-type: none"> • matrons (n=3) • Accident and Emergency clinicians (n=2) • MAU clinicians (n=3)
<p>Data collection method:</p>	<p>Interview (Sub-sample [n=6])</p> <p>Interviews taken forward for analysis: Participants from the above subsample found to have been admitted inappropriately by the expert panel (n=3)</p>			<p>Data collection method:</p>	<p>Questionnaire (Separate sample [n=117])</p> <ul style="list-style-type: none"> • GPs (n=77) • Emergency Care Practitioner's (n=6) • Community matrons (n=10) • Accident and Emergency clinicians (n=13) • MAU clinicians (n=11)

6.2 KEY FINDINGS

6.2.1 Comparison of study findings with patient populations reported in literature

Inappropriate admissions

Phase I findings show that approximately a quarter of the patients recruited were admitted to hospital inappropriately. This proportion of patients admitted inappropriately is comparable to studies examining generic populations (all ages). Coast reported that 20% of emergency admissions examined were inappropriate, Campbell reported 28% of patients admitted to emergency medicine were done so inappropriately and Houghton reported 31% of admissions (patients to adult medical wards) examined were inappropriate (1, 3, 58). However, Smith and Koffman reported a considerably lower proportion of patients as admitted inappropriately, 6% and 13.5% respectively (5, 6). In this area of study results can be expected to differ as each hospital studied will be unique due to the internal organisation of the hospital, the local demography and the level of provision by different agencies, to name but a few variables.

One study cited in this thesis examined the appropriateness of admissions of older people. Houghton, found that those aged 75 and over had the greatest proportion of patients inappropriately admitted, 35%. However, patients aged 65-75 had the lowest proportion along with those aged 45-65, 28% (3). Due to the scarcity of literature in this area it is not possible to make a firm statement regarding the comparability of study findings presented in this thesis and those of studies focusing on older people. The fact that the literature in this area is lacking is an interesting finding in itself, considering the greatest proportion of patients admitted to hospital will be elderly. It may be the case that clinicians and researchers are too accepting of the need to

admit older patients. Historically, old age has related to increased chronicity, care needs and the provision of institutional care. Although there is an evident shift towards early intervention and prevention, and increased community care provision, it may be the case that there is an unjustified acceptance that hospital admission is an inherent part of old age.

There is very little literature examining the admissions of those with long term conditions. Ingold reports that 9% of admissions of a mixed sample of people with long term conditions (over three quarters with long term conditions) were inappropriate. Again, a firm statement cannot be made about comparability of findings. Clearly the figure reported by Ingold is considerable lower than the figure reported in Phase I.

Inappropriate lengths of stay

The length of stay of participants was frequently found to be inappropriate (70.0%) in the study undertaken in Phase I. Comparisons with generic populations, all ages, shows that the proportion of stays found to be inappropriate in our study was somewhat higher. For example, Coast found 54% of lengths of stays to be inappropriate in one study and 64% of lengths of stay in another, Smith found 45% inpatient stays were inappropriate, and Houghton found 66% to be inappropriate (3, 5, 48, 88). When comparing the findings from studies examining the length of stay of older people, the findings are more comparable. Houghton, found that 75% of the last inpatient day for those aged 75 and over was inappropriate (3). Koffman, in a UK study examining three acute treatment wards found that of 118 patients, 16 (13.5%) experienced an inappropriate length of stay, 88% of those who experienced an inappropriate length of stay (88%) were aged 65 and over. Although firm conclusions cannot be made, as a control group of patients with no long term conditions was not used, it may be the case inappropriate lengths of stay are more prevalent amongst patients with LTNC than generic

or older populations, and this may be due to the increased complexity of care required whilst an in-patient and required to facilitate discharge.

The appropriateness of length of stay reported in the focused review for patients with long term medical conditions, was typically considerably lower than the proportion reported in this thesis. For example, Mushlin reports 44% of patients as experiencing an inappropriate length of stay, Ingold, 35% and Griffiths 44% (104-106). However, health and social care provision is considerably different today from the time when these studies were conducted. Specifically, the number of acute beds has reduced (although more recently began to increase) as has the length of stay, it is likely that it is less culturally acceptable (within the system) for patients to remain in hospital. A statement regarding comparison of study findings with populations of patients with long term conditions is therefore not possible.

Characteristics associated with an inappropriate admission

The support available to people, either informally (lives with others) or formally (lives in a nursing/residential home) was found in Phase 1 to impact the appropriateness of care patients receive. There may be a paternalistic approach to risk (albeit calculated risk on the patients behalf) by clinicians, which is heightened when the patient lives alone. There may be increased concerns by clinicians for the safety of patients who live alone with a LTNC, impacting on the willingness of clinicians to discharge patients either following an admission or an assessment in the A and E department. Also, anecdotally, it is not infrequent for a patient with a LTNC to have lived independently in the community for many years, yet for their practices to be deemed unsafe when scrutinised by secondary care clinicians. Previous research has shown that a patient's ability to care for themselves and their dependency on community services has an impact on the appropriateness of admission and length of stay (3, 9, 58, 74, 105). For example, Coast showed that patients

who were in receipt of community services were twice as likely to have an inappropriate admission (58). However, our study showed the opposite, those who were admitted inappropriately were less frequently in receipt of community services. In Coasts generic sample, the provision of community services may have been indirectly related and indicative of greater care needs. In our study sample, where all participants had some form of lasting impairment and a large proportion had care needs, the provision of community services may have had a protective effect, as it meant the patient had support already arranged and available to them, enabling a safe discharge following assessment.

Characteristics associated with an inappropriate length of stay

In terms of length of stay, living arrangements i.e. living alone in your own home, were related to inappropriate lengths of stay, reflecting previous research (9, 105). In addition to this, factors such as having reduced mobility, increased impairments in basic activities of daily living before hospitalisation and at admission, an abnormal Geriatric Depression Score and an abnormal MMSE score have been reported in the literature as being associated with an inappropriate length of stay (9, 105). Although increased impairment and reduced mobility, as measured by the FIM, MMSE and GNDS, were not found to be associated with an inappropriate length of stay, the complexity of the patients problems, i.e. number of LTNCs and number of presenting complaints, were. Qualitative studies have reported that care is often uncoordinated and a lack of organisation of the admission process, including completion of scheduled tests and procedures, can lead to inappropriate lengths of stay (72, 73). In our study referral to physiotherapy and social services was associated with inappropriate lengths of stay, it may be possible that this to some extent relates to the coordination of care, although further research would be needed to ascertain this.

Structural causes of inappropriate admissions/lengths of stay

Studies conducted over thirty years ago called for improvements in service provision, particularly social services, to help reduce inappropriate admissions (70). However, 30 years later there still appears to be a problem of budget allocation amongst health and social care services. One of the most consistent findings of the qualitative interviews (Phase II, Phase III) conducted as part of this study was that clinicians continue to perceive that this is an area where investment fails to meet the needs of the LTNC population. Failure to invest in the services primarily associated with the care of the elderly is long documented, and appears to be continuing despite efforts to improve services for those with LTMCs, for example those documented in the NHS plan (28, 118). In the studies presented as part of this thesis community physiotherapy, community occupational therapy and specialist nursing posts were thought to be poorly funded. Therapeutic services are key to the rehabilitation of patients with LTNCs and the finding that they have limited capacity is consistent with previous studies that have shown rehabilitation services to be limited and impacting on admissions and discharges (194). The importance of community rehabilitation and support has been highlighted in quality requirement five of the Long Term Conditions National Service Framework (NSF) and should be an area that commissioners seek to address, both in the study locality, Derbyshire, and the rest of the UK. The clinicians interviewed in Phase II also stated that funding of specialist nursing posts was being restricted following budget cuts. There is a need for community clinicians to have rapid access to specialist advice, highlighted in the NSF (10). In the past authors have commented on the inattention paid to the special needs of vulnerable groups, rationalising specialist nursing posts may be seen as evidence of this (74). These problems will also be applicable to other condition groups that require specialist input in their care.

Whilst there is an awareness of the lack of rehabilitation service provision, clinicians felt that little attention was given to the sub-acute needs of those with little or no rehabilitation potential (6, 107). Clinicians who participated in Phase II of the research called for services that provide convalescent care. In the UK, nursing-led inpatient units exist enabling patients who have completed their acute care to be managed by nurses until they are ready for discharge. However, such units frequently prioritise therapeutic or rehabilitative nursing care needs of post-acute patients (109). When examining the service requirements of elderly patients McDonagh states that patients require care that is at a level between a 'patient hotel' and acute hospital care. Importantly, McDonagh does not focus on rehabilitation services, which are the most noted service gap in appropriateness studies. Aside from the recommendation of McDonagh, the finding that there is a lack of convalescent care is unique to the existing literature. The NHS plan outlines step down facilities as a service area that may come under the heading of intermediate care. Therefore, reconfiguration of intermediate care to include nurse led convalescent care rather than solely rehabilitation is needed (31).

Organisational causes of inappropriate admissions/lengths of stay

In terms of the organisation of local services, a key concern was the failure of services to respond rapidly to patient referrals. The organisation of services means that very few have an obligation to respond rapidly, within the same day. Of those services that are designed to be accessed rapidly, such as Intermediate Care Services (ICS), the timeframe in which they are obliged to provide the service is 72 hours. Due to the changeable nature of LTNCs a timeframe of 72 hours was perceived as inadequate to prevent an inappropriate admission. This reflects the findings of the survey undertaken as part of the NHS Plan, which found that clinicians experienced considerable problems when trying to access services within a suitable timeframe (both

within hospital and in primary care) (31). It is necessary, therefore, to explore the feasibility of reducing the response time for urgent referrals. It was evident that for one clinician, a community matron, she had been able to access the ICS rapidly and without any difficulties. The participant believed this was due to a mutual respect between her and colleagues in ICS who knew she would only utilise the service in urgent situations. The increased understanding of the service parameters, what care they can and cannot give, the capacity of services to respond rapidly, and effective communication between individuals in this case, highlight how individuals can create vantage points in an inefficient system.

Although a lack of rapid response services was a consistent cause of inappropriate admissions identified throughout the thesis, it must be noted that when individual services were examined in Phase III the response time of services was not raised as an obvious barrier. It may be likely that the response time of services have become normalised amongst clinicians. For example, if occupational therapy is organised in a way where response time averages between one week and two weeks for urgent referrals, then over time this is reinforced as the 'normal' time for response. Clinicians may only have noted this as a barrier if the response time deviated consistently from the 'norm'. Those clinicians who participated in Phase II interviews however were seeking to identify overarching causes and therefore may have been better placed to identify this as a problem.

Also, long term inefficiencies in coordinating inpatient referrals have been long noted in the literature and remained to be a problem in the Phase I study presented in this thesis (3, 106, 115-117). The lack of alignment of working hours between key services, e.g. acute 24 hours versus day time hour investigative services, are the most obvious cause of these inefficiencies. Planning inpatient care on admission, something found to be lacking in our

study, may help to improve the efficiency of management and should include identification of likely service requirements (whilst admitted and following discharge) and discharge goals.

Inefficiencies in delivering inpatient care, for example clinicians having to wait for opinions to be provided by others or having to await decisions by senior physicians (due to the infrequency of consultant ward rounds) have been documented in the past as leading to short term delays in patients' discharges, and were perceived to impact care in our study (6, 115, 159). For example, in a number of cases, patients in this study were waiting for a senior physician to make a decision regarding discharge. Due to the medical hierarchy junior doctors will often wait for decisions regarding a patient's discharge to be made by the caring consultant. This may relate to individual factors for example, risk aversion and the confidence the physician has in their decision making. However, from my observations it appears that this tendency, to wait for a more senior opinion, is a cultural feature of the system. There is clear a medical hierarchy that guides junior doctors behaviours, i.e. there is an expectation that junior doctors will await a more senior assessment.

Individual causes of inappropriate admissions/lengths of stay

At an individual level, perceived causes of inappropriate admissions and lengths of stay frequently related to the lack of knowledge regarding the management of patients with LTNCs by generalist clinicians. This is in keeping with previous studies that have found that patients with disabilities report that their health care providers frequently lack disability specific knowledge (167, 181, 182). A poor awareness of the needs of LTNCs patients whilst in hospital led to poor inpatient management that often exacerbated the patient's symptoms. It was proposed that limited exposure to patients with LTNCs may account for limitations in the knowledge of GPs. Provision of

training for GPs in the management of LTNC was therefore suggested. However it is appropriate to expect generalist clinicians to have specialist knowledge of disabilities? Generalist clinicians meet particular needs i.e. general population needs, whilst specialists meet other needs, specialist needs of a smaller population. This can be seen as functional differentiation and as stated (chapter 2) means when a system is differentiated along function grounds, the various functions/departments become interdependent. Ensuring departments or in this case generalist and specialist clinicians communicate with each other and utilise each others specific functions i.e. generalist clinicians draw on specialist clinicians knowledge and visa versa, appropriate care can theoretically be given. However, there is evidence that communication failures between specialist clinicians based in the community and secondary care generalist clinicians are occurring. Authors in the past have noted that communication between primary care and secondary care clinicians is often ineffective (50, 74, 167), as is communication between the NHS and Local Authorities (118). Similarly, deficits in the availability of information for out of hours clinicians was perceived as leading them to act cautiously when determining the appropriate management of patients with LTNCs, reflecting previous studies (164, 165). However, if out of hours, or more generally clinicians unfamiliar with patients and their health condition, communicate effectively with those who are familiar with the patient, appropriate care can be given. It is unclear why clinicians fail to make contact with each other, drawing on each others expertise/experience. It may be possible that failure to communicate relates to a lack of information regarding who is involved in a patients care or alternatively lack of time in which to do this. However, it may also relate to a lack of commitment by clinicians towards communicating with clinicians who are functionally different from them, i.e. working in a different area/setting. As communication problems between personnel who work in primary and secondary care settings have been documented as far back as 20 years ago, it is possible that failure to

communicate effectively with primary care clinicians is now an ingrained feature of the NHS. This is a serious concern, as ingrained cultural features e.g. norms and values, of a system are difficult to change.

A key finding of phase III was that hospital nurses and doctors were relatively ill informed about service options in the community. This finding is consistent with other studies that have found limited knowledge of service availability and referral mechanisms amongst clinicians (187, 188). As stated in Chapter 5, it may not be appropriate to expect medical clinicians to spend time updating their knowledge base when time is constrained. This is especially the case when the present mechanisms for informing clinicians of service updates are so disordered and ineffective. Introducing mechanisms which enable clinicians to draw on others knowledge, i.e. social workers employed specifically to coordinate services, or reduce the knowledge required to access appropriate services i.e. by having a single contact point for accessing health and social care services, may alleviate this problem.

The GPs who were interviewed acknowledged that in the past they had referred patient's to hospital when it was not medically necessary, confirming findings from previous studies (171, 175, 176). This problem was not isolated to GPs, however, and was common amongst all admitting clinicians. There were a number of reasons why clinicians would refer a patient to hospital which included reassurance that the patient would be assessed and response to pressures exerted by the patient and family. The most pervasive reason, however, was that clinicians had limited time in which to access services and it was often easier to refer patients to hospital than access alternative services. These findings are consistent with previous findings that have shown time constraints, availability of services and pressure to refer by patients reduce the tendency of GPs to explore alternatives to hospital admission (170, 184-186). Again, due to interdependency of the system

components when the needs of one component are not being met by another, inefficiencies/inadequacies are produced. The system currently does not meet the needs of the referrers, which are to have access to rapid response services, to name but one. The capacity of referrers to provide the clinically appropriate care is therefore restrained. The solution, therefore, is for alternative services to be designed in a manner that enables them to be accessed as readily as acute hospital services.

