

The quality and safety of healthcare provided  
to hospital inpatients who are placed on  
clinically inappropriate wards

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## **Abstract**

**Background:** Almost all NHS hospitals regularly place patients on wards that are not clinically appropriate if there are no beds available on the correct specialty ward. Such patients are commonly called outliers. Approximately one in ten NHS inpatients experience an adverse event that causes them harm as a direct result of the care they receive while in hospital. It was hypothesised that placement on a ward that is not clinically appropriate for patients' needs could act as an underlying (latent) condition which may increase patients' susceptibility to adverse events.

**Methods:** A descriptive quantitative study of the outliers and other inpatients in a single large NHS Foundation Trust was conducted using routinely available data. The aims were to investigate: the trend of outliers over the course of one year, age, gender, specialty, internal transfers between wards, length of stay in hospital and mortality. Two separate qualitative interview studies were conducted at the Trust to ascertain NHS staff members' and patients' perceptions and experiences of the quality and safety of care received by outlying patients.

**Results:** Medical and elderly outliers increased over the winter months. Outliers were transferred between wards a significantly greater number of times than other inpatients. Multivariate analyses demonstrated no differences in age, gender, or mortality; however, outliers stayed in hospital significantly longer than other inpatients and outliers were significantly more likely to come from medicine than from any other specialty. Both staff and patients identified a number of factors which may contribute to healthcare errors experienced by outlying patients. Placement of patients on clinically inappropriate wards creates competing demands on staff members' time and consequently results in delays, poses a number of communication barriers, compromises input from knowledgeable staff, may provide an unsuitable ward environment, and can be inappropriate for individual patients' needs.

**Conclusions:** The placement of patients on clinically inappropriate wards is a specific patient safety concern and constitutes a latent condition which may expose patients to a number of contributory factors that underlie adverse events. The quality of care may be compromised as outliers are often prioritised beneath other inpatients.

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## Abbreviations

A&E	Accident and Emergency
BMI	Body mass index
CI	Confidence interval
DoH	Department of Health
ENT	Ear, nose and throat
EPAU	Early pregnancy assessment unit
GTT	Global trigger tool
HDU	High dependency unit
HES	Hospital Episode Statistics
HSMR	Hospital standardised mortality ratio
HSR	Health services research
ICU	Intensive care unit
LG	Lucy Goulding (author)
MAU	Medical admissions unit
Max facs	Maxillofacial surgery
MRSA	Methicillin resistant <i>Staphylococcus aureus</i>
NHS	National Health Service
NPSA	National Patient Safety Agency
NRLS	National reporting and learning system
OR	Odds ratio
PAS	Patient administration system
RCT	Randomised controlled trial
REC	Research Ethics Committee
R&D	Research and development
SHO	Senior House Officer
SUI	Serious untoward incident
UK	United Kingdom
USA	United States of America
YCF	Yorkshire Contributory Factors Framework

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I dedicate this thesis to the memory of my much loved Grannie.

## **Author's Declaration**

I declare that I am responsible for the work submitted in this thesis. The work presented in this thesis has not been submitted for any other award at any other institution. To the best of my knowledge the thesis contains no material previously published or written by another person, except where due reference is made within the text.

Lucy Goulding

December 2011

## **Thesis purpose and structure**

The aim of the research presented in this thesis was to explore the quality and safety of healthcare provided to hospital inpatients who are placed on clinically inappropriate wards. For the purposes of this thesis, patients placed on inappropriate wards will be termed ‘outliers’ and the wards they reside on will be referred to as ‘outlying wards’.

In addition to conducting the research for the degree of Doctor of Philosophy, It was hoped at the outset that the research would be of benefit to patients and staff in the NHS. The seed of inspiration for the research presented in this thesis came from NHS staff members who had raised the safety of outliers as a potentially important issue which required investigation. The three primary research studies presented within this thesis were conducted at the NHS Foundation Trust where these concerns were raised. This research site was a large teaching hospital in the north of England with approximately 1100 inpatient beds.

The advantages of conducting the research at a single site included the ability to directly compare the results of the different studies and the potential to effect change within the organisation. Indeed, the findings of the research reported in this thesis were presented at the Trust’s clinical governance meeting and at the Trust’s quality and safety meeting, both of which were attended by senior members of clinical and management staff and board members. As a result of this, changes which may help to improve the quality and safety of care received by outlying patients in the Trust have been implemented. These changes are detailed in Chapter 8.