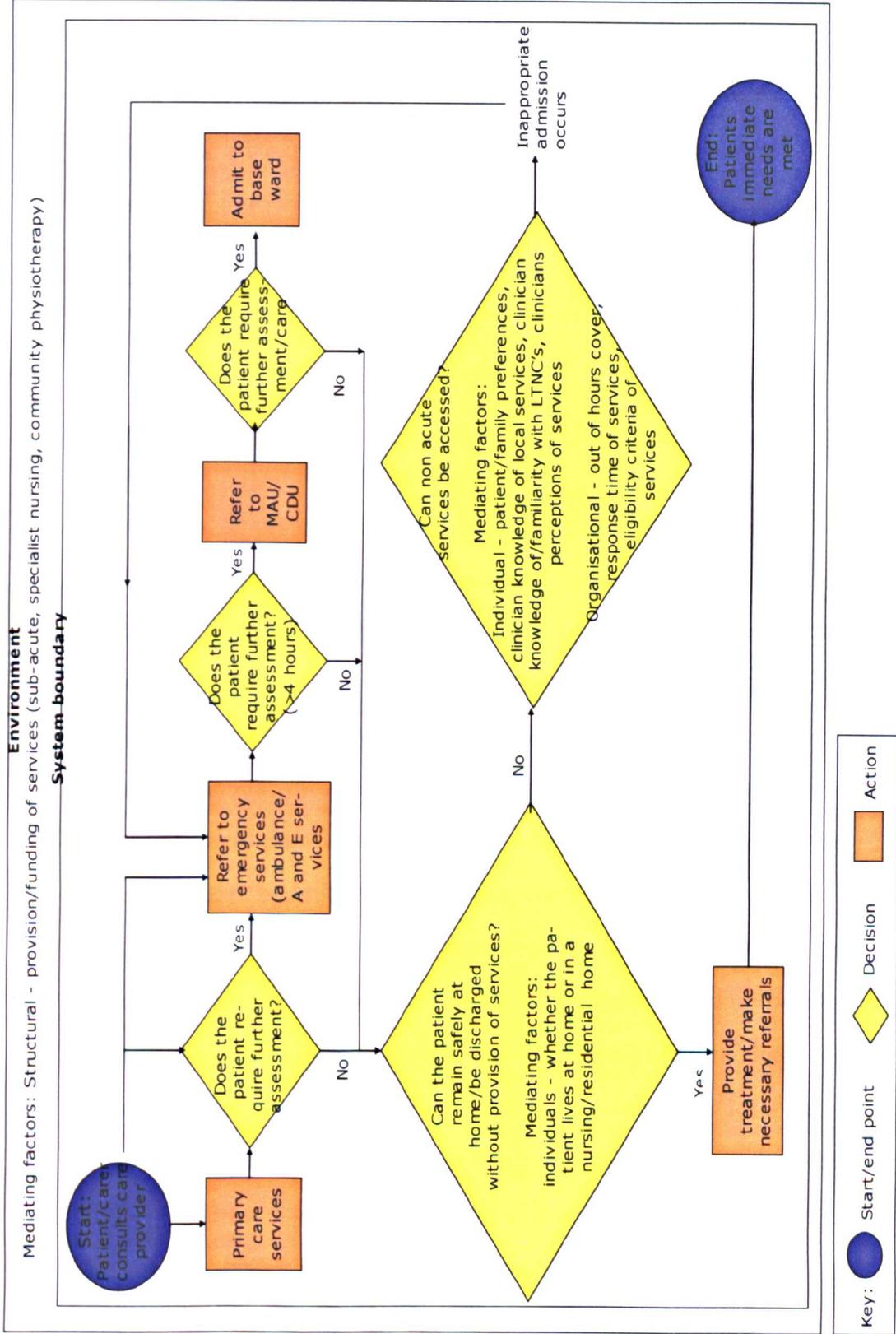
6.2.2 A system model

Evidence from Phase II and Phase III show that inappropriate admissions and inappropriate lengths of stay have not become normalised amongst clinicians. Clinicians are keen to avoid inappropriate admissions, and facilitate discharges from hospital. However, they are considerably constrained by the system and the services that are available to them.

As stated in Chapter 2, it is impossible to ascertain clearly what constitutes a system and what constitutes a systems environment. It is the task of the researcher to propose what they believe is contained within the system, the interrelatedness of system components and the norms and values of the system. In Chapter 2 (see section 2.8.3) a system model was proposed based on the review of the literature. A modified model based on the findings of this thesis is proposed below, see Figure 7. The model has been created utilising a more sophisticated modelling technique than the model proposed in Chapter 2. The processes, including the sequential decisions and actions of actors in the system, are given. The findings of the thesis are represented as mediating factors and organised according to those factors that relate to the structuring of services, the organisation of services, and the behaviours/decisions of individuals within the system. It is hoped that through modelling the system in this way the reader is provided with a

greater insight into the difficulties experienced in trying to prevent an inappropriate admission and/or an inappropriate length of stay.

Figure 7: Process map: Management of patients with LTNCs when a health/social problem occurs



6.3 LIMITATIONS

The limitations of the research methods used in the studies presented and the study findings are given below. The limitations relate to the utilisation of an expert panel method, the representativeness of the patient sample recruited in Phase I of the research, the validity of the findings from the patient interviews in Phase I, and III, the generalisability of the Phase I, II and III research findings, and the limitations in the scope of the research.

6.3.1 Expert panel method

A limitation of utilising a group method is the potential effect of psycho-social influences. As discussed previously (see section 2.2.1) it is possible that in a group situation weaker members may be inclined to conform to the opinions of the more confident members. Furthermore, group members may also be persuaded by those who appear most confident in their arguments, or those who appear to have more expertise (49). A novel amalgamation of the nominal group technique and delphi process utilised in Phase I sought to reduce the impact of psycho-social influences. Also, the use of this technique, whereby members provide the moderator with a preliminary decision, allows the intra-rater reliability of decisions to be examined as well as their inter-rater reliability. Inter-rater and intra-rater reliability was found to be moderate to good in this study. In terms of intra-rater reliability, the preliminary decisions of rater 1 (a hospital consultant) were found to have been in accordance with the overall panel decision least frequently. Previous studies have shown that consultants tend to be conservative in assessing patients' treatability outside hospital, it may be the case

that this expert panel member less frequently deemed admissions inappropriate, in comparison to the other members, and this would be consistent with this finding (48). However, it is also possible that rater 1 was the least confident member of the group and was influenced by the remaining two physicians; however this was not evident during the meetings. The preliminary decisions of rater 2 were most frequently the same as the expert panel decision. Rater 2 was a neurological rehabilitation medicine consultant who worked in a directorate that provides outreach neurological therapy and outpatient services. This member would probably have the most condition specific knowledge and experience regarding the management of LTNCs. Also as she had worked across primary and secondary care boundaries, she would have been familiar with both primary and secondary care services. It is a possibility that other raters changed their decisions to conform with this rater if she was deemed to be the specialist and therefore most knowledgeable in the field. Although both inter-rater and intra-rater reliability was acceptable, it is not possible, for the reasons outlined, to separate the outcomes of the group from the context in which they are created. This is an inevitable limitation of this method of assessment.

The use of a multi-disciplinary expert panel in studies that assess appropriateness of admission and length of stay is novel. The benefits of using a wider multi-disciplinary expert panel in comparison to a uni-disciplinary expert panel to assess management strategies were thought to outweigh the limitations. For example, it allowed a holistic examination of the patient's needs and comprehensive examination of appropriate management strategies. The wider expert panel was made up of eight multi-disciplinary

clinicians which was an ideal number for group meetings (small enough for the moderator to effectively manage yet large enough to collect the required information) (213). However, the expert panel determining appropriateness alone consisted of three medical physicians. This is a relatively small number on which to base the decision of appropriateness and therefore must be noted as a limitation of the findings.

By using an expert panel method it must also be acknowledged that the results of Phase I will be subjective to some extent, and if reproduced with a different group of experts the results may differ. However, this problem is inevitable given that appropriateness studies are essential dependent on the subjective opinion of a group of individuals yet are seeking to create an objective answer. Studies assessing validity of appropriateness tools have also shown that there will be inevitable variations in the assessments made (i.e. the tool compared with expert panels).

The expert panel detailed the actions they believed would have ensured an appropriate length of stay for those patients who remained in hospital inappropriately. For example, the panel identified that in a number of cases inpatient management was poorly coordinated and delays followed. It was therefore suggested that one physician only should coordinate care. However, this presumes that having more than one physician coordinating care is the cause of poor inpatient management. Without determining the number of physicians involved in a patient's care and assessing whether or not this is associated with an inappropriate length of stay, this cannot be ascertained and is therefore an assumption of the expert panel. This is the case for many of the suggestions by the expert panel regarding

actions needed to improve the discharge of patients. It must therefore be acknowledged that these findings are born more out of the experiences of the expert panel and their perceptions than objective evidence. Prior to making changes to the inpatient management of patients it would be advisable to examine the causes in greater depth. For example, it would be useful to know if the number of physicians involved in a patient's care is associated with the occurrence of inappropriate lengths of stay.

6.3.2 Representativeness of patient sample

With quantitative methodology, the aim is to select a representative sample from the population of interest. This increases the extent results can be generalised to the wider population (from which the sample was taken). In Phase I the sample of patients was ethnically representative of the Derbyshire population as 97% of the study sample were white, 2% were Pakistani and 2% were Indian (35). The sample recruited in Phase I however, were not representative of the Derby City population, which is geographically closest to the study hospitals. Within Derby City 12.6% of residents are from a Black or Minority Ethnic (BME) group with the largest ethnic group being Pakistani (4% total population) and Indian (3.8%) (35). A small proportion of the study sample was from a BME Group, 4%, which is low compared to 13% of the Derby City Population. However, the largest BME groups, Indian and Pakistani, were represented in the study sample. It is likely that due to language barriers a number of patients from BME groups were not recruited. The unavailability of the study information sheet and consent form in alternative languages would have further exacerbated such barriers. In these situations the recruitment of patients was dependent on the study information being

translated on behalf of the researcher by family members or friends. Provision of study information in alternative languages may have increased the representativeness of the study sample. However, due to financial constraints it was not possible to reproduce materials in alternative formats or to recruit professional interpreters.

Also, it is possible that biased may have been introduced in the recruitment of participants to the Phase I study. A large proportion of eligible patients were discharged before consent or assent could be obtained. This was due to problems with obtaining assent from relatives or friends (see Chapter 3, section 3.4.3 for further details). It is probable, therefore, that the sample was skewed towards those who were able to give informed consent and therefore had little or no cognitive impairment.

For the Phase II and Phase III interviews with clinicians, and Phase I and III interviews with patients, the data collection method was qualitative. The results produced are designed to offer a descriptive insight into the perspectives of clinicians, rather than produce objective and generalisable findings (216). The purpose of qualitative research therefore is to generate deeper understanding and insight into the topic, rather than transferable data. However, it is likely that the clinicians who agreed to take part in Phase II and Phase III were those with a specific interest in LTNCs or inappropriate admissions/lengths of stay. They may not therefore be typical of the larger population of clinicians. Similarly, patients who agreed to take part in Phase III interviews may have had more of an interest in research, or had extreme experiences/views of hospital admission, than those who did not wish to take part. However, this did not appear evident from the findings.

6.3.3 Findings from patient interviews

It is important to examine the findings of the in-depth interviews and their potential limitations. As part of the interviews completed in Phase I (case studies) and Phase III participants were asked to speak about their disabilities and their experiences of hospital admission. Due to the personal nature of these questions, participants could have felt uncomfortable discussing them, which may have led to questions not being answered fully or truthfully. This may also have been the case when patients were completing the measures of disability (the Functional Independence Measure and the Guys Neurological Disability Scale). However, all participants were told explicitly prior to the interviews that if there was anything they were uncomfortable speaking about then they did not need to discuss it. It appeared, however, that all patients were happy to speak about their disabilities and experiences.

6.3.4 Generalisability

Due to differences in local service provision and the organisation of secondary and primary care services a number of the findings from Phase I, II and III will also be locality specific. For example, it was noted that community physiotherapy was a particularly scarce resource. Similarly, neurological consultants were only available at Derby Hospitals four days per week. These findings may therefore only be applicable to the Derbyshire area. However, the findings that relate to the wider causes of inappropriate admissions or lengths of stay and the barriers to service use identified, will be applicable to all UK health care settings. For example, problems with out of hour's access to services, time constraints impacting clinicians' ability to access services and a lack of community services, will be common to

many UK trusts. The reader must therefore interpret which results can be applied to other health care settings.

6.3.4 Scope of the research

The driving force of the studies reported in this thesis has been to prevent patients with LTNC being subjected to the negative consequence of admission to hospital. With the hospital system designed to meet acute needs the complex needs of patients with LTNCs can become neglected whilst in hospital. Whilst the thesis has been able to inform readers of how many inpatient stays and admissions were deemed inappropriate, it has not been able to determine if patients would have been cared for more effectively outside of hospital. Also, the findings detailed in this thesis has not been able to determine if care of patient outside of hospital would be more cost effectively outside than in hospital. These are exceptionally important factors relating to inappropriate admissions/lengths of stay and need in-depth consideration. Failure to consider these fully may therefore be perceived as a limitation. However, given the vastness of the healthcare system it was not possible to examine all related factors in the timeframe available.

6.4 RECOMMENDATIONS

The studies conducted have sought to examine the causes of inappropriate admissions and inappropriate lengths of stay for patients with LTNCs. The key causes have been highlighted. Informed by the research, it is possible to highlight potential areas of intervention and future areas of research to commissioners, service providers and clinicians. Exploration of whether or not the actions detailed in the recommendations would be effective at reducing

inappropriate admissions would need to be undertaken however prior to implementation. This is because the findings of the research suggest intervention in these areas may be helpful but does not prove they would be helpful. Nine key recommendations concerning the delivery of services and for future research have been derived from this study and are listed below. Of the nine recommendations, four were made as a result of Phase I, two as a result of Phase II, and three as a result of Phase III.

6.4.1 Recommendations arising from Phase I of the study

1. Increase the capacity of the clinical decision unit

Management of patients in the clinical decision unit was found to be the preferred alternative for patients admitted to hospital inappropriately. However, at the time of the research being conducted, the clinical decision unit at the study site had only eight dedicated beds and operated during working hours only, so there may be an issue with the capacity of the service to take more referrals. This may also be the case across the UK. Hospital managers may want to consider increasing the capacity of the clinical decision unit to prevent patients being admitted to the MAU unnecessarily, where further delays may be experienced e.g. due to awaiting a consultant ward round, hand over of care. It would also be essential to ensure that the patient to clinician ratio remained the same, e.g. increases in the number of patients are paralleled by increases in the number of clinicians, to ensure the care given to patients is not delayed.

2. Examine the impact of having limited neurology consultant cover at Derby Hospitals

The limited neurology consultant cover and therefore the receipt of a neurological opinion was noted as a potential mitigating factor as to why the length of stay of a small number of patients was inappropriate in Phase I. In Phase II the limited capacity of such consultants was also found to be a concern of the neurological clinicians interviewed. The set up of neurological services at Derby (Hospitals) may therefore be having an impact on the appropriateness of inpatient stays for a number of patients. Although the limited consultant cover was found to have led to very few delays in discharge in Phase I it is likely that limited neurological consultant provision will be affecting not only patients with a LTNC but those presenting with an acute (first occurring) neurological condition/complaint (and who were therefore excluded from the study). As stated previously, patients with neurological conditions account for 20% of acute admissions to hospitals in the UK (10). Further research would need to be conducted to determine the number of patients whose length of stay is extended due to waiting for a neurological opinion. Also, whilst the provision of rehabilitation services was not noted to have caused any delays in the discharge of patients recruited, given the fact that rehabilitation medicine can be instrumental in the ongoing management of many patients with a LTNC, this may also be an area where further investigation is warranted. If it is shown that the length of a large number of inpatient stays are being elongated, investment in this area and an increased provision of neurology physicians may be justified.

3. Determine the hospital diagnostic/therapeutic services that would benefit from extended opening hours

One of the key causes of inappropriate lengths of stay was the occurrence of delays in the provision of investigative and therapeutic services. The availability of such services is drastically reduced over the weekend. Extending the services to include weekend provision may have aided the discharge of patients with LTNCs in this study. Likewise, extending the capacity of key investigative services would be beneficial. However, it would be necessary to determine the investigative services that are most in demand to determine where increased investment should be targeted. This would be consistent with calls from the Department of Health to extend the opening hours of key diagnostic services (120).

4. Pilot use of a checklist designed to streamline inpatient management

There appears to be some problems with the coordination of inpatient care, particularly ordering of tests/assessment and identifying services required for discharge in the study hospitals. Checklists used to coordinate care have been shown to be effective in the past (121-123). The development of a checklist was appraised as a possible intervention following the completion of Phase I. Following discussions with the acute care lead of the Derbyshire Royal Infirmary it was felt that a relatively simple document could be instrumental in focusing the admitting physician's thoughts as to the requirements for discharge. Following on from Phase I, a draft checklist, taking into consideration existing literature, was designed and may be of use to clinicians in the future. The checklist entitled 'consultant ward round case notes' was designed to be completed by the caring consultant following the admission of the patient to the MAU and may

help to streamline care, see Appendix 19 for details. As the checklist was designed following an appraisal of relevant literature, piloting this without a further exploratory study may be justified. Furthermore, the piloting of such a checklist would be extremely straightforward and would involve minimal costs and disruption to patient care.

6.4.2 Recommendations arising from Phase II of the study

1. Pilot the use of patient retained summaries of specialist consultations

A lack of clinical information relating to the baseline clinical and functional state of patients with LTNCs was thought to have an impact on the management of LTNC patients out of daytime working hours. Clinicians managing patients with LTNCs were thought to act cautiously, therefore admitting patients inappropriately. An intervention where a summary of specialist consultations is retained by the patients would provide generalist clinicians with vital information that is currently missing in the community care sector. On face value this would present a low cost intervention that would help to achieve Quality Requirement 11 of the National Service Framework i.e., that every effort should be made to consult specialist clinicians when a person with a LTNC is admitted. Specifically, it would provide information out of hours when personal interaction with specialists is not possible.

2. Pilot the use of a list detailing local services and their referral mechanisms OR examine the feasibility of employing professionals to arrange and coordinate referrals

One of the key findings of the Phase III research was that a key barrier to use of services was the lack of knowledge regarding what services were available in the local area, their eligibility criteria, what

they provide and their referral processes. Clinicians made two recommendations of how accessibility could be improved:

- a. A central list with basic information detailing what the services provide and how to contact them should be compiled. The list would have to take into consideration geographical boundaries so it was clear to clinicians which areas were and were not served by the service. Mechanisms would also have to be put into place to ensure that the list was updated regularly. In-depth consideration would have to be given as to how the list would be promoted and marketed. Feedback from clinicians regarding the distribution of service specific information was that emails and letters were ineffective.

- b. Alternatively, a specific role commissioned to coordinate services on behalf of clinicians would remove the time consuming task of service referral and coordination from clinicians. Removal of the administrative tasks would help to release time for clinicians enabling them to perform clinical duties and would increase the likelihood of alternative services being accessed prior to a patient being admitted (inappropriately). However, this would involve considerable investment. It would be necessary to conduct further research to determine the feasibility of creating/funding such a role.

The above recommendations do not take into account any cost implications. It would be essential for the cost implications of this to be examined prior to any changes being made. In addition, it would be essential to model if making such changes would allow for the current demand to be managed more effectively or if it would lead to

increased activity. Consideration would also have to be given to how potentially increased activity could be managed.

6.4.3 Recommendations arising from phase III of the study

1. Extend the referral rights of A and E consultants to include direct referrals to outpatient appointments

The findings of Phase III showed that consultants working in the A and E department were unable to refer a patient for an outpatient appointment. Instead, they often had to admit the patient to the clinical decision unit or the MAU for the referral to be made. It was felt that this prevented patients being discharged from the A and E department, caused a number of inappropriate admission to the clinical decision unit/MAU and elongated the time the patient spent in hospital overall. The limited capacity of the clinical decision unit has already been discussed; unnecessary utilisation of the unit in this way further limits the capacity of the unit. Allowing A and E consultants to refer a patient for an outpatient appointment would ensure that the patient's stay in hospital was not prolonged unnecessarily and would prevent valuable beds being occupied unnecessarily, thus maintaining the flow of patients through hospital.

2. Considerations of service specific research findings by service managers

The findings of the research represent the perceptions of a sample of Derbyshire clinicians. The research conducted does not represent an audit of individual services. Nevertheless, managers and commissioners may want to consider the findings when making changes to the organisation of the service/s in the future.

Improvements in the response time of the community occupational therapy services in Derbyshire and simplification of the referral

process may be beneficial and improve accessibility to the service by clinicians.

At the moment it appears that of all the services examined, social work has the greatest barriers to use. In the future it would be advantageous to examine how the referral processes and response time can be improved.

3. Examine the working processes of the Intermediate Care Service to determine how efficiency can be improved and response time reduced

ICS were deemed to be one of the most instrumental services in preventing inappropriate admissions; however, few GPs were using the service. Given that GPs are large referrers of patients to hospital this under utilisation may be contributing to the inappropriate admission of patients to hospital. An evaluation of this service specifically should be conducted. The evaluation should seek to determine the existing capacity of staff and examine the 'processes' used in the service. A business process reengineering technique would provide a suitable framework for assessing such processes. This would allow areas of inefficiency to be identified and addressed e.g. through removal of task duplication and utilisation of technology.

6.5 A REFLECTION OF STUDY CHALLENGES

A key aspect of completing a PhD is the ability to reflect on one's work and to learn actively from the experience. Therefore, I have highlighted the key challenges experienced through completing the PhD, how they were overcome and what lessons were learnt from overcoming the challenges.

There are a number of challenges that I experienced throughout the course of this study. The aim of the first part of the study was to confirm if inappropriate admissions and inappropriate lengths of stay were being experienced by patients with LTNCs, thus confirming the clinical impression of the clinicians and academics who sought the funding for the PhD. This presented several challenges. As highlighted in Chapter two, the methods used to determine appropriateness can be highly subjective with each method having significant limitations. However, because an area is difficult to research it does not mean it should be avoided. Therefore, the first study challenge was to select the most appropriate method of determining appropriateness. Upon deciding to utilise an expert panel it was necessary to recruit the clinicians to take part in the study. This was a great challenge as no funding was available to reimburse employers for the use of staff time or to cover associated expenses (e.g. travel costs). Also, the required time commitment was relatively large; eight meetings each lasting approx two and a half hours over six months. This task of recruiting experts was completed through (a) utilising the links already established between my colleagues in the Department of Rehabilitation and primary/secondary care clinicians, (b) targeting those who had a specific interest in LTNCs, (c) targeting GPs who worked part time (and therefore had a greater amount of time to take part in the meetings.) This is one aspect of the study that I am extremely proud of.

As outlined in Chapter three (section 3.5.3) there were a number of difficulties in the recruitment of patients. Due to the nature of LTNCs it was anticipated that a proportion of patients admitted to hospital would be unable to provide consent to take part. In these cases assent could be obtained for these patients to take part in the study.

The study examined the admissions of patients to two hospital sites. Both hospitals had the same visiting hours, making it impossible to speak with family members or friends of all eligible patients regarding recruitment. This was extremely frustrating as a large proportion of patients were discharged before assent could be obtained. Also, once recruitment had begun it transpired that for a number of patients neither consent nor assent could be obtained, due to the incapacity of the patient to consent and the lack of visiting relatives/friend. The atypical patient in this case was an elderly patient admitted from a nursing or residential home. Following a substantial amendment to the NHS Research Ethics Department permission was given to collect the information of patients where consent/assent could not be obtained, providing there was no evidence of a family member or friend visiting. However, due to confidentiality issues it was not possible to collect the information myself. I had to enlist the help of an acute care nurse, who already had access to the patients' records, to collect the information. However, due to her time constraints, the data relating to a number of patients went uncollected. Due to problems with recruitment it was evident relatively early on that the sample size calculated would not be achieved within the timeframe we had. The situation may have been alleviated if another researcher was available to help with recruitment. This would have enabled the visiting times at both hospitals to be covered. Also, enlisting the help of a greater number of nurses/health care assistants to collect the information of patients who were unable to give consent and where assent could not be obtained would have helped a greater number of patients to be recruited. However, understandably many clinicians were unable to collect the information as they had limited time available to them and their clinical duties were their priority. Aside from this it was difficult to see how these problems could have been overcome.

Phase II of the study involved recruiting clinicians to take part in one focus group. However, there were challenges in recruiting a neurological clinician to take part in the focus group. A large number of neurological physicians were contacted, including those known to my colleagues; however none could attend on the available dates. It was necessary therefore to conduct an additional focus group with neurological clinicians only. Those who could not attend previously were re-approached and asked if they would like to take part in the research if it took place on a date and at a time convenient to them. One physician agreed. The invitation was then extended to neurological nurses. The aim of examining the causes of inappropriate admissions and inappropriate lengths of stay was therefore achieved. Also the inadvertent benefit of conducting a second focus group was that the perceptions of neurological nurses who worked in secondary and primary care were collected, adding breadth of data. However, the consequence of this was that a much larger amount of time was dedicated to this phase of the study than planned. It was difficult to assess what could have been done differently to have prevented these problems from occurring. The only obvious way would have been to have allowed a greater amount of time to recruit clinicians, therefore hoping that they would have had fewer commitments. However, I believe inevitable difficulties are going to be experienced when trying to organise a date and time that is convenient to all clinicians, given their extremely busy work schedule. Ensuring that the amount of time they have to dedicate to taking part is minimal is therefore important. For example, travelling to the clinician's base rather than expecting them to travel to you and providing them with information in advance e.g. study aims, to ensure

they can give consideration to the information at a time convenient rather than during the focus group, was helpful.

In the final phase the greatest challenge was again recruiting clinicians and patients to take part in the study. I have been consistently aware throughout the course of the PhD that clinician time is extremely limited. Taking part in research in some cases cannot therefore be a priority. This is particularly the case for GPs who proved difficult to recruit. The challenge of recruiting clinicians to take part in an interview was overcome simply by persevering with the invitations to take part. I also approached those who were familiar to our department and to the University of Nottingham, however this was initially unsuccessful. Rather than sending the requests myself I asked a known GP (the internal assessor at the time) to send an email on my behalf, in the hope that I might receive replies if GP's associated the work with a known colleague. Staff at the Graduate Entry Medical School at Nottingham University also sent an email to all GP tutors. This was finally successful and the interviews were secured. In terms of recruiting patients the method of recruitment: selecting a patient at random and sending an information pack to their home, was ineffective as I received no response. Again, in order for the patient to associate the work with a trusted and known source, and also to overcome potential barriers in completing the forms e.g. due to physical impairment and problems returning the consent form, a clinician involved in their care or a secretary telephoned the patients asking if they were happy for me to contact them. All patients were happy for me to contact them. I therefore spoke with them over the telephone and explained the study verbally. Following this I asked them to consider the information I had sent them and if it was alright for me to contact them again in

several days. Upon receiving verbal confirmation that they were willing to take part in the study I asked them to sign the consent form and rather than them returning the form via the post, I collected it at the time the interview was conducted. The key lesson learnt from overcoming the challenges in Phase III was that recruitment needs to be sensitive to the needs of those being recruited. I had not initially considered the potential barriers disabled patients may experience in completing a consent form and returning it. Also it is important that the research is associated with a known and trusted source, particularly when recruiting potentially vulnerable patients.

In terms of the questionnaire, it was anticipated from the outset that the numbers completing the questionnaire would be low. This is primarily due to the vast number of questionnaire requests clinicians receive and their limited time to complete them. A marketing campaign, to some extent, was therefore conducted alongside the questionnaire. Advertisements regarding previous study findings and the purpose of the research were placed in the GP brief (a newsletter distributed to GPs) on two occasions. I identified GPs that were well known to the clinician community to endorse the project. This endorsement was sent alongside the invitation to complete the questionnaire. I also attended GP tutor evenings held at the Graduate Entry Medical School of the University of Nottingham, speaking to GPs one by one and explaining the study to them, also asking them to mention the study to their colleagues. I believe that the mechanisms I utilised to increase the response rate were successful as 20% of GPs completed the questionnaire, which I believe is a respectable response rate given the occupational group of the respondents. In terms of the remaining occupational groups I again requested that key clinicians sent the email invitation on my behalf e.g. the acute

care lead sent the email to all acute care clinicians. Feedback from a number of hospital nursing staff I spoke with was that they rarely accessed a computer as part of their work. The questionnaire was therefore made available in paper format and a copy with a return envelope was given to all clinicians.

Overall, the greatest challenge of the PhD has been to ensure the study remains focused. As described throughout the thesis the health care system is extremely complex. The causes highlighted in this study demonstrate how far reaching the causes/issues can be, not just relating to individual clinicians, but to organisations and the structuring of services locally and nationally. The time taken planning the research has therefore been considerable. At many stages I often wished that I had conducted a 'the effect of x on y is...' study. Also, recruitment of participants has been particularly frustrating, however, I feel I have learned some valuable lessons and am extremely grateful to all those who have taken part in the research.

6.6 UNIQUE CONTRIBUTIONS OF THE STUDIES

The studies present in this thesis utilised a systems theory framework and therefore provide a holistic account of the occurrence and causes of inappropriate admissions. To date existing studies in this area have explored the occurrence of inappropriate admissions and/or length of stay (including the factors associated with such admissions/lengths of stay) and the immediate causes, frequently relating to the immediate health care setting (the hospital). No studies have sought to examine the wider causes of inappropriate admissions and/or lengths of stay, nor have drawn together literature in an attempt to provide explanations for the occurrence of such

admissions and/or lengths of stay. The studies presented here and therefore unique as they explore the wider issues.

The outputs of the studies conducted are nine recommendations of actions that may be helpful in reducing the occurrence of inappropriate admissions and lengths of stay. Few studies go on to make recommendations and this is a key criticism of existing studies. The recommendations made are therefore unique.

Few studies have utilised qualitative methods when exploring the causes of inappropriate admissions and inappropriate lengths of stay. Furthermore, few studies give a patient perspective. The use of case studies in Phase I allows the reader to gain a greater insight into the types of cases presented to the expert panel, the reasons behind the decisions to deem an admission inappropriate, and the suggested appropriate care. The inclusion of a patient perspective in terms of identifying potential barriers to service use, presented in Phase III, ensures that the views of all key individuals (i.e. individual patients and clinicians) involved in the decisions to admit a patient to hospital are given. This contributes further to the holistic assessment undertaken.

Finally, a key and unique contribution of these studies is that they examine the admissions and discharges of patients with LTNCs. As identified in Chapter 2 section 2.5, few studies elsewhere have examined the admissions and lengths of stay of patients with LTMCs. Furthermore, few studies examine acute neurological conditions other than stroke.

The unique contributions of this study therefore are: the utilisation of a whole systems approach; examination of the wider causes of inappropriate admissions; use of qualitative methods of data collection; inclusion of a patient perspective; examination of the admissions and lengths of stay of patients with LTNCs.

6.7 CONCLUSIONS

This study began by examining the management of a patient with a LTNC admitted to hospital. This was then extended to the overall management of patients with LTNCs, including care in the community. It therefore represents a comprehensive examination of the health care system.

The study has found that the inpatient management of patients with LTNCs can be disjointed and lack consistency. Failure to focus on the necessary actions required for discharge and assessment of a patient's likely service requirements, both in and out of hospital, leads to delays in the provision of necessary services. Sub-optimal provision of services in the community has an additional cumulative effect on the ability of secondary care physicians to discharge patients. Referrals to services that require authorisation from gatekeepers are dependent on the knowledge and time of clinicians to coordinate care, and effective coordination and communication with specialists involved in the patient's care. However, limitations in these areas are evident and are preventing patients from receiving the appropriate care. Furthermore, a lack of disability specific knowledge and understanding of appropriate management strategies on the part of the caring clinician is preventing the services most suited to the patient's needs from being accessed. Improving

communication between clinicians is therefore central to ensuring that the available resources, particularly specialist advice, are utilised.

The overarching problem appears to be the limited alternatives clinicians have available to them when a patient requires urgent sub acute or non acute health or social care. Many problems that cause patients to become admitted to hospital inappropriately and remain in hospital inappropriately relate to the availability of clinicians to provide services and the time in which they respond. Response time may be directly related to patient to clinician ratio. Considerable increases in funding may be necessary then if truly appropriate care is to be realised. However, with the Government battling to control spiralling health care costs associated with the changing demographic profile of the population, this may be difficult to achieve. It is essential therefore to ensure that (a) funding is targeted in the correct places and (b) services are working as effectively and efficiently as possible. Service providers and clinicians should therefore be seeking to examine the effectiveness of their current processes.

It is hoped that this study has highlighted useful actions that can be taken to improve the management of not just patients with LTNCs but of all patients.

REFERENCES AND APPENDICES

7.1 References

1. Campbell J. Inappropriate admissions: thoughts of patients and referring doctors. *Journal of the Royal Society of Medicine.* 2001;94(12):628-31.
2. Fellin G, Apolone G, Tampieri A, et al. Appropriateness of hospital use: an overview of Italian studies. *International Journal for Quality in Health Care* 1995 Sep;7(3):219-25.
3. Houghton A, Bowling A, Jones I, et al. Appropriateness of admission and the last 24 hours of hospital care in medical wards in an east London teaching group hospital. *International Journal for Quality in Health Care : Journal of the International Society for Quality in Health Care* 1996 Dec;8(6):543-53.
4. Lang T, Davido A, Logerot H, et al. Appropriateness of admissions: the French experience. *International Journal for Quality in Health Care : Journal of the International Society for Quality in Health Care* 1995 Sep;7(3):233-8.
5. Smith HE, Pryce A, Carlisle L, et al. Appropriateness of acute medical admissions and length of stay. *Journal of the Royal College of Physicians London.* 1997 Sep-Oct;31(5):527-32.
6. Koffman J, Fulop N, Hudson M. Assessing the impact of delayed discharge on acute care. *Nursing Standard.* 1996 Feb 7;10(20):41-3.
7. Chin JJ, Sahadevan S, Tan CY, et al. Critical role of functional decline in delayed discharge from an acute geriatric unit. *Annals of the Academy of Medicine, Singapore* 2001 Nov;30(6):593-9.