This thesis is divided into 8 chapters.

**Chapter 1** introduces quality of care and patient safety and discusses the prevalence and causes of outliers. The theoretical underpinnings for this thesis are then presented. The chapter goes on to review the literature relevant to the quality and safety of healthcare provided for outlying patients and identifies gaps in this literature, leading to the production of the research objectives.

**Chapter 2** provides an overview of the methodology adopted. The health services research approach is described and the philosophical considerations are presented. A synopsis of the study site and bed management policy is given.

**Chapter 3** assesses the feasibility of conducting a quantitative study to explore the epidemiology of adverse events in outlying patients in comparison to those patients who are treated on the correct specialty ward within the scope of this Ph.D. project.

**Chapter 4** comprises a descriptive study detailing the basic epidemiology of outliers in the Trust. The purposes of this study were to explore: the trend of outliers over the course of one year, the demographic characteristics of outliers in comparison to other inpatients, and the outcomes (specifically transfers between wards, length of stay and mortality) of outliers in comparison to other inpatients.

**Chapter 5** describes the methodology adopted for qualitative interview studies with NHS staff and outlying patients in the Trust.

**Chapter 6** presents the results of the qualitative interview study with NHS staff. A discussion then summarises the results and considers the findings in relation to previous research. The strengths and limitations of the study are considered.

**Chapter 7** presents the results of the qualitative interview study with NHS patients who had spent time on outlying wards during their hospital stay. Again, the results are discussed in relation to previous research and the study is critiqued.

**Chapter 8** provides an integrated discussion of the results presented in Chapters 4, 6 and 7. The assimilated findings are grounded in the context of relevant theory and prior research. The overall strengths and limitations of the work presented in this thesis are discussed. The implications for policy and clinical practice are outlined and suggestions for future research in this area are made. Changes made at the study site following the production of this research are detailed.



# **CHAPTER 1**

## **Background information, theoretical underpinnings, literature review and research objectives**

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### **1.1 Introduction to the chapter**

This thesis explores the quality and safety of care given to hospital inpatients who are allocated a bed on a hospital ward which is not clinically appropriate for their illness due to a lack of inpatient beds. Such patients are commonly named ‘outliers’, ‘sleep-outs’ or ‘boarders’. The purpose of this chapter is to provide background information pertinent to the thesis. The chapter takes the form of a literature review which collates and appraises literature relevant to the study of patient safety in outliers. A systematic search of the literature was adopted, which involved the construction of search strategies to obtain literature from electronic databases, general internet searches and checking the reference lists of relevant documents. The chapter begins by introducing quality and patient safety, examining the terminology used in this field and providing definitions of the terms used within this thesis. The chapter then introduces some of the issues involved in defining outliers and summarises previous literature which describes the scale and causes of the outlier phenomenon. Relevant theory is then applied to hypothesise about the safety of outlying patients. Summary and discussion of the limited prior research which has directly explored patient safety in outliers is then presented. Consequently, gaps in this literature are identified, leading to the formation of the research objectives posed in this thesis.

## **1.2 Introduction to quality of care, patient safety and the burden of patient safety issues**

For the purposes of this thesis, ‘quality’ refers to the perceived standard of healthcare and it is expected that the quality of healthcare received by NHS patients should be good. Perceptions of quality of care are of course subjective and multifaceted with individuals valuing aspects of healthcare differently (Donabedian, 1988, Currie *et al.* 2005). For example, the perceived importance of access to healthcare, the food provided during an inpatient stay, the technical skill and competence of staff and the interpersonal characteristics of staff all vary according to the individual (Currie *et al.* 2005). Poor quality care may be simply defined as healthcare that does not meet the expected standard. Quality of healthcare and patient safety are directly related and many choose to view quality and safety as opposite ends of a continuum (Brown *et al.* 2008a). However, as Vincent (2006) points out, the two are not synonymous. To measure quality constitutes an assessment of whether healthcare is of a good standard. Conversely, as opposed to determining whether healthcare is of a bad standard, an assessment of patient safety usually seeks to measure whether harm has been (or could have been) encountered by the patient as a direct result of the healthcare process. Therefore, although quality and safety are intrinsically linked, when we discuss patient safety we are not just referring to poor quality care, we are referring to care that has the potential to cause a patient harm. Furthermore, aspects of quality of care that may be judged to be good are not necessarily safe. For example, Vincent (2006) reminds us that healthcare which maximises access and reduces cost is highly desirable in the NHS, yet these aspects of quality have the potential to degrade safety. However, whilst there are distinct differences between quality and safety, safety should be viewed as a pre-requisite for high quality care (*ibid*).