8. DeCoster C, Roos NP, Carriere KC, et al. Inappropriate hospital use by patients receiving care for medical conditions: targeting utilization review. *Canadian Medical Association Journal* 1997 Oct 1;157(7):889-96.
9. Victor CR, Healy J, Thomas A, et al. Older patients and delayed discharge from hospital. *Health and Social Care in the Community*. 2000;8(6):443-52.
10. Department of Health. *The National Service Framework for long term conditions*. London: The Stationary Office; 2005.
11. Hermans E, Anten HW, Diederiks JP, et al. Patient characteristics with predictive significance for 'blocked bed' problems in the neurological department of a general hospital. *Ned Tijdschr Geneeskd*. 1995 Apr 29;139(17):890-4.
12. Mayo NE, Wood-Dauphinee S, Gayton D, et al. Nonmedical bed-days for stroke patients admitted to acute-care hospitals in Montreal, Canada. *Stroke*. 1997 Mar;28(3):543-9.
13. Playford ED, Crawford P, Monro PS. A survey of neurological disability at a district general hospital. *The British Journal of Clinical Practice*. 1994 Nov-Dec;48(6):304-6.
14. van Straten A, van der Meulen JH, van den Bos GA, et al. Length of hospital stay and discharge delays in stroke patients. *Stroke*. 1997 Jan;28(1):137-40.
15. Marsh P. Hit squad fears for hospitals: government may step in. *Birmingham Evening Mail*. 2001a;28 June
16. Marsh P. City pays price for beds crisis. *Birmingham Evening Mail*. 2001b;2 July

17. Department of Health. Improve healthcare by reducing unnecessary emergency admissions. London The Stationary Office; 2006.
18. Steel K, Gertman PM, Crescenzi C, et al. Iatrogenic illness on a general medical service at a university hospital *Quality and Safety in Health Care*. 2004;13:76-81.
19. Jarvis WR. Selected aspects of the socioeconomic impact of nosocomial infections: morbidity, mortality, cost, and prevention. *Infection Control and Hospital Epidemiology*. 1996 Aug;17(8):552-7.
20. Morton CC. Hazards of hospitalization of the elderly. *Annals of Internal Medicine*. 1993;118:219-23.
21. Weinstein R. Nosocomial infection update. *Emerging Infectious Diseases*. 1998;4:416-20.
22. National Association of Health Authorities and Trusts. *Emergency admissions: managing the rising trend*. 1994.
23. Anon. First increase in NHS general & acute hospital beds since 1971. 2001 [cited 2006 10.02]; Available from: <http://www.prnewswire.co.uk/cgi/news/release?id=73649>
24. Black D, Pearson M. Average length of stay, delayed discharge, and hospital congestion. *British Medical Journal*. 2002 Sep 21;325(7365):610-1.
25. Means R, Smith R. *Community Care: Policy and Practice*, 2nd Ed. Basingstoke: Macmillan; 1998.
26. Anon. Number of critical care beds at all-time high. 2005 [cited 2006 06.06]; Available from: <http://www.medicalnewstoday.com/articles/21074.php>

27. Department of Health. A decade of view. Hospital episode statistics [cited 2008 28.05]; Available from:
<http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=451>
28. Department of Health. Improving chronic disease management. London: The Stationary Office; 2003.
29. Department of Health. Shaping the future NHS: long term planning for hospitals and related services. Consultation document on the findings of the National Beds Inquiry - supporting analysis. London: The Stationary Office; 2000.
30. Anon. The Expert Patients Programme [cited 2006 02.03]; Available from: <http://www.expertpatients.co.uk/public/default.aspx>
31. Department of Health. The NHS plan. A plan for investment, a plan for reform. London: The Stationary Office; 2001.
32. Department of Health. The National Service Framework for older people. London: The Stationary Office; 2001.
33. Department of Health. The Community Care (Delayed Discharges) Act. London: The Stationary Office 2003.
34. House of Commons Health Committee. Delayed discharges. London: Stationary Office; 2002.
35. Office of National Statistics. Census 2001. 2001 [cited 2006 10.03]; Available from:
<http://www.statistics.gov.uk/census2001/pyramids/pages/00fk.asp>

36. Council DDD. 2001 census. Key statistics. 2001 [cited 2006 20.03]; Available from:
<http://www.derbyshiredales.gov.uk/NR/rdonlyres/AADB099F-51B7-4A0D-A464-58A65AAAC673/0/derbyshirefacts.pdf>
37. Derbyshire Country Primary Care Trust. Derbyshire Health Profile 2007. 2007 [cited 2008 06.06]; Available from:
<http://www.derbyshirecountypct.nhs.uk/content/board%20papers/November%202007/C-B-156-07%2017-Derbyshire%20CC.pdf>
38. Council DC. The Health of Derbyshire. Director of Public Health Report. 2008 [cited 2008 01.08]; Available from:
http://www.derbyshire.gov.uk/Images/Health%20Report_tcm2-123619.pdf
39. Department of Health. Chronic disease management: a compendium of information. London: The Stationary Office; 2004.
40. Donabedian A. Aspects of medical care administration: specifying requirements for health care. Cambridge: Harvard University Press; 1973.
41. Eriksen BO, Kristiansen IS, Nord E, et al. The cost of inappropriate admissions: a study of health benefits and resource utilization in a department of internal medicine. *Journal of Internal Medicine* 1999 Oct;246(4):379-87.
42. Restuccia JD. The evolution of hospital utilization review methods in the United States. *International Journal for Quality in Health Care*. 1995 Sep;7(3):253-60.
43. Harrisson SP. Changing admission patterns of short-stay geriatric patients. *Nursing Times*. 1988 May 11-17;84(19):53-5.

44. Mackintosh JM, McKeown T, Garratt FN. An examination of the need for hospital admission. *Lancet*. 1961 Apr 15;1(7181):815-8.
45. Zimmer JG. Length of stay and hospital bed misutilisation. *Medical Care*. 1974;12:453-62.
46. McDonagh MS, Smith DH, Goddard M. Measuring appropriate use of acute beds. A systematic review of methods and results. *Health Policy*. 2000 Oct;53(3):157-84.
47. Davis LV, Toseland RW. Working effectively within administrative groups New York: The Haworth Press Inc; 1987.
48. Coast J, Inglis A, Frankel S. Alternatives to hospital care: what are they and who should decide? *British Medical Journal*. 1996 Jan 20;312(7024):162-6.
49. Pagliari C, Grimshaw J, Eccles M. The potential influence of small group processes on guideline development. *Journal of Evaluation in Clinical Practice*. 2001;7(2):165-73.
50. Anderson P, Meara J, Brodhurst S, et al. Use of hospital beds: a cohort study of admissions to a provincial teaching hospital. *British Medical Journal* 1988 Oct 8;297(6653):910-2.
51. Gertman PM, Restuccia JD. The appropriateness evaluation protocol: a technique for assessing unnecessary days of hospital care. *Medical Care*. 1981 Aug;19(8):855-71.
52. InterQual-Inc. The ISD-A review system with adult criteria; the ISD-A review system with pediatric criteria. Chicago: Interqual; 1987.
53. Lorenzo S, Lang T, Pastor R, et al. Reliability study of the European appropriateness evaluation protocol. *International Society for Quality in Health Care* 1999 Oct;11(5):419-24.

54. Victor C, Nazareth B, Hudson M, et al. The inappropriate use of acute hospital beds in an inner London District Health Authority. *Health Trends*. 1993;25(3):94-7.
55. Victor CR, Khakoo AA. Is hospital the right place? A survey of 'inappropriate' admissions to an inner London NHS trust *Journal of Public Health* 2003;16(3):286-90.
56. Inglis AL, Coast J, Gray SF, et al. Appropriateness of hospital utilization. The validity and reliability of the Intensity-Severity-Discharge Review System in a United Kingdom acute hospital setting. *Med Care*. 1995 Sep;33(9):952-7.
57. Strumwasser I, Paranjpe NV, Ronis DL, et al. Reliability and validity of utilization review criteria. Appropriateness Evaluation Protocol, Standardized Medreview Instrument, and Intensity-Severity-Discharge criteria. *Medical Care*. 1990 Feb;28(2):95-111.
58. Coast J, Peters TJ, Ingles A. Factors associated with inappropriate emergency hospital admission in the UK. *International Journal of Quality in Healthcare*. 1996;8(1):31-9.
59. Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics*. 1977 Mar;33(1):159-74.
60. Tu JV. Utilization review: can it be improved? *Canadian Medical Association Journal* 2000 Jun 27;162(13):1824-5.
61. Vetter N. Inappropriately delayed discharge from hospital: what do we know. *British Medical Journal*. 2003;326(7395):927-8.
62. Bryman A. *Social research methods*. Oxford: Oxford University Press; 2001.

63. Smith JA. Qualitative methodology: analysing participants' perspectives. *Clinical Psychology and Behavioral Medicine* 1996;9(6):417-21.
64. Kvale S. *Interviews: an introduction to qualitative research interviewing*. Sage: Thousand Oaks, Calif; 1996.
65. Sim J, Snell J. Focus groups in physiotherapy evaluation and research. *Physiotherapy*. 1996;82:189-98.
66. Sim J, Wright C. *Research in health care*. Cheltenham: Stanley Thomas Ltd; 2000.
67. Van de Ven AH, Delbecq AL. The nominal group as a research instrument for exploratory health studies. *American Journal of Public Health*. 1972;62(3):337-42.
68. Linstone HA, Turoff M. *The Delphi Method: techniques and applications*. Massachusetts: Addison-Wesley Publishing Co; 1975.
69. Gallagher M, Hares T, Spencer J, et al. The nominal group technique: a research tool for general practice? *Family Practice*. 1993;10(1):76-81.
70. Torrance N, Lawson J, Hogg B, et al. Acute admissions to medical beds. *Journal of the Royal College of General Practitioners*. 1972;22:211-9.
71. Rubin SG, Davies GH. Bed blocking by elderly patients in general-hospital wards. *Age Ageing*. 1975 Aug;4(3):142-7.
72. Coulter A, Cleary P. Patients' experiences with hospital care in five countries. *Health Affairs (Millwood)*. 2001;20(3):244-52.

73. McWilliam CL, Sangster JF. Managing patient discharge to home: the challenges of achieving quality of care. *International Journal for Quality in Health Care*. 1994;6(2):147-61.

74. Tierney AJ, Macmillan MS, Worth A, et al. Discharge of patients from hospital - current practice and perceptions of hospital and community staff in Scotland. . *Health Bulletin*. 1994;52(6):479-91.

75. Curran P, Gilmore DH, Beringer TR. Communication of discharge information for elderly patients in hospital. *Ulster Medical Journal*. 1992 Apr;61(1):56-8.

76. Meara JR, Wood JL, Wilson MA, et al. Home from hospital: a survey of hospital discharge arrangements in Northamptonshire. *Journal of Public Health Medicine*. 1992 Jun;14(2):145-50.

77. Skeet M. Home from hospital: The results of a survey conducted among recently discharged hospital patients. London: Macmillan; 1970.

78. Williams EI, Greenwell J, Groom LM. The care of people over 75 years old after discharge from hospital: an evaluation of timetabled visiting by Health Visitor Assistants. *J Public Health Med*. 1992 Jun;14(2):138-44.

79. Harding J, Modell M. Elderly peoples' experiences of discharge from hospital. *J R Coll Gen Pract*. 1989 Jan;39(318):17-20.

80. Neill J, Williams JI. Leaving hospital: elderly people and their discharge to community care. London: Her Majesty's Stationary Office; 1992.

81. Victor CR, Vetter NJ. Preparing the elderly for discharge from hospital: a neglected aspect of patient care? *Age and Ageing*. 1988 May;17(3):155-63.
82. Congdon JG. Managing the incongruities: the hospital discharge experience for elderly patients, their families, and nurses. *Applied Nursing Research*. 1994 Aug;7(3):125-31.
83. Klop R, van Wijmen FC, Philipsen H. Patients' rights and the admission and discharge process. *Journal of Advanced Nursing*. 1991 Apr;16(4):408-12.
84. Jackson MF. Use of community support services by elderly patients discharged from general medical and geriatric medical wards. *Journal of Advanced Nursing*. 1990 Feb;15(2):167-75.
85. Waters KR. Outcomes of discharge from hospital for elderly people. *J Adv Nurs*. 1987 May;12(3):347-55.
86. Williams EI, Fitton F. Use of nursing and social services by elderly patients discharged from hospital. *Br J Gen Pract*. 1991 Feb;41(343):72-5.
87. Mamon J, Steinwachs DM, Fahey M, et al. Impact of hospital discharge planning on meeting patient needs after returning home. *Health Serv Res*. 1992 Jun;27(2):155-75.
88. Coast J, Inglis A, Morgan K, et al. The hospital admissions study in England: are there alternatives to emergency hospital admission? *Journal of Epidemiology and Community Health*. 1995;49(2):194-9.

89. Victor CR, Khakoo AA. Is hospital the right place? A survey of 'inappropriate' admissions to an inner London NHS trust *Journal of Public Health* 1994;16(3):286-90.
90. Eysenck M, Keane M. *Cognitive psychology. A students handbook*. 4th edition ed. USA: Psychology Press; 2001.
91. Greenberg J, Baron R. *Behaviour in organisations*. London: Prentice Hall; 2000.
92. Ritzer G. *Sociological theory*. fifth edition ed. Singapore: McGraw-Hill Book Company; 2000.
93. Parsons T. *The social system* London: Free Press; 1951.
94. Luhmann N. *The differentiation of society*. New York Columbia University Press; 1982.
95. Parsons T. *The system of modern societies*. Englewood Cliffs: NJ: Prentice Hall 1971.
96. Fulchner J, Scott J. *Sociology*. Oxford: Oxford University Press; 1999.
97. Fararo J. *Social action systems. Foundation and synthesis in sociological theory*. USA: Greenwood Publishing Group; 2001.
98. Croskerry P. Achieving quality in clinical decision making: cognitive strategies and detection of bias. *Acad Emerg Med*. 2002 Nov;9(11):1184-204.
99. Sackett D, Haynes R, Guyall G, et al. *Clinical epidemiology: A basic science for clinical medicine*. 2nd ed. Boston: Little, Brown and Co 1991.

100. Krueger G. *Fatigue, performance and medical error*. Hillsdale: Erlbaum; 1994.
101. Kassirer J, Kopelman R. *Learning clinical reasoning*. Baltimore: Williams and Wilkins 1991.
102. Klein G, Calderwood R, Macgregor D, et al. *Decision making in action: models and methods*. Norwood: Ablex publishing 1995.
103. Holman H, Lorig K. Patients as partners in managing chronic disease. *British Medical Journal*. 2000;320:526-7.
104. Griffiths P, Sironi C. Care needs and point prevalence of post-acute patients in the acute medical wards of an Italian hospital. *International Journal of Nursing Studies* 2005 Jul;42(5):507-12.
105. Ingold BB, Yersin B, Wietlisbach V, et al. Characteristics associated with inappropriate hospital use in elderly patients admitted to a general internal medicine service. *Aging (Milano)*. 2000 Dec;12(6):430-8.
106. Mushlin AI, Black ER, Connolly CA, et al. The necessary length of hospital stay for chronic pulmonary disease. *Journal of the American Medical Association* 1991 Jul 3;266(1):80-3.
107. Carter ND, Wade DT. Delayed discharges from Oxford city hospitals: who and why? *Clinical Rehabilitation*. 2002 May;16(3):315-20.
108. *Shaping the future NHS: long term planning for hospitals and related services*. Consultation document on the findings of the National Beds Inquiry. Department of Health. 2000.

109. Griffiths P, Wilson-Barnett J, Richardson G, et al. The effectiveness of intermediate care in a nursing-led in-patient unit. *International Journal of Nursing Studies*. 2000;37(2):153-61.
110. Edwards N, Hensher M. Managing demand for secondary care services: the changing context. *British Medical Journal*. 1998 Jul 11;317(7151):135-8.
111. Young J, Robinson M, Chell S, et al. A whole system study of intermediate care services for older people *Age and Ageing* 2005;34(6):577-83.
112. Wilson A, Parker H, Wynn A, et al. Randomised controlled trial of effectiveness of Leicester hospital at home scheme compared with hospital care. *British Medical Journal* 1999 Dec 11;319(7224):1542-6.
113. Serranno S, Martinex J, Abaurrea P, et al. Social work at the emergency department *European Journal of Emergency Medicine* 1997;4:233-8.
114. Martin G, Hewitt G, Faulkner T, et al. The organisation, form and function of intermediate care services and systems in England: results from a national survey. *Health and Social Care in the Community*. 2007;15(2):146-54.
115. Fenn A, Horner P, Travis S, et al. Inappropriate bed usage in a district general hospital. *Journal of Clinical Excellence*. 2000;1(4):221-7.
116. Kutiyawala M, Pickering S, Everson N, et al. An audit of bed usage in an acute surgical ward: are we managing our resources effectively? *Annals of the Royal College of Surgeons of England (Supplement)*. 1998;80:223-4.

117. Mohammed A, Thomas B, Hullin M, et al. Audit of orthopaedic bed utilisation. *Health Bulletin*. 2001;59(6):353-5.
118. The NHS Plan: a plan for investment, a plan for reform. Department of Health. 2000.
119. Beech R. *Organisational barriers to access*. London: Routledge 2003.
120. Department of Health. *Reforming emergency services - first steps to a new approach*. London The Stationary Office; 2001.
121. Setrakian J, Flegel K, Hutchinson T, et al. A physician centred intervention to shorten hospital stay: a pilot study. *Canadian Medical Association Journal* 1999;160(12):1735-7.
122. Suman S, Lockington TJ. Generic care pathway for acute geriatric care and rehabilitation as a tool for care management, discharge planning and continuous audit. *Journal of Integrated Care Pathways*. 2003;7:75-9.
123. Preen D, Bailey B, Wright A, et al. Effects of a multidisciplinary post-discharge continuance of care intervention on quality of life, discharge satisfaction, and hospital length of stay: a randomized controlled trial. *International Journal for Quality in Health Care*. 2005;17(1):43-51.
124. Evans RL, Hendricks RD. Evaluating hospital discharge planning: a randomized clinical trial. *Medical Care*. 1993 Apr;31(4):358-70.
125. Kennedy L, Neidlinger S, Scroggins K. Effective comprehensive discharge planning for hospitalized elderly. *Gerontologist*. 1987 Oct;27(5):577-80.

126. Parfrey PS, Gardner E, Vavasour H, et al. The feasibility and efficacy of early discharge planning initiated by the admitting department in two acute care hospitals. *Clinical Investigative Medicine*. 1994 Apr;17(2):88-96.
127. Naylor M, Brooten D, Jones R, et al. Comprehensive discharge planning for the hospitalized elderly. A randomized clinical trial. *Annals of Internal Medicine*. 1994 Jun 15;120(12):999-1006.
128. McLeod E, Bywaters P, Cooke M. Social Work in Accident and Emergency Departments: A Better Deal for Older Patients' Health? *British Journal of Social Work*. 2003;33(6):787-802.
129. Monsuez JJ, Fergelot H, Papon BJ, et al. Early social intervention in the emergency department. *The European Journal of Medicine* 1993 Oct-Nov;2(8):489-92.
130. Conn AD, Shimkus GV, Inbornone R. Eyeing the ED's open door: how case managers can reduce unnecessary admissions. *Dimensions of Critical Care Nursing*. 2000 Mar-Apr;19(2):35-6.
131. Bywaters P, McLeod E. Social care's impact on emergency medicine: a model to test. *Emerg Med J*. 2003 Mar;20(2):134-7.
132. Crane K, Sparks L. An admission avoidance team: its role in the Accident & Emergency department. *Accident and Emergency Nursing*. 1999 Apr;7(2):91-5.
133. Wrenn K, Rice N. Social work in an emergency department: an integral part of the health care safety net. *Academy of Emergency Medicine*. 1994;1:247-53.