Vincent (2006, p14) defines patient safety as “the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of healthcare”. Put simply, patient safety deals with the negative consequences experienced by patients which are caused by avoidable mistakes made during their healthcare.

Awareness of patient safety was raised following the publication of a number of seminal reports and studies. For example, in 1989 The Harvard Medical Practice Study discovered that around 4% of patients in New York were unintentionally harmed by their treatment, while serious harm was encountered by 1% of patients (Hiatt *et al.* 1989). A decade later Kohn *et al.* (1999) published the report 'To Err is Human', which revealed that each year between 44,000 and 98,000 Americans die in hospital as a direct result of errors made during their care. This report was of great consequence, highlighting the significance of the issue and prompting much needed research into patient safety.

Following publication of 'To Err is Human', the United Kingdom's Department of Health (DoH) produced the report 'An Organisation with a Memory' (DoH, 2000a). This report revealed that approximately 10% of National Health Service (NHS) patients experience an adverse event in their healthcare which causes them harm, a finding which is supported by a medical case note review study conducted by Vincent *et al.* (2001). Other studies carried out globally have estimated the incidence of adverse events in healthcare to be between 3% and 17% (Baker *et al.* 2004), although the methodologies adopted differed across these studies, as did the precise definition of an adverse event (discussed further in section 1.3.2). However, the approximate 10% rate of adverse events in hospitalised patients is also evident in studies conducted in the USA, Australia, New Zealand and Denmark (DoH, 2003).

An Organisation with a Memory estimated that in the year 2000, adverse events which directly caused harm to patients cost the NHS £2 billion in extended hospital stays alone. This vast figure does not account for wider societal costs such as loss of productivity and earnings or the value of voluntary care of patients provided by friends and family after an adverse event. Additionally, in the year 2000, it was estimated that approximately £400 million is paid out by the NHS each year as a result of clinical negligence claims. Furthermore, hospital acquired infections were estimated to cost the NHS £1 billion annually. These figures demonstrate the huge financial burden and the serious nature of the problems created when patients in the NHS are harmed as a direct result of their healthcare.

Despite increased research into the safety issues faced by patients in recent years and advances in healthcare over the last century, patient safety remains a significant

problem. Indeed, patient safety will always be a concern as error and harm can never be completely eliminated from healthcare. The care of patients is inherently risky due to the simple fact that “human beings are fallible” (DoH, 2006, p4). However, harm should not be seen as an acceptable aspect of modern healthcare, and it is crucial to strive to improve safety and minimise the risk of harm as far as possible (*ibid*). The key message cited within ‘An organisation with a memory’ (DoH, 2000a) is the importance of learning from error. The report stresses that while patient safety issues cannot be entirely prevented, they may be significantly reduced in number if healthcare can be altered by examining the circumstances when things have gone wrong and by researching ways in which healthcare can be made inherently safer. As stated in the Hippocratic Oath, the primary concern of everyone involved in healthcare must be to “do no harm”. Thus the NHS aims to make patient safety the upmost priority of managers, healthcare professionals and patients alike.

### **1.3 Terminology used in patient safety research and definitions adopted in this thesis**

As stated in section 1.2, patient safety deals with the negative consequences experienced by patients that are caused by avoidable mistakes made during their healthcare and patient safety research seeks to understand these mistakes and ameliorate the negative consequences. However, there are multiple definitions for much of the terminology used in patient safety research. These terms are discussed further in the following sections and each section states the definition adopted for this thesis.