134. Gordon J. Cost-benefit analysis of social work services in the emergency department. A conceptual model. *Academic Emergency Medicine*. 2001;8:54-60.
135. Mayo NE, Wood-Dauphinee S, Cote R, et al. There's no place like home : an evaluation of early supported discharge for stroke. *Stroke*. 2000 May;31(5):1016-23.
136. Cameron I, Crotty M, Currie C, et al. Geriatric rehabilitation following fractures in older people: a systematic review. *Health Technology Assessment*. 2000;4(2):i-iv, 1-111.
137. Langhorne P, Taylor G, Murray G, et al. Early supported discharge services for stroke patients: a meta-analysis of individual patients' data. *Lancet*. 2005 Feb 5-11;365(9458):501-6.
138. Alberti KG. Emergency care networks. *Bmj*. 2004 Nov 6;329(7474):1057-8.
139. Turner J, Nicholl J, O'Cathain A. A preliminary study of Emergency and Urgent Care Networks. Medical Care Research Unit, University of Sheffield. 2007.
140. Department of Health. Emergency care networks. 2007 [cited 2008 24.07]; Available from: http://www.dh.gov.uk/en/Healthcare/Emergencycare/Modernisingemergencycare/DH_4063735
141. Council DC. Emergency Care Strategy For Southern Derbyshire 2005 -2008. [cited 2008 06.06]; Available from: <http://cmis.derby.gov.uk/CMISWebPublic/Binary.ashx?Document=46>

142. Kakinuma S, Nogaki H, Morimatsu M. Comparison of complications in elderly and non-elderly patients with neurological diseases during admission to a rehabilitation hospital. *Nippon Ronen Igakkai Zasshi*. 2000 Dec;37(12):995-8.
143. Brown CJ, Friedkin RJ, Inouye SK. Prevalence and outcomes of low mobility in hospitalized older patients. *Journal of the American Geriatric Society*. 2004 Aug;52(8):1263-70.
144. Lazarus BA, Murphy JB, Coletta EM, et al. The provision of physical activity to hospitalized elderly patients. *Archives of Internal Medicine* 1991 Dec;151(12):2452-6.
145. Warshaw GA, Moore JT, Friedman SW, et al. Functional disability in the hospitalized elderly. *Journal of the American Medical Association*. 1982 Aug 20;248(7):847-50.
146. Hirsch CH, Sommers L, Olsen A, et al. The natural history of functional morbidity in hospitalized older patients. *Journal of the American Geriatric Society*. 1990 Dec;38(12):1296-303.
147. Gillick MR, Serrell NA, Gillick LS. Adverse consequences of hospitalization in the elderly. *Social Science and Medicine* 1982;16(10):1033-8.
148. Inouye SK, Wagner DR, Acampora D, et al. A predictive index for functional decline in hospitalized elderly medical patients. *Journal of General Internal Medicine*. 1993 Dec;8(12):645-52.
149. Kortebein P, Ferrando A, Lombeida J, et al. Effect of 10 days of bed rest on skeletal muscle in healthy older adults. *Journal of the American Medical Association*. 2007 Apr 25;297(16):1772-4.

150. Boyd CM, Xue QL, Guralnik JM, et al. Hospitalization and development of dependence in activities of daily living in a cohort of disabled older women: the Women's Health and Aging Study I. *The Journals of Gerontology Series A, Biological Sciences and Medical Sciences*. 2005 Jul;60(7):888-93.
151. Swinkels A, Mitchell T. Delayed transfer from hospital to community settings: the older person's perspective. *Health and Social Care in the Community*. 2009 Feb;17(1):45-53.
152. Sullivan DH, Sun S, Walls RC. Protein-energy undernutrition among elderly hospitalized patients: a prospective study. *Journal of the American Medical Association*. 1999 Jun 2;281(21):2013-9.
153. Liu L, Bopp MM, Roberson PK, et al. Undernutrition and risk of mortality in elderly patients within 1 year of hospital discharge. *The Journals of Gerontology Series A, Biological Sciences and Medical Sciences*. 2002 Nov;57(11):M741-6.
154. Sullivan DH, Bopp MM, Roberson PK. Protein-energy undernutrition and life-threatening complications among the hospitalized elderly. *Journal of General Internal Medicine*. 2002 Dec;17(12):923-32.
155. Parkinson's Disease Society. Life with Parkinson's today – room for improvement. Parkinson's Disease Society 2008.
156. Anon. Bed availability and occupancy, England, 2005-06 Department of Health [cited 2006 03.03]; Available from: http://www.performance.doh.gov.uk/hospitalactivity/data_requests/index.htm

157. Bagust A, Place M, Posnett J. Dynamics of bed use in accomodating emergency admissions: stochastic simulation model. British Medical Journal 1999;319:155-8.
158. Hughes D. Financial incentives and barriers to access London: Routledge 2003.
159. Armstrong SH, Peden NR, Nimmo S, et al. Appropriateness of bed usage for inpatients admitted as emergencies to internal medicine services. Health Bull (Edinb). 2001 Nov;59(6):388-95.
160. House of Commons Select Committee on Public Accounts. Inpatient admission, bed management and patient discharge in NHS acute hospitals London: Stationary Office; 2001.
161. Scotland I. Patients ready for discharge in NHS Scotland: figures from 15 October 2002 census. . 2003 [cited 2006 27.06]; Available from: http://isd.scot.nhs.uk/isd/new-releases-no-scroll.jsp;jsessionid=45413883BA1091BC38B9377CB0BA9D77?pContentID=2759&p_applic=CCC&p_service=Content.show&
162. Glasby J, Littlechild R, Pryce K. Show me the way to go home: delayed hospital discharged and older people. Health Services Management Centre and Institute for Applied Social Sciences, University of Birmingham. 2004.
163. Elder A. Can we manage more acutely ill elderly patients in the community? Age and Ageing 2001;30:441-3.
164. Roberts E, Mays N. Can primary care and community-based models of emergency care substitute for the hospital accident and emergency (A & E) department? Health Policy. 1998 Jun;44(3):191-214.

165. Leibowitz R, Day S, Dunt D. A systematic review of the effect of different models of after-hours primary medical care services on clinical outcome, medical workload, and patient and GP satisfaction. *Family Practice*. 2003 Jun;20(3):311-7.
166. Tod A, Lacey A, McNeill B. 'I'm still waiting...': barriers to accessing cardiac rehabilitation services. *40*. 2002;4(421-431).
167. Kroll T, Neri M. Experiences with care co-ordination among people with cerebral palsy, multiple sclerosis, or spinal cord injury. *Disability and Rehabilitation*. 2003;25(19):1106-14.
168. Tod AM, Read C, Lacey A, et al. Barriers to uptake of services for coronary heart disease: qualitative study. *British Medical Journal*. 2001 Jul 28;323(7306):214.
169. Martin C, Perfect T, Mantle G. Non-attendance in primary care: the views of patients and practices on its causes, impact and solutions. *Family Practice*. 2005 Dec;22(6):638-43.
170. Evans A. A study of the referral decision in general practice. *Family Practice*. 1993 Jun;10(2):104-10.
171. Fertig A, Roland M, King H, et al. Understanding variation in rates of referral among general practitioners: are inappropriate referrals important and would guidelines help to reduce rates? *British Medical Journal* 1993 Dec 4;307(6917):1467-70.
172. Haikio JP, Linden K, Kvist M. Outcomes of referrals from general practice. *Scandinavian Journal of Primary Health Care*. 1995 Dec;13(4):287-93.
173. Vehvilainen AT, Kumpusalo EA, Voutilainen SO, et al. Does the doctors' professional experience reduce referral rates? Evidence from

the Finnish referral study. *Scandinavian Journal of Primary Health Care*. 1996 Mar;14(1):13-20.

174. Secretaries-for-State-for-Health-wales -N-I-a-S. Working for patients. London: HMSO; 1989.

175. Emmanuel J, Walter N. Referrals from general practice to hospital outpatient departments: a strategy for improvement. *British Medical Journal*. 1989 Sep 16;299(6701):722-4.

176. Jones Elwyn G, Stott NC. Avoidable referrals? Analysis of 170 consecutive referrals to secondary care. *British Medical Journal*. 1994 Sep 3;309(6954):576-8.

177. Newton J, Hayes V, Hutchinson A. Factors influencing general practitioners' referral decisions. *Family Practice*. 1991;8:308-13.

178. Rashid A, Jagger C. Comparing trainer and trainee referral rates: implications for education and allocation of resources. *The British Journal of General Practice : The Journal of the Royal College of General Practitioners*. 1990 Feb;40(331):53-5.

179. Cummins RO, Jarman B, White PM. Do general practitioners have different "referral thresholds"? *British Medical Journal (Clinical Research Edition)*. 1981 Mar 28;282(6269):1037-9.

180. Sullivan FM, Hoare T, Gilmour H. Outpatient clinic referrals and their outcome. *British Journal of General Practice*. 1992 Mar;42(356):111-5.

181. O'Day B, Palsbo S, Dhont K, et al. Health plan selection criteria by people with impaired mobility. *Medical Care*. 2002;40(9):732-42.

182. Scheer K, Kroll T, Neri M, et al. Access barriers for persons with disabilities: the consumers' perspective. *Journal of Disability Policy Studies*. 2002;13(4):221-30.
183. Neri M, Kroll T. Understanding the consequences of access barriers to health care: experiences of adults with disabilities. *Disability and Rehabilitation*. 2002;25(2):85-96.
184. Armstrong D, Fry J, Armstrong P. Doctors' perceptions of pressure from patients for referral. *British Medical Journal*. 1991 May 18;302(6786):1186-8.
185. de Marco P, Dain C, Lockwood T, et al. How valuable is feedback of information on hospital referral patterns? *British Medical Journal*. 1993 Dec 4;307(6917):1465-6.
186. Dempsey OP, Bekker HL. 'Heads you win, tails I lose': a critical incident study of GP's decisions about emergency admission referrals *Family Practice*. 2002;19(6):611-6.
187. Bradley EH, Cramer LD, Bogardus ST, Jr., et al. Physicians' ratings of their knowledge, attitudes, and end-of-life-care practices. *Academic Medicine*. 2002 Apr;77(4):305-11.
188. Bradley EH, Fried TR, Kasl SV, et al. Referral of terminally ill patients for hospice: frequency and correlates. *Journal of Palliative Care*. 2000 Winter;16(4):20-6.
189. Derlet RW, Richards JR. Overcrowding in the nation's emergency departments: complex causes and disturbing effects. *Ann Emerg Med*. 2000 Jan;35(1):63-8.

190. Hassan TB. Clinical decision units in the emergency department: old concepts, new paradigms, and refined gate keeping. *Emerg Med J*. 2003 Mar;20(2):123-5.
191. Johnson J. Results of the on-call back-up survey: searching for solutions to a serious public health problem. *Lifeline*. 1999;February 310.
192. Blatchford O, Capewell S. Emergency medical admissions: taking stock and planning for winter. *British Medical Journal*. 1997 Nov 22;315(7119):1322-3.
193. Foote C, Stanners C. Integrating care for older people. *New care for the old - a systems approach*. London: Jessica Kingsley Publishers.; 2002.
194. Glasby J. Show me the way to go home: a narrative review of the literature on delayed hospital discharges and older people. *British Journal of Social Work*. 2004;34(8):1189-97.
195. Glasby J, Littlechild R. Fighting fires? - emergency hospital admission and the concept of prevention. *Journal of Management in Medicine*. 2000;14(2):109-18.
196. Southern Derbyshire Acute Hospitals NHS Trust. Admissions manual. 2006.
197. Derbyshire Country Primary Care Trust. Health Moves. Annual report 2006-2007. 2007 [cited 2008 06.05]; Available from: <http://www.derbyshirecountypct.nhs.uk/content/Publications%20and%20Reports/health%20moves.small.pdf>

198. Sharrack B, Hughes RA. Scale development and Guy's Neurological Disability Scale. *Journal of Neurology*. 1999 Mar;246(3):226.
199. Keith RA, Granger CV, Hamilton BB, et al. The functional independence measure: a new tool for rehabilitation. *Advances in Clinical Rehabilitation*. 1987;1:6-18.
200. Folstein MF, Folstein SE, McHugh PR. Mini-mental state. A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*. 1975;12(3):189-98.
201. Rossier P, Wade DT. The Guy's Neurological Disability Scale in patients with multiple sclerosis: a clinical evaluation of its reliability and validity. *Clinical Rehabilitation* 2002 Feb;16(1):75-95.
202. Ottenbacher KJ, Hsu Y, Granger CV, et al. The reliability of the functional independence measure: a quantitative review. *Archives of Physical Medicine and Rehabilitation* 1996 Dec;77(12):1226-32.
203. Daving Y, Andre E, Nordholm L, et al. Reliability of an interview approach to the Functional Independence Measure. *Clinical Rehabilitation*. 2001;15:301-10.
204. Kidd D, Stewart G, Baldry J, et al. The Functional Independence Measure: a comparative validity and reliability study. *Disability Rehabilitation* 1995 Jan;17(1):10-4.
205. van der Putten JJ, Hobart JC, Freeman JA, et al. Measuring change in disability after inpatient rehabilitation: comparison of the responsiveness of the Barthel index and the Functional Independence Measure. *Journal of Neurology, Neurosurgery, and Psychiatry*. 1999 Apr;66(4):480-4.

206. O'Connor DW, Pollitt PA, Hyde JB, et al. The reliability and validity of the Mini-Mental State in a British community survey. *Journal of Psychiatric Research*. 1989;23(1):87-96.
207. Tombaugh TN, McIntyre NJ. The mini-mental state examination: a comprehensive review. *Journal of the American Geriatrics Society*. 1992 Sep;40(9):922-35.
208. Angelillo IF, Ricciardi G, Nante N, et al. Appropriateness of hospital utilisation in Italy. *Public Health*. 2000 Jan;114(1):9-14.
209. Perneger TV, Chopard P, Sarasin FP, et al. Risk factors for a medically inappropriate admission to a Department of Internal Medicine. *Archives of Internal Medicine*. 1997 Jul 14;157(13):1495-500.
210. Panis LJ, Gooskens M, Verheggen FW, et al. Predictors of inappropriate hospital stay: a clinical case study. *International Journal of Quality in Health Care*. 2003 Feb;15(1):57-65.
211. Ponassi AG, Merlini M, Dondero R, et al. Analysis of 1930 bedridden patients in the internal medical sector of the emergency department of a large city hospital: appropriate and non-appropriate admission. *European Journal of Emergency Medicine*. 1999 Mar;6(1):55-60.
212. Schluep M, Bogousslavsky J, Regli F, et al. Justification of hospital days and epidemiology of discharge delays in a department of neurology. *Neuroepidemiology*. 1994;13(1-2):40-9.
213. Stewart DW, Shamdasani PN, Rook DW. *Focus groups: theory and practice* 2nd ed. London: Sage Publications; 2007.

214. Miles MB, Huberman AM. An expanded sourcebook: Qualitative data analysis. London: Sage Publications 1994.
215. Nakano A, Mainz J, Lomborg K. Patient perception and assessment of admission to acute cardiac care unit. *European Journal of Cardiovascula Nursing*. 2008 Mar;7(1):10-5.
216. Krueger R. Moderating Focus Groups. . Thousand Oaks: Sage Publications; 1988.

7.2 Appendices

Appendix 1: Participant assessment sheet

PARTICIPANT ASSESSMENT SHEET

This participant assessment sheet is for use by the researcher.

Participant ID:

Date:

MINI MENTAL STATE EXAMINATION

Example of question included:

Orientation to Time

"What is the date?"

Registration

"Listen carefully. I am going to say three words. You say them back after I stop.

Ready? Here they are...

APPLE (pause), PENNY (pause), TABLE (pause). Now repeat those words back to me." [Repeat up to 5 times, but score only the first trial.]

Naming

"What is this?" [Point to a pencil or pen.]

Reading

"Please read this and do what it says." [Show examinee the words on the stimulus form.]

CLOSE YOUR EYES

FUNCTIONAL INDEPENDENCE MEASURE

Levels:	No Helper	
Independent	Complete independence (timely, safely)	7
	Modified independence (device)	6
	Helper	
Modified dependence	Supervision (subject = 100%+)	5
	Minimal assist (subject = 75%+)	4
	Moderate assist (subject = 50%+)	3
Complete dependence	Maximal assist (subject = 25%+)	2
	Total assist (subject = less than 25%)	1
		Participant score
Self-Care	A. Eating B. Grooming C. Bathing D. Dressing – Upper body E. Dressing – Lower body F. Toileting	
Sphincter control	G. Bladder management H. Bowel management Transfers I. Bed, Chair, Wheelchair J. Toilet K. Tub, Shower	
Locomotion	L. Walk/Wheelchair M. Stairs	
	Motor Subtotal Score	
Communication	N. Comprehension (auditory) O. Expression (verbal)	
Social Cognition	P. Social interaction Q. Problem solving R. Memory	
	Cognitive Subtotal Score	
	TOTAL FIM Score	

GUY'S NEUROLOGICAL DISABILITY SCALE

	Yes	No
Memory and concentration		
1 Do you have any problems with your memory or your ability to concentrate and work things out?		
2 If 'No' to Q1: Do your family or friends think you have such a problem?		
If answer to either of the questions (1 or 2) is 'Yes':		
3 Do you need to use lists or other aids to help you overcome this problem?		
4 Do you need help from other people to plan your daily affairs or to work out simple finances?		