#### **1.3.1 Error**

“Error may be defined as an unintended act (either of omission or commission) or one that does not achieve its intended outcome” (Leape 1997 p214). This definition of error is adopted within the present thesis. Leape explains that a blame culture has developed within medical practice as “doctors, nurses and pharmacists are expected to function without error, which means they feel ashamed and inadequate when errors (inevitably) do occur” (*ibid*). Often, the production of an error arises from the same cognitive processes that normally prevent us from making an error (Vincent,

2006). For example, Leape (1997 p215) states that errors occur “because of well known mechanisms, such as loss of attention due to interruptions or distractions. In a real sense, errors are ‘normal’ pathology.”

Unintentional errors are commonly classified into one of three types depending on the origin of the error. These are slips, lapses and mistakes. Slips are observable and are a result of attentional failures. Lapses are generally less observable and are a result of failures of memory (Reason, 1995). Slips and lapses therefore occur when an adequate plan has been made but the actions necessary for implementation of the plan are not carried out as intended. On the other hand, when a plan is carried out exactly as intended but results in an error, this is termed a mistake (*ibid*). A further type of error is termed a violation. “Violations are deviations from safe operating practices, procedures, standards or rules” (Reason, 1995 p82). In most cases violations are deliberate. However, any negative consequences which arise as a result of such violations may or may not be deliberate (*ibid*). These four different kinds of errors are often referred to as ‘active failures’ as they are committed by individuals who practise ‘at the sharp end’ of healthcare (Lawton *et al.* 2012).

Production of any of the above types of error does not necessarily result in a bad outcome for a patient. Furthermore, errors that do have an adverse outcome for one patient may not necessarily have an adverse outcome for another. This can make medical errors difficult to study as the consequences may be invisible or unpredictable (Layde *et al.* 2002).

### **1.3.2 Adverse events**

A literature review conducted by Kellogg & Sullivan Havens (2003) revealed that twenty one different terms were in use to signify those errors in health care which indicate or potentially indicate that a patient has received a poor standard of care. The most commonly used term in the literature was ‘adverse events’ and this term was usually adopted to signify issues that resulted in perceptible consequences such as actual harm to the patient or a prolonged hospital stay, however this was not consistently the case. Further complicating matters, only 58.9% of authors provided explicit definitions of the terminology they used in their studies of ‘adverse events’ (Kellogg & Sullivan Havens, 2003). Due to the lack of agreed terminology within

the field of patient safety research it is necessary to exercise caution when comparing the results of studies, even when the methodologies adopted appear similar.

For the purposes of this thesis the term ‘adverse event’ will signify a negative event that caused harm to a patient as a result of the process of healthcare. Adverse events are more easily researched than errors as harm is tangible while errors may not have perceptible consequences (Vincent, 2006). Adopting this definition there are many different possible types of avoidable adverse event which result in harm that may be experienced by a patient. Examples of these include: medication errors, adverse drug reactions, hospital incurred accidents or injuries (for example resulting from a fall), hospital acquired infection and unplanned removal, injury or repair of an organ or structure during surgery (Vincent *et al.* 2001). Many adverse events result from purposeful intervention by a healthcare professional (acts of commission); however, adverse events may also be caused by failure to intervene (acts of omission). Examples of acts of omission include failure to: change dressings, aid mobility, perform required diagnostic tests, recognise deterioration or administer medication. While these lists of examples are by no means exhaustive, they indicate the wide range of adverse events which may be encountered by patients as a direct result of the healthcare process.

### **1.3.3 Near misses**

Patient safety research is also concerned with learning from errors which have the potential to cause harm as opposed to actually causing harm. For example, a fall in hospital that did not result in injury but could have done so, or a medication error that did not appear to result in an adverse outcome. As errors in healthcare do not necessarily lead to harm, studying minor errors or ‘near-misses’ may provide a useful opportunity for learning and changing practice (Vincent, 2006). Nevertheless, errors or near misses and their causes often prove extremely difficult to investigate due to complex interplay between a number of potential causal factors. Vincent (2006, p15) suggests that for this reason “reduction of harm should be the primary aim of patient safety, not the elimination of error”. For the purposes of this thesis the term ‘near miss’ will denote actions (either via commission or omission) that did not cause harm but had the potential to cause harm.