To the helper or other person:

Is the person fully orientated in time, place and person?

Yes, fully

Yes, partially

No, totally disorientated

	Yes	No
Mood		
1 Have you been feeling anxious, irritable, depressed, or had any mood swings during the last month? <i>(If 'yes', please write problem below)</i> To other person:		
2 Does the person have euphoria (being over happy) or emotional lability (crying or laughing too easily)? If answer to either question (1 or 2) is yes:		
3 Have you / has the person had this problem most days?		
4 Has this problem affected your ability to do any of your usual activities? If 'yes' to Q 4:		
5 Has this problem been severe enough to prevent you from doing all your usual activities?		
6 Have you been admitted to hospital for treatment of your mood problem during the last month?		

What problem has been experienced?

Vision		Yes	No
1	Do you have any problems with your vision? If 'Yes' to Q 1:		
2	Can you read normal newspaper print (with ordinary glasses if worn, but not magnifying lenses)? If 'No' to Q 2:		
3	Can you read large newspaper print?		
4	Can you count your fingers if you hold your hand out in front of you?		
5	Can you see your hand move in front of you?		

Any comments?

Speech and communication		Yes	No
1	Do you have any problems with your speech? To other person:		
2	Do you think the person has any problem with their speech? If answer to either of the questions (1 or 2) is 'Yes':		
3	Do you have this problem most days?		
4	Do you have this problem all the time and in every sentence?		
5	Do you need to write things down, use sign language, or use a communication aid?		
	To other person:		
6	Is the participant able to communicate effectively?		

Any comments?

Swallowing		Yes	No
1	Do you have to take care when swallowing solids or fluids? If 'yes' to Q 1:		
2	Do you have to take care with most meals?		
3	Do you choke during most meals?		
4	Does your food require special preparation (e.g. mashing) to modify its consistency?		
5	Do you have a feeding tube (nasogastric tube or gastrostomy tube)?		

Any comments:

		Yes	No
1	Arms and hands Do you have any problems with your arms or hands? If 'yes' to Q1: please describe problem below.		
2	Do you have any difficulty in doing any of your zips or buttons?		
2a	If 'yes' to Q2: are you able to do all of your zips and buttons?		
3	Do you have any difficulty in washing or brushing your hair?		
3a	If 'yes' to Q3: are you able to wash and brush your hair?		
4	Do you have any difficulty in using a knife and fork together?		
4a	If 'yes' to Q4: are you able to use a knife and fork together?		
5	Do you have any difficulty in handling small coins?		
5a	If 'yes' to Q5: Are you able to handle small coins?		
6	If unable to use hands for any of above activities: Can you use your hands for anything at all?		

What problem (s) do you have with your arms and hands?

Mobility		Yes	No
1	Do you have any problems with your walking?		
1a	To the other person: Does the person have any problems with their walking?		
	If 'yes' to Q1 or Q1a:		
2	Do you use a walking aid:		
3	How do you usually get around outdoors:		
3a	Without aid		
3b	Or with one stick or crutch, or holding someone's arm?		
3c	Or with two sticks or crutches, a walking frame, or one stick or crutch and someone's arm?		
3d	Or with a wheelchair		
4	Can you stand and walk a few steps with help?		

Any comments:

Bladder		Yes	No
1	Do you have any problems with your bladder?		
2	Are you currently on any treatment for such problems?		
3	Do you have to rush to the toilet, go frequently, or have difficulty in starting to pass urine?		
4	Have you been incontinent in the last month?		
5	Have you been incontinent every week?		
6	Have you been incontinent every day?		
7	Do you use a catheter (tube) to empty your bladder?		
8	Do you have a permanent catheter (tube) in the bladder, or, if a man, do you use a sheath to catch your urine?		

Any comments?

Bowels		Yes	No
1	Do you have any problems with your bowel movements?		
1a	If the answer to Q1 was 'yes' Do you suffer from constipation?		
2	Are you on any treatment for your bowels?		
3	Do you take laxatives or use suppositories for constipation?		
4	Do you need to use enemas for constipation?		
5	Do you need to evacuate your bowels by hand?		
6	Do you have to rush to the toilet to open your bowels?		
7	Have you had any bowel accidents (been incontinent of faeces) in the last month?		
8	Have you had bowel accidents every week?		

Any comments?

Fatigue		Yes	No
1	Have you been feeling tired or getting tired easily during the last month?		
	If 'yes':		
2	Have you been feeling tired or getting tired easily most days?		
3	Has this tiredness affected your ability to do any of your usual activities?		
4	Has the tiredness been severe enough to prevent you from doing all your usual activities?		
5	Has the tiredness been severe enough to confine you to bed and prevent you from doing all physical and mental activities?		

Any comments?

The next set of questions relate to sexual function. Do you mind being asked about this? If so, please leave blank.

Sexual activities		Yes	No
1	Do you have any problems in relation to your sexual function? If 'yes':		
2	Do you have any problems in finding or satisfying a sexual partner?		
3	Is your sexual drive (desire) reduced?		
4	Is your sexual function affected by any physical problem such as loss of sensation, pain, weakness, spasms, catheterisation or incontinence?		
5	Do you have any difficulty with: (<i>men</i>): erection or ejaculation? (<i>women</i>) vaginal lubrication or orgasm?		
6	Do any of these difficulties totally prevent any sexual activities?		

Any comments?

Do you have any other problems due to multiple sclerosis (MS) which have not been mentioned so far (such as: pain, spasms, dizziness)?

If 'yes', please answer below:

What is the worst problem?

Q	Other disabilities	Yes	No
1	Have you had this problem most days during the last month?		
2	Has this problem affected your ability to do any of your usual activities?		
3	Has this problem been severe enough to prevent you from doing all your usual activities, or to make you stay in bed all the time?		
4	Have you been admitted to hospital for this problem in the last year?		

Appendix 2: Schedule for Participant interviews

1. What do you think caused your admission?

Prompt: Medical and social circumstances

2. Do you think there is anything that could have stopped you being admitted to hospital?

Prompt: Service provision – personal care, equipment provision, improved accessibility to local service e.g. G.P

3. Do you believe the admission had helped in anyway?

Prompt: if patients answers yes determine how, if patient answer no determine why

4. If there anything that could stop you being admitted in the future?

Prompt: either existing or non existing

Appendix 3: Patient information sheet (Phase I)

[To be printed on trust headed paper]

PATIENT INFORMATION SHEET

Title: The appropriateness of acute hospital admissions and lengths of stay for people with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

You are being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

It is known that some people are admitted to hospital when they could have been cared for elsewhere and that some people stay in hospital longer than is necessary. This study aims to find out if (and how) having a long term neurological condition affects admission to hospital and the length of stay. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham.

Why have I been chosen?

You have been chosen because you have a neurological condition and have been admitted to the Derbyshire Royal Infirmary/Derby City General Hospital. A sample of around 370 people will be invited to take part in this phase of the research.

Do I have to take part?

No. It is up to you whether or not to take part. If you do decide to take part you are free to withdraw at any time and without giving a reason. If you choose not to take part, or choose to withdraw, the care you receive will not be affected.

What will happen to me if I take part?

If you decide to take part, we will document some information about your hospital admission and neurological condition from your medical and nursing records. In order for us to find out how your neurological condition affects your life we will carry out three assessments, the GUY's Neurological Disability Score, the Functional Independence Measure and the Mini Mental State examination. These assessments involve answering questions about the difficulties you have (if any) in carrying out activities of daily living and will take approximately 30 minutes.

We will also interview you to collect some information about your social situation e.g. whether you have people that are available to care for you and about the circumstances leading to your hospital

admission. The interview will take place whilst you are at the Derbyshire Royal Infirmary/Derby City General, but only if you feel able. If you do not feel able to be interviewed, with your permission, we will ask your next of kin/relative/friend if they can provide the information on your behalf. The interview will take approximately 20 minutes. You may also be asked to take part in a second interview, in which we will ask a few additional questions about the possible causes of your admission, how your admission might have been prevented and how other admissions might be avoided in the future. The second interview will take approximately 30 minutes, and if you agree, the interviews will be audio-taped.

Expenses and payments:

No expenses or payments are being given. Your involvement in the study is not anticipated to entail any costs.

What do I have to do?

If you agree to take part in this study, you would be asked to give us permission to gain information from your medical and nursing records, to complete three assessments and to take part in at least one interview and perhaps a second.

What are the possible benefits of taking part?

We hope that the information we gain from this study will help to ensure that people with long term neurological conditions are cared for in the most suitable setting and that time spent in an acute hospital ward is not longer than necessary.

What if something goes wrong?

In the event that something does go wrong and you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

If you have any concerns or questions about your care or treatment at Derby Hospitals NHS Foundation Trust, please contact the Patient Advice Liaison Service (PALS) on 01332 785156.

Will my taking part in this study be kept confidential?

Yes. All information you give will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. If you consent to take part, your medical records may be studied by the researcher for the purpose of gathering data and analysing the results. All information that is collected about you during the course of the research will be kept strictly confidential. The audio-tapes of the interviews we conduct will be kept in a locked filing cabinet at the University of Nottingham Division of Rehabilitation and Ageing, labelled only with a code number. Only the researcher will listen to the interview tapes. The tapes will be destroyed once the study is complete.

What will happen to the results of the research study?

All information you give will be used for research purposes only. The findings of the study will be published and made available to

individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Derbyshire Research Ethics Committee.

What happens now?

If you would like to take part in this research, please complete the attached consent (or assent) form and return it to Miss Hammond. We will then arrange to speak to you and arrange a suitable time to interview you. If you do not wish to take part in this research you need do nothing further and you will not be contacted again about this study.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham Division of Rehabilitation and Ageing, Derby City General Hospital, Utttoxeter Road, Derby, DE22 3NE.

Tel: 01332-785740 Email: mcxclh@nottingham.ac.uk

Consumers for Ethics in Research (CERES) publish a leaflet entitled 'Medical Research and You'. This gives more information about medical research and gives advice on the sort of questions you may wish to ask. A copy of this leaflet can be obtained (in a number of languages or audio-tape) from; CERES, PO Box 1365, London, N16 0BW, (Email: Info@ceres.org.uk). The Derby Hospitals NHS Foundation Trust Patient Advice Liaison (PALS) Service can also provide information about being involved in a research study and can be contacted on 01332 785156.

You will be given a copy of this information sheet and of the consent form to keep

Thank you

Appendix 4: Patient consent form (Phase I)

[To be printed on Trust headed paper]

Code number:

CONSENT FORM

The appropriateness of acute hospital admissions and lengths of stay for people with long term neurological conditions.

Investigators: Miss C Hammond, Dr LL Pinnington, Dr MF Phillips, Prof CD Ward, Dr B Pearson

The patient should complete the whole of this sheet himself/herself

*Please
initial
box*

1. I confirm that I have read and understand the information sheet (version6 23rdMay06) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily

Who have you spoken to? Dr/Mrs/Ms

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason, without my medical care or legal rights being affected

3. I understand that relevant sections of any of my medical notes and data collected during the study, may be looked at by responsible individuals from the University of Nottingham Division of Rehabilitation and Ageing, from regulatory authorities and Derby Hospitals NHS Foundation Trust staff where it is relevant to taking part in this research. I give permission for these individuals to have access to my records

4. I agree for any relevant interviews to be audio-taped

5. I agree to take part in the above study

_____ Name of patient	_____ Date	_____ Signature
--------------------------	---------------	--------------------

Name of person taking
consent
(if different from
researcher)

Date

Signature

I have explained the study to the above patient and he/she has indicated his/her willingness to take part.

Researcher

Date

Signature

When completed, 1 for patient; 1 for researcher site file; 1 (original)
to be kept in medical notes

Appendix 5: Next of kin/proxy information sheet (Phase I)

[To be printed on Trust headed paper]

NEXT OF KIN/PROXY INFORMATION SHEET

Title: The appropriateness of acute hospital admissions and lengths of stay for people with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

Your partner/relative/friend is being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether you are happy for your partner/relative/friend to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

It is known that some people are admitted to hospital when they could have been cared for elsewhere and that some people stay in hospital longer than is necessary. This study aims to find out if (and how) having a long term neurological condition affects admission to hospital and the length of stay. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham

Why has my partner/relative/friend been chosen?

Your partner/relative/friend has been chosen because they have a neurological condition and have been admitted to the Derbyshire Royal Infirmary/Derby City General Hospital. A sample of around 370 people will be invited to take part in this phase of the research.

Does your partner/relative/friend have to take part?

No. It is up to you whether or not they take part. If you do agree for your partner/relative/friend to take part you are free to withdraw them at any time and without giving a reason. If you do not agree for your partner/relative/friend to take part, or choose to withdraw, the care they receive will not be affected.

What will happen to my partner/relative/friend if they take part?

If you agree for your partner/relative/friend to take part, we will document some information about their hospital admission and neurological condition from their medical and nursing records.

Expenses and payments:

No expenses or payments are being given. Your partner/relatives/friends involvement in the study is not anticipated to entail any costs.

What do they have to do?

If you agree for your partner/relative/friend to take part in this study, you would be asked to give us permission to gain information about them from their medical and nursing records.

What are the possible benefits of taking part?

We hope that the information we gain from this study will help to ensure that people with long term neurological conditions are cared for in the most suitable setting and that time spent in an acute hospital ward is not longer than necessary.

What if something goes wrong?

In the event that something does go wrong and your partner/relative/friend is harmed during the research study there are no special compensation arrangements. If they are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

If you have any concerns or questions about your care or treatment at Derby Hospitals NHS Foundation Trust, please contact the Patient Advice Liaison Service (PALS) on 01332 785156.

Will my partner/relative/friend's taking part in this study be kept confidential?

Yes. All information given will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. If you give permission for your partner/relative/friend to take part, their medical records may be studied by the researcher for the purpose of gathering data and analysing the results. All information that is collected about your partner/relative/friend during the course of the research will be kept strictly confidential.

What will happen to the results of the research study?

All information given will be used for research purposes only. The findings of the study will be published and made available to individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

Who is organising and funding the research?

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Derbyshire Research Ethics Committee.

What happens now?

If you would like your partner/relative/friend to take part in this research, please complete the attached assent form and return it to Miss Hammond. If you do not wish for your partner/relative/friend to take part in this research you need do nothing further and you will not be contacted again about this study.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham Division of Rehabilitation and Ageing, Derby City General Hospital, Uttoxeter Road, Derby, DE22 3NE.

Tel: 01332-785740 Email: mcxclh@nottingham.ac.uk

Consumers for Ethics in Research (CERES) publish a leaflet entitled 'Medical Research and You'. This gives more information about medical research and gives advice on the sort of questions you may wish to ask. A copy of this leaflet can be obtained (in a number of languages or audio-tape) from; CERES, PO Box 1365, London, N16 0BW, (Email: Info@ceres.org.uk). The Derby Hospitals NHS Foundation Trust Patient Advice Liaison (PALS) Service can also provide information about being involved in a research study and can be contacted on 01332 785156.

You will be given a copy of this information sheet and of the consent form to keep

Thank you

Appendix 6: Assent form (Phase I)

[To be printed on Trust headed paper]

Code number:

ASSENT FORM

The appropriateness of acute hospital admissions and lengths of stay for people with long term neurological conditions.

Investigators: Miss C Hammond, Dr LL Pinnington, Dr MF Phillips, Prof CD Ward, Dr B Pearson

The partner/carer/relative should complete the whole of this sheet himself/herself.

*Please
initial
box*

1. I confirm that I have read and understand the information sheet (version2 23rdMay06) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

Who have you spoken to? Dr/Mrs/Ms

2. I understand that my partner's/relative's/friend's participation is voluntary and that s/he is free to withdraw at any time, without giving reason, without his/her medical care or legal rights being affected.

3. I understand that relevant sections of my partner's/relative's/friend's medical notes and data collected during the study, may be looked at by responsible individuals from the University of Nottingham Division of Rehabilitation and Ageing, regulatory authorities or from Derby Hospitals NHS Foundation Trust staff where it is relevant to taking part in this research. I give permission for these individuals to have access to my partner's/relative's/friend's records.

4. I know of no reason why my partner/relative/friend would not agree to participate in the study if s/he had capacity to consent and s/he has not expressed the view that they did not wish to take part in research.

5. I know of no reason why my partner/relative/friend would not have wished to take part in the above research study and I assent on his/her behalf to take part

Name of patient

Name of
partner/relative/friend

Date

Signature

Name of person taking
consent (if different from
researcher)

Date

Signature

I have explained the study to the partner/relative/friend

Researcher

Date

Signature

When completed, 1 for patient; 1 for researcher site file; 1 (original)
to be kept in medical notes

Appendix 7: Focus group meeting agenda – topics to be covered

1. Complete consent form
2. Identify perceived causes and issues relating to inappropriate admissions/lengths of stay. Identify focus of strategy
3. Examine possible interventions
4. Consider intervention suggested by members and potential barriers to implementation
5. Discuss potential barriers to implementation and practical considerations

Appendix 8: Information sheet (Phase II)

[To be printed on trust headed paper]

PARTICIPANT INFORMATION SHEET

Title: The appropriateness of acute hospital admissions and lengths of stay for people with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

You are being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

It is known that some people are admitted to hospital when they could have been cared for elsewhere and that some people stay in hospital longer than is necessary. This study aims to generate ideas for a strategy/intervention to prevent this from happening. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham.