#### **1.4 The purpose of specialty medicine**

Weisz (2003 p536) describes the way in which specialty medicine began to develop in the early nineteenth century due to “the collective desire to expand medical knowledge”, and the realisation that “one could best manage large populations through proper classification, getting together individuals from the same class and separating those belonging to different categories”. Weisz (2003 p538) tells us that “by the end of the nineteenth century, at the latest, medical science had, largely as a consequence of specialization, developed to the point where the impossibility of mastering all of it seemed obvious”. Thus the advent of specialty medicine saw a move away from the traditional ‘nightingale’ style wards tended to by physicians who cared for patients with a variety of diagnoses and towards the increasing sub-specialisation of medicine.

In modern healthcare hospital wards can be broadly categorised into one of two types: medical or surgical. Often services within NHS secondary care are further divided into different directorates which treat broad patient groups. Within each directorate there may be a number of specialty wards which often care for patients with similar diagnoses (Audit Commission, 2003). The purpose of having specialty wards within a hospital is to allow clinical skill and technical equipment to be localised in one area, thus benefiting patient management (Wright *et al.* 1980). Wherever possible patients should be placed on the correct specialty ward for their condition to ensure their clinical needs are met (Audit Commission, 2003). Ultimately, inpatient secondary care is divided into a number of sub-specialties to provide a safe environment which offers high quality patient care.

There is empirical evidence to suggest that provision of care on a specialist ward with input from specialist healthcare professionals leads to improved outcomes in some patient groups. For example, a Cochrane review (Stroke Unit Trialists’ Collaboration, 2007) offers high quality evidence to demonstrate that stroke patients who occupy a bed on a specialist stroke unit are more likely to survive, return home and become independent than patients who are treated on a non-specialty ward. The authors cite potential reasons for this finding as: better nursing care, improved diagnostic procedures, efficient rehabilitation and prevention of complications. Additionally, Mayor (2005) conducted a survey of 1713 stroke patients in England

and discovered that stroke patients who were treated in a specialist stroke unit reported being happier with the care they received in comparison to stroke patients who were placed on general wards. Patients on specialist stroke units reported being more likely to receive expert help with tasks such as swallowing and washing, they had more confidence in the staff who cared for them and felt that the care organised for them post-discharge was better arranged.

As a further example, around 10% of all hospital beds are occupied by patients who have diabetes, yet “diabetes creates anxiety amongst non-diabetes trained staff and is poorly managed or ignored” (National Diabetes Support Team, 2007, p15). Where provision of specialist care is available, patients with diabetes have a significantly shorter hospital stay and their diabetes is better managed, thus it is recommended that specialist teams should always be involved in diabetic patients’ care (*ibid*). Furthermore, Bucknall *et al.* (1988) discovered better recovery in asthma patients who were treated on respiratory wards in comparison to those treated on a non-specialty ward. The authors suggest that in general medical units, asthma is often poorly treated. Similarly, Sanderson *et al.* (1990) report that patients with upper gastrointestinal haemorrhage are more likely to survive when treated in a specialist gastrointestinal unit.

### **1.5 Defining outliers and outlying wards**

Despite the recommendation to place patients on a ward that is specialised to treat their illness (as emphasised by the Audit Commission, 2003), a review of bed management revealed that almost all NHS hospitals in the UK place patients on wards which are not clinically appropriate if there are no specialty beds available (National Audit Office, 2000). This phenomenon is also evident in other countries including France (Lepage *et al.* 2009), Spain (Alameda & Suárez, 2009) and New Zealand (Rae *et al.* 2007, Creamer *et al.* 2010). For example, a respiratory patient could be allocated a bed on a surgical ward or on a medical ward that does not specialise in treating respiratory patients. The literature suggests that, in particular, medical patients are often placed on surgical wards when the medical bed base is full (Alameda & Suárez, 2009, Ashdown *et al.* 2003, Gilligan & Walters 2008, Wolstenholme *et al.* 2004).



When a person is allocated a bed on a ward that is not clinically appropriate for their illness the ward may be referred to as an ‘outlying ward’ or a ‘non-specialty ward’. Labelling wards in this way does not signify that the ward is generic and thus not a specialty ward itself, but rather that it is not specialised to treat one or more of the patients allocated a bed on it.

Patients who are placed on clinically inappropriate wards are often labelled ‘outliers’, ‘sleep-outs’ or ‘boarders’. These abbreviations can vary within and between hospital Trusts. For example, some NHS Trusts use the term boarder to signify a patient who resides on an inpatient ward that is clinically inappropriate (consistent