Why have I been chosen?

You have been chosen because you have been identified as having experience and knowledge of acute hospital admission of those with long term neurological conditions. A sample of around 7 people will be invited to take part in this phase of the research.

Do I have to take part?

No. It is up to you whether or not to take part. If you do decide to take part you are free to withdraw at any time and without giving a reason.

What will happen to me if I take part?

If you decide to take part, you will be asked to participate in a focus group. The focus group will involve discussing, with others, potential strategies for reducing inappropriate admissions and/or lengths of stay for people with long term neurological conditions and if any barriers might hinder the implementation of such a strategy.

The focus group meeting will take approximately 2 hours, and if you agree, the focus group meeting will be audio-taped.

Expenses and payments:

No expenses or payments are being given. Your involvement in the study is not anticipated to entail any costs.

What do I have to do?

If you agree to take part in this study, you will be asked to take part in a focus group.

What are the possible benefits of taking part?

We hope that the information we gain from this study will help generate ideas for a strategy to reduce the number of inappropriate admissions and lengths of stay for people with long term neurological conditions. This will ensure that people with long term neurological conditions are cared for in the most suitable setting and that time spent in an acute hospital ward is not longer than necessary.

What if something goes wrong?

In the event that something does go wrong and you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

If you have any concerns or questions about your care or treatment at Derby Hospitals NHS Foundation Trust, please contact the Patient Advice Liaison Service (PALS) on 01332 785156.

Will my taking part in this study be kept confidential?

Yes. All information you give will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. All information that is collected during the course of the research will be kept strictly confidential. The audio-tapes of the focus group meeting will be kept in a locked filing cabinet at the University of Nottingham Division of Rehabilitation and Ageing, labelled only with a code number. Only the researcher will listen to the interview tapes. The tapes will be destroyed once the study is complete.

What will happen to the results of the research study?

All information you give will be used for research purposes only. The findings of the study will be published and made available to individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

Who is organising and funding the research?

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Derbyshire Research Ethics Committee.

What happens now?

If you would like to take part in this research, please complete the attached consent (or assent) form and return it to Miss Hammond. We will then arrange to speak to you and arrange a suitable date for the focus group meeting to take place. If you do not wish to take part in this research you need do nothing further and you will not be contacted again about this study.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham Division of Rehabilitation and Ageing, Derby City General Hospital, Uttoxeter Road, Derby, DE22 3NE.

Tel: 01332-785740 Email: mcxclh@nottingham.ac.uk

You will be given a copy of this information sheet and of the consent form to keep

Thank you

Appendix 9: Consent form (Phase II)

[To be printed on Trust headed paper]

Code number:

CONSENT FORM

The appropriateness of acute hospital admissions and lengths of stay for people with long term neurological conditions.

Investigators: Miss C Hammond, Dr LL Pinnington, Dr MF Phillips, Prof CD Ward, Dr B Pearson

The participant should complete the whole of this sheet himself/ herself

*Please
initial
box*

1. I confirm that I have read and understand the information sheet (version 09thJan07) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily

Who have you spoken to? Dr/Mrs/Ms

2. I understand that my participation is voluntary and that I am free to withdraw at any time.

3. I agree for the focus group meeting to be audio-taped.

4. I agree to take part in the above study

_____	_____	_____
Name of patient	Date	Signature
_____	_____	_____
Name of person taking consent (if different from researcher)	Date	Signature

I have explained the study to the above patient and he/she has indicated his/her willingness to take part.
(Something wrong with the formatting here)

_____	_____	_____
Researcher	Date	Signature

When completed, 1 for participant; 1 for researcher site file.

Appendix 10: Patient interview schedule (Phase III)

INTERVIEW SCHEDULE

Patient interview schedule

Patient to answer first followed by main carer (where applicable)

1. Can you talk me through what happened when you were admitted to hospital?
2. When you were admitted do you think that there was any other kind of help you could have been given that would have helped you rather than being admitted?
if answers yes - what kind of help would that have been and why?
- why do you think you were admitted to hospital rather than being given that help?
If answers no - do you think that situation ever occurs for other patients with long term neurological conditions?
- why do you think people would be admitted to hospital rather than being given help in the community?
-
3. When you were admitted would you have preferred to stay at home or go into hospital?
4. What do you think the advantages/disadvantages are to staying at home/going into hospital?

Patient to be offered a break

5. In general terms can you talk me through what happens when you become ill?
- Who's the first person you contact and why?
6. In the past, other than the time you were admitted to hospital, what kind of services have you received when you have become ill?
7. Who was the person who contacted those services? e.g. the patient, the patients GP
8. Were you happy with those services or do you think other services could have helped you better? Why?

Appendix 11: Clinician interview schedule (Phase III)

INTERVIEW SCHEDULE

Clinician interview schedule

1. Can you think of an instance when a patient was admitted to hospital when their needs could have been met by services (other than acute services)?
2. *If answers yes* – Can you describe that situation for me?
3. *If answers yes* - What do you believe were the main barriers to the patient receiving those services?
4. What do you believe are the main barriers to accessing/using services (other than acute services) for patients with a long term neurological condition who become ill?
 - general barriers applicable to all patients
 - barriers specific to patients with multiple sclerosis or Parkinson's disease
6. In general terms what do you think causes patients to be admitted to hospital when there are other (non acute) services that could meet there need?
7. What do you think the advantages/disadvantages of that situation are?
8. What do you think can be done to stop that situation from happening? (if anything)
9. Can you talk me through your decision making process when deciding on the appropriate care for a patient with a long term neurological condition when they present to you?
 - prompt for patient preferences, availability of services, response time of services, extent to which instructions are followed, feedback received from service, referral process, specialist personal care requirements.

Appendix 12: Barriers to service use questionnaire

**LONG TERM NEUROLOGICAL CONDITIONS: CLINICIAN USE OF
NON ACUTE SERVICES**

We have found that some patients with long term neurological conditions are admitted to hospital when non acute services exist which could meet their needs. As clinicians we appreciate that many factors can make it difficult to access non acute services. The purpose of this study and the following questionnaire is to investigate potential barriers to use of services.

The questionnaire contains nine sections and will take approximately 10-15 minutes to complete.

All answers you provide are confidential.

Please check the most applicable box.

Please answer all questions.

Gender:

Male Female

Age group: 21-30 31-40 41-50 51-60 61+

What is your job position?

General Practitioner	Emergency Care Practitioner
Community Matron	Emergency Medicine Physician
Emergency Medicine Nurse	Acute Care Physician
Acute Care Nurse	

How many years ago did you qualify?

1-5 6-10 11-15 16-20 21-25

26-30 31+

What is your speciality?

Emergency medicine	Respiratory medicine
Medicine for the elderly	Acute medicine
Renal medicine	Diabetic medicine
Gastroenterology	Cardiology
Not applicable	

Have you completed any postgraduate training in the management of patients with long term neurological conditions?

Yes No

What type of training was it? (you may check more than one)

Short course Conference E-learning BMJ learning
Post graduate qualification Other - please detail:

.....
.....

Intermediate Care Services (ICS) for example rapid response schemes, hospital at home.

The last time I referred a patient with a long term neurological condition to ICS was in the:

Past year Past six months Past three months Past month

Never Never but have recently worked with a clinician who has
Other

What does the ICS provide?

Personal care Domestic support Short term intervention
Ongoing management Home adaptations Don't know

How simple is the ICS referral system?

Very easy Moderately easy Neither easy nor hard
Moderately hard Very hard Don't know

How much time does the ICS referral process consume?

A minimal amount of time A small amount of time
A moderate amount of time A large amount of time
An excessive amount of time Don't know

How accessible is the ICS during working hours?

Very accessible Moderately accessible
Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How accessible is the ICS out of working hours?

Very accessible Moderately accessible
Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How quickly is the ICS provision after referral?

Very quick Moderately quick Neither quick nor slow
Moderately slow
Very slow Don't know

Are your recommendations followed?

Always Sometimes Rarely Never
Don't know

Does ICS deliver what is stated?

Always Sometimes Rarely Never
Don't know

Is the outcome of the ICS service fed back to you?

Does SW deliver what is stated?

Always Sometimes Rarely Never
Don't know

Is the outcome of the SW service fed back to you?

Always Sometimes Rarely Never
Don't know

On the scale of 1 - 10 how instrumental is the SW in preventing inappropriate admissions to hospital? (1=Not at all instrumental, 10= Extremely instrumental)

1 2 3 4 5 6 7 8 9 10



Occupational therapy (OT)

Please specify which OT service you are referring to (e.g. social services OT, community OT)

.....

The last time I referred a patient with a long term neurological condition to the OT service was in the:

Past year Past six months Past three months Past month

Never Never but have recently worked with a clinician who has

Other

What does SOT provide?

- Specialist home equipment
- Funding for personal/domestic care packages
- Assessment/advice for home adaptations
- Rehabilitation therapy programmes
- Pressure care assessment
- Benefit advice
- Don't know

How simple is the OT referral system?

Very easy Moderately easy Neither easy nor hard
Moderately hard Very hard Don't know

How much time does the OT referral process consume?

A minimal amount of time A small amount of time
A moderate amount of time A large amount of time
An excessive amount of time Don't know

How accessible is the OT service during working hours?

Very accessible Moderately accessible
Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How accessible is the OT service out of working hours?

Very accessible Moderately accessible
Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How quickly is the OT provision after referral?

Very quick Moderately quick Neither quick nor slow
Moderately slow
Very slow Don't know

Are your recommendations followed?

Always Sometimes Rarely Never Don't know

Does OT deliver what is stated?

Always Sometimes Rarely Never Don't know

Is the outcome of the OT service fed back to you?

Always Sometimes Rarely Never Don't know

On the scale of 1 - 10 how instrumental is OT in preventing inappropriate admissions to hospital? (1=Not at all instrumental, 10= Extremely instrumental)

1 2 3 4 5 6 7 8 9 10

Community physiotherapy (CP): A stand alone services, accessed directly.

The last time I referred a patient with a long term neurological condition to the CP service was in the:

Past year Past six months Past three months Past month

Never Never but have recently worked with a clinician who has
Other

What do CP provide?

Formal advice on home adaptations programmes Rehabilitation therapy
Mobility advice in the home environment management Positioning and spacity
Medication advice Respiratory advice
Don't know

How simple is the CP referral system?

Very easy Moderately easy Neither easy nor hard
Moderately hard Very hard Don't know

How much time does the CP referral process consume?

A minimal amount of time A small amount of time
A moderate amount of time A large amount of time
An excessive amount of time Don't know

How accessible is the CP service during working hours?

Very accessible Moderately accessible
Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How accessible is the CP service out of working hours?

Very accessible	Moderately accessible
Neither accessible nor inaccessible	Moderately inaccessible
Very inaccessible	Don't know

How quickly is the CP provision after referral?

Very quick	Moderately quick	Neither quick nor slow
Moderately slow		
Very slow	Don't know	

Are your recommendations followed?

Always	Sometimes	Rarely	Never	Don't know
--------	-----------	--------	-------	------------

Does CP deliver what is stated?

Always	Sometimes	Rarely	Never	Don't know
--------	-----------	--------	-------	------------

Is the outcome of the CP service fed back to you?

Always	Sometimes	Rarely	Never	Don't know
--------	-----------	--------	-------	------------

On the scale of 1 - 10 how instrumental is CP in preventing inappropriate admissions to hospital? (1=Not at all instrumental, 10= Extremely instrumental)

1 2 3 4 5 6 7 8 9 10

Specialist community nurses (SCN) e.g. Chronic disease nurses

The last time I referred a patient with a long term neurological condition to the SCN service was in the:

Past year	Past six months	Past three months	Past month
-----------	-----------------	-------------------	------------

Never	Never but have recently worked with a clinician who has
Other	

What do SCN provide?

Personal care	Equipment	Domiciliary care
Occupational therapy	Don't know	

How simple is the SCN referral system?

Very easy	Moderately easy	Neither easy nor hard
Moderately hard	Very hard	Don't know

How much time does the SCN referral process consume?

A minimal amount of time	A small amount of time
A moderate amount of time	A large amount of time
An excessive amount of time	Don't know

How accessible are the SCN during working hours?

Very accessible	Moderately accessible
Neither accessible nor inaccessible	Moderately inaccessible
Very inaccessible	Don't know

How accessible are the SCN out of working hours?

Very accessible	Moderately accessible
Neither accessible nor inaccessible	Moderately inaccessible
Very inaccessible	Don't know

How quickly is the SCN provision after referral?

Very quick	Moderately quick	Neither quick nor slow
Moderately slow		
Very slow	Don't know	

Are your recommendations followed?

Always	Sometimes	Rarely	Never	Don't know
--------	-----------	--------	-------	------------

Do SCN deliver what is stated?

Always	Sometimes	Rarely	Never	Don't know
--------	-----------	--------	-------	------------

Is the outcome of the SCN service fed back to you?

Always	Sometimes	Rarely	Never	Don't know
--------	-----------	--------	-------	------------

On the scale of 1 - 10 how instrumental are SCN in preventing inappropriate admissions to hospital? (1=Not at all instrumental, 10= Extremely instrumental)

1 2 3 4 5 6 7 8 9 10

Community matrons (CM)

The last time I referred a patient with a long term neurological condition to the CM service was in the:

Past year	Past six months	Past three months	Past month
-----------	-----------------	-------------------	------------

Never	Never but have recently worked with a clinician who has
Other	

What do CM provide?

Medication management packages	Funding or arrangement of care
Chronic disease management advice	Specialist disease management
Formal counselling	Don't know

How simple is the CM referral system?

Very easy	Moderately easy	Neither easy nor hard
Moderately hard	Very hard	Don't know

How much time does the CM referral process consume?

A minimal amount of time	A small amount of time
A moderate amount of time	A large amount of time
An excessive amount of time	Don't know

How accessible are the CM during working hours?

Very accessible	Moderately accessible
-----------------	-----------------------

Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How accessible are the CM out of working hours?

Very accessible Moderately accessible
Neither accessible nor inaccessible Moderately inaccessible
Very inaccessible Don't know

How quickly is the CM provision after referral?

Very quick Moderately quick Neither quick nor slow
Moderately slow
Very slow Don't know

Are your recommendations followed?

Always Sometimes Rarely Never Don't
know

Do CM deliver what is stated?

Always Sometimes Rarely Never Don't
know

Is the outcome of the CM service fed back to you?

Always Sometimes Rarely Never Don't
know

On the scale of 1 - 10 how instrumental are CM in preventing inappropriate admissions to hospital? (1=Not at all instrumental, 10= Extremely instrumental)

1 2 3 4 5 6 7 8 9 10

District nurses (DN)

The last time I referred a patient with a long term neurological condition to the DN service was in the:

Past year Past six months Past three months Past month

Never Never but have recently worked with a clinician who
has
Other

What do DN provide?

Pressure care management Dressing and bandage
Benefit advice Care package funding and arrangement
Continence advice and management Don't know

How simple is the DN referral system?

Very easy Moderately easy Neither easy nor hard
Moderately hard Very hard Don't know

How much time does the DN referral process consume?

A minimal amount of time A small amount of time
A moderate amount of time A large amount of time
An excessive amount of time Don't know

How much time does the CH referral process consume?

- A minimal amount of time
- A moderate amount of time
- An excessive amount of time
- A small amount of time
- A large amount of time
- Don't know

How accessible is the CH during working hours?

- Very accessible
- Neither accessible nor inaccessible
- Very inaccessible
- Moderately accessible
- Moderately inaccessible
- Don't know

How accessible is the CH out of working hours?

- Very accessible
- Neither accessible nor inaccessible
- Very inaccessible
- Moderately accessible
- Moderately inaccessible
- Don't know

How quickly is the CH provision after referral?

- Very quick
- Moderately quick
- Neither quick nor slow
- Moderately slow
- Very slow
- Don't know

Are your recommendations followed?

- Always
- Sometimes
- Rarely
- Never
- Don't know

Does the CH deliver what is stated?

- Always
- Sometimes
- Rarely
- Never
- Don't know

Is the outcome of the CH service fed back to you?

- Always
- Sometimes
- Rarely
- Never
- Don't know

On the scale of 1 - 10 how instrumental is the CH in preventing inappropriate admissions to hospital? (1=Not at all instrumental, 10= Extremely instrumental)

1 2 3 4 5 6 7 8 9 10



Have you ever had difficulty securing support for patients with long term neurological conditions?

- Yes
- No

If yes: Has this ever led to a patient being admitted to hospital when you believe they could have remained at home?

- Yes
- No
- Not applicable

If yes: What were the three main barriers that prevented you securing support?

1.
2.
3.

Please indicate the extent to which you agree or disagree with the following statements:

Patients should not be admitted to hospital unless is it absolutely medically necessary

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

Admission to hospital is the most prompt means of addressing medical issues

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

Admission to hospital is the most prompt means of addressing social issues

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

Whenever possible I try to access alternative, non acute, services prior to admitting a patient to hospital

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

It is often easier to admit a patient to hospital than arrange provision of non acute services

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

I worry that specialist personal care cannot be provided as easily in a hospital setting

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

I worry that specialist medical care cannot be provided as easily in a community setting

Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree

What three things would improve your ability to more appropriately manage patients with long term neurological conditions?

1.

2.

3.

Appendix 13: Clinician questionnaire information sheet (Phase III)

[To be printed on trust headed paper]

CLINICIAN INFORMATION SHEET

Title: An examination of the barriers to use of non acute services for patients with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

You are being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether or not you would like to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

Findings from a previous study conducted by the University of Nottingham indicate that a number of patients with a long term neurological condition are admitted to an acute hospital when it is not medically necessary. In cases where patients have been inappropriately admitted non acute services existed which could have met the needs of patients effectively. The study therefore aims to examine the reasons that prevent services being accessed and how this can be improved. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham.

Why have I been invited?

You have been chosen because you have been identified as a clinician who is routinely involved in the decisions to admit patients with long term neurological conditions to hospital. A sample of around 230 people will be invited to take part in this phase of the research.

Do I have to take part?

No. It is up to you whether or not to take part.

What will happen to me if I take part?

If you decide to take part, you will be asked to complete an online questionnaire. The questionnaire is designed to examine knowledge, perceptions and behaviours of service use. The questionnaire will take approximately 15 minutes to complete.

Expenses and payments:

No expenses or payments are being given. Your involvement in the study is not anticipated to entail any costs.

What do I have to do?

If you agree to take part in this study, you will be asked to complete an online questionnaire.

What are the possible benefits of taking part?

We hope that the *information* we gain from this study will help us determine barriers to use of services and *contribute towards ensuring* that people with long term neurological conditions are cared for in the most suitable setting.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions (tel: 01332 789816). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure.

The study involves completing an online questionnaire only. However in the event that you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Will my taking part in this study be kept confidential?

Yes. All information we collect will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. Any personal data will be kept in a locked cabinet that only the research team has access to in an office of the Rehabilitation Research and Education Group. No person identifiable data will be stored on a computer. Names and identifiable information will not be used during the interviews and any identifiable information deleted from transcripts. Original audio tapes will be kept in a secure locked cabinet in an office of the Rehabilitation Research and Education Group and will be stored separately from participant names, addresses and code numbers. Audiotapes will only be listened to by the research team. Code numbers will be assigned to all participants once they have consented to the study to anonymise the data. All data will be stored in accordance with the Data Protection Act, professional codes of practice and Research Governance Framework. All information that is collected about you during the course of the research will be kept strictly confidential.

What will happen to the results of the research study?

All information we collect will be used for research purposes only. The findings of the study will be published and made available to individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Nottingham Research Ethics Committee.

What happens now?

If you would like to take part in this research, please complete the online questionnaire. Completion of the online questionnaire will be deemed as providing informed consent. If you do not wish to take part we would like to ask you to inform Miss Hammond (contact

details below), this will ensure that you are no longer contacted regarding your taking part in the study.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham, Rehabilitation Research and Education Group, Derby City General Hospital, Uttoxeter Road, Derby, DE22 3NE.

Tel: 01332-789816 Email: mcxclh@nottingham.ac.uk

The Derby Hospitals NHS Foundation Trust Patient Advice Liaison (PALS) Service can give you information about being involved in a research study and can be contacted on 01332 785156.

You may retain this information sheet

Thank you

Appendix 14: Clinician interview information sheet (Phase III)

[To be printed on Trust headed paper]

CLINICIAN INFORMATION SHEET

Title: An examination of the barriers to use of non acute services for patients with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

You are being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether you would like to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

Findings from a previous study conducted by the University of Nottingham indicate that a number of patients with a long term neurological condition are admitted to an acute hospital when it is not medically necessary. In cases where patients have been inappropriately admitted non acute services existed which could have met the needs of patients effectively. The study therefore aims to examine the reasons that prevent services being accessed and how this can be improved. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham.

Why have I been chosen?

You have been chosen because you have been identified as a clinician who is routinely involved in the decisions to admit patients with long term neurological conditions to hospital. A sample of around 10 people will be invited to take part in this phase of the research.

Do I have to take part?

No. It is up to you whether or not to take part. If you do decide to take part you are free to withdraw at any time and without giving a reason.

What will happen to me if I take part?

If you decide to take part, you will be asked to take part in one interview. The interview will examine general barriers to accessing services for patients with long term neurological conditions, specific barriers to accessing services for patients with Multiple Sclerosis and Parkinson's disease, your decision making process when accessing services, and your experiences and thoughts regarding inappropriate admissions. The interview will take approximately 30 minutes and you can determine where the interview takes place. With your permission the interviews will be audio-taped.

Expenses and payments:

No expenses or payments are being given. You may want to ensure then that the interview takes place at somewhere that will not involve you entailing costs/extra costs.

What do I have to do?

If you agree to take part in this study, you will be asked to complete one interview.

What are the possible benefits of taking part?

We hope that the information we gain from this study will help us determine barriers to use of services and contribute towards ensuring that people with long term neurological conditions are cared for in the most suitable setting.

What if there is a problem?

The study involves taking part in an interview only. However in the event that something does go wrong and you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Will my taking part in this study be kept confidential?

Yes. All information we collect will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. All information that is collected about you during the course of the research will be kept strictly confidential.

What will happen to the results of the research study?

All information we collect will be used for research purposes only. The findings of the study will be published and made available to individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Nottingham Research Ethics Committee.

What happens now?

If you would like to take part in this research, please complete the attached consent form and contact Miss Hammond (contact details given below). If you do not wish to take part we would like to ask you to inform Miss Hammond, this allows us to approach other clinicians to participate in the research.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham, Rehabilitation Research and Education Group, Derby City General Hospital, Uttoxeter Road, Derby, DE22 3NE.

Tel: 01332-785740 Email: mcxclh@nottingham.ac.uk

The Derby Hospitals NHS Foundation Trust Patient Advice Liaison (PALS) Service can give you information about being involved in a research study and can be contacted on 01332 785156.

You will be given a copy of this information sheet and of the consent form to keep

Thank you

Appendix 15: Clinician/patient consent form (Phase III)

Code number:

[To be printed on Trust headed paper]

CONSENT FORM

An examination of the barriers to use of non acute services for patients with long term neurological conditions.

Investigators: Miss CL Hammond, Dr LL Pinnington, Dr MF Phillips, Dr B Pearson

The patient should complete the whole of this sheet himself/herself

*Please
initial
box*

1. I confirm that I have read and understand the information sheet (version2 24.1.08) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason, without my medical care or legal rights being affected

3. I agree for any relevant interviews to be audio-taped

4. I agree for the researcher to contact me to arrange a suitable date/time for the research to take place

Please provide your telephone no:.....

5. I agree to take part in the above study

Name of participant

Date

Signature

I have explained the study to the above participant and he/she has indicated his/her willingness to take part.

Researcher

Date

Signature

When completed, 1 for participant and original for researcher site file

Appendix 16: Patient information sheet (Phase III)

[To be printed on Trust headed paper]

PATIENT INFORMATION SHEET

Title: An examination of the barriers to use of non acute services for patients with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

You are being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether or not you would like to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

Findings from a previous study conducted by the University of Nottingham indicate that a number of patients with Multiple Sclerosis or Parkinson's disease are admitted to an acute hospital when other services could have met their needs. This study aims to examine patients' experiences of using services, patients' experiences of being admitted to hospital, patient preferences regarding being admitted to hospital or remaining at home when you experience a health problem. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham.

Why have I been invited?

You have been chosen because you have Multiple Sclerosis or Parkinson's disease and have been admitted to the Derbyshire Royal Infirmary/Derby City General Hospital in the past year. A sample of around 10 people will be invited to take part in this phase of the research.

Do I have to take part?

No. It is up to you whether or not to take part. If you do decide to take part you are free to withdraw at any time and without giving a reason. If you choose not to take part, or choose to withdraw, the care you receive will not be affected.

What will happen to me if I take part?

If you decide to take part, you will be asked to take part in two interviews. The first interview will involve you answering some questions about yourself (e.g. your age and gender) and your condition. As part of the first interview you will be asked to complete three assessments which will involve you answering some questions about your abilities/disabilities. The first interview will take approximately 20 minutes. Following a break you will be asked to complete a second interview in which we will ask a few questions about your experiences of using services, your experience/s of being admitted to hospital and your preferences regarding being admitted to hospital or remaining at home when an exacerbation of your condition occurs. The interview will take between 30-45 minutes and you can

determine where the interview takes place. With your permission the interviews will be audio-taped. In total both interviews will take approximately 50-65 minutes.

Expenses and payments:

No expenses or payments are being given. You may want to ensure then that the interview takes places at somewhere that will not involve you entailing costs/extra costs.

What do I have to do?

If you agree to take part in this study, you will be asked to complete two interviews.

What are the possible benefits of taking part?

We hope that the information we gain from this study will help us highlight patients' experiences and preferences regarding care. We also hope it will contribute towards ensuring that people with long term neurological conditions are cared for in the most suitable setting.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions (tel: 01332 789816). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure.

The study involves taking part in two interviews only. However in the event that you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Will my taking part in this study be kept confidential?

Yes. All information we collect will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. Any personal data will be kept in a locked cabinet that only the research team has access to in an office of the Rehabilitation Research and Education Group. No person identifiable data will be stored on a computer. Names and identifiable information will not be used during the interviews and any identifiable information deleted from transcripts. Original audio tapes will be kept in a secure locked cabinet in an office of the Rehabilitation Research and Education Group and will be stored separately from participant names, addresses and code numbers. Audiotapes will only be listened to by the research team. Code numbers will be assigned to all participants once they have consented to the study to anonymise the data. All data will be stored in accordance with the Data Protection Act, professional codes of practice and Research Governance Framework. All information that is collected about you during the course of the research will be kept strictly confidential.

What will happen to the results of the research study?

All information we collect will be used for research purposes only. The findings of the study will be published and made available to individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Nottingham Research Ethics Committee.

What happens now?

If you would like to take part in this research, please complete the attached consent form and return it to Miss Hammond. If you do not wish to take part in this research you need do nothing further and you will not be contacted again about this study.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham, Rehabilitation Research and Education Group, Derby City General Hospital, Uttoxeter Road, Derby, DE22 3NE.

Tel: 01332-789816 Email: mcxclh@nottingham.ac.uk

The Derby Hospitals NHS Foundation Trust Patient Advice Liaison (PALS) Service can give you information about being involved in a research study and can be contacted on 01332 785156.

You will be given a copy of this information sheet and of the consent form to keep

Thank you

Appendix 17: Carer information sheet (Phase III)

[To be printed on Trust headed paper]

CARER INFORMATION SHEET

Title: An examination of the barriers to use of non acute services for patients with long term neurological conditions.

Investigators: Christina Hammond, Ben Pearson, Margaret Phillips, Lorraine Pinnington, Chris Ward

You and your partner/relative/friend are being invited to take part in a research study which is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust. Before you decide whether or not you and your partner/relative/friend would like to take part, it is important for you to understand why the research is being carried out and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

Findings from a previous study conducted by the University of Nottingham indicate that a number of patients with Multiple Sclerosis or Parkinson's disease are admitted to an acute hospital when other services could have met their needs. This study aims to examine patients' and their carers' experiences of using services, patients' and their carers' experiences of being admitted to hospital, patient and carer preferences regarding being admitted to hospital or remaining at home when they experience a health problem. The research is being conducted as part of a programme of study leading to a PhD at the University of Nottingham.

Why have I been invited?

You and your partner/relative/friend have been chosen because your partner/relative/friend has Multiple Sclerosis or Parkinson's disease and has been admitted to the Derbyshire Royal Infirmary/Derby City General Hospital in the past year. A sample of around 10-20 people will be invited to take part in this phase of the research.

Do I have to take part?

No. It is up to you whether or not you and your partner/relative/friend takes part. If you do decide for that you and your partner/relative/friend wants to take part you are free to withdraw yourself or your partner/relative/friend at any time and without giving a reason. If you choose that you or your partner/relative/friend should not to take part, or choose to withdraw yourself or your partner/relative/friend, the care they receive will not be affected.

What will happen to me and my partner/relative/friend if we take part?

If you decide that you and your partner/relative/friend want to take part, you and your partner/relative/friend will be asked to take part in two interviews. The first interview will involve you and your partner/relative/friend (if able) answering some questions about your partner/relative/friend (e.g. age and gender) and their condition. As part of the first interview you and your partner/relative/friend will be asked to complete three assessments which will involve you and your partner/relative/friend answering some questions about your partner's/relative's/friend's abilities/disabilities. The first interview will take approximately 20 minutes. Following a break you and your partner/relative/friend will be asked to complete a second interview in which we will ask a few questions about you and your partner's/relative's/friend's experiences of using services, experience/s of being admitted to hospital and preferences regarding being admitted to hospital or remaining at home when an exacerbation of your partners/relatives/friends condition occurs. The interview will take between 30-45 minutes and you and your partner/relative/friend can determine where the interview takes place. With your permission the interviews will be audio-taped. In total both interviews will take approximately 50-65 minutes.

Expenses and payments:

No expenses or payments are being given. You may want to ensure then that the interview takes places at somewhere that will not involve you entailing costs/extra costs.

What do I have to do?

If you agree for you and your partner/relative/friend to take part in this study, you and your partner/relative/friend (if able) will be asked to complete two interviews.

What are the possible benefits of taking part?

We hope that the information we gain from this study will help us highlight patients' and their carers' experiences and preferences regarding care. We also hope it will contributing towards ensuring that people with long term neurological conditions are cared for in the most suitable setting.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions (tel: 01332 789816). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure.

The study involves taking part in two interviews only. However in the event that you are harmed during the research study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham/Derby Hospitals NHS Foundation Trust, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Will my taking part in this study be kept confidential?

Yes. All information we collect will be treated as confidential as we will comply with the Data Protection Act 1998 at all times. Any personal

data will be kept in a locked cabinet that only the research team has access to in an office of the Rehabilitation Research and Education Group. No person identifiable data will be stored on a computer. Names and identifiable information will not be used during the interviews and any identifiable information deleted from transcripts. Original audio tapes will be kept in a secure locked cabinet in an office of the Rehabilitation Research and Education Group and will be stored separately from participant names, addresses and code numbers. Audiotapes will only be listened to by the research team. Code numbers will be assigned to all participants once they have consented to the study to anonymise the data. All data will be stored in accordance with the Data Protection Act, professional codes of practice and Research Governance Framework. All information that is collected about you during the course of the research will be kept strictly confidential.

What will happen to the results of the research study?

All information we collect will be used for research purposes only. The findings of the study will be published and made available to individuals on request. Results will only be reported or published in a way that does not allow individuals to be identified.

The study is being organised by the University of Nottingham and Derby Hospitals NHS Foundation Trust and being funded by the University of Nottingham.

Who has reviewed the study?

This study was given favourable ethical opinion for conduct in the NHS by the Nottingham Research Ethics Committee.

What happens now?

If you would like to take part in this research, please complete the attached consent/assent form and return it to Miss Hammond. If you do not wish to take part in this research you need do nothing further and you will not be contacted again about this study.

Further Information

If you have any questions about this study (or wish to obtain a copy of the results) please contact:

Miss Christina Hammond, University of Nottingham, Rehabilitation Research and Education Group, Derby City General Hospital, Uttoxeter Road, Derby, DE22 3NE.

Tel: 01332-789816 Email: mcxclh@nottingham.ac.uk

The Derby Hospitals NHS Foundation Trust Patient Advice Liaison (PALS) Service can give you information about being involved in a research study and can be contacted on 01332 785156.

You will be given a copy of this information sheet and of the consent form to keep

Thank you

Appendix 18: Assent form (Phase III)

Code number:

ASSENT FORM

An examination of the barriers to use of non acute services for patients with long term neurological conditions.

Investigators: Miss CL Hammond, Dr LL Pinnington, Dr MF Phillips, Dr B Pearson

The partner/relative/friend should complete the whole of this sheet himself/herself.

*Please
initial
box*

1. I confirm that I have read and understand the information sheet (version2 24.1.08) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my partner/relative's/friends participation is voluntary and that s/he is free to withdraw at any time, without giving reason, without his/her medical care or legal rights being affected.

3. I know of no reason why my partner/relative/friend would not agree to participate in the study if s/he had capacity to consent and s/he has not expressed the view that they did not wish to take part in research.

4. I know of no reason why my partner/relative/friend would not have wished to take part in the above research study and I assent on his/her behalf to take part.

5. I agree for the researcher to contact me to arrange a suitable date/time for the research to take place.

Please provide your telephone

no:.....

6. I agree for any relevant interviews to be audio-taped.

Name of patient

Name of
partner/relative/friend
I have explained the study to the partner/relative/friend

Date

Signature

Name of person
taking assent

Date

Signature

When completed, 1 for patient and original for researcher site file

Appendix 19: Consultant ward round case notes

**Consultant Ward Round Case Notes
Derby Hospitals NHS Foundation Trust**

Name:

Hosp. Number:

A medical review on the patient has been undertaken

Consultant:	Date:	Time:

Reason for admission to MAU:

Comments:

Problem list

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

**Requirements for discharge
Timescale**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Daily actions

Date:
Actions to be carried out today

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Date:
Actions to be carried out today

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Ongoing care pathway

Admit under: **Respiratory / Cardiology / Medicine for the elderly / Stroke Unit Gastroenterology / Renal medicine / Diabetes & Endocrinology**

Admit under other medical speciality:

Admit under non medical speciality:

Transfer care: **Rehabilitation / Peripheral Hospital / Other:**

Admission status

Anticipated discharge: **Today / Within 48 hours / 48 hours +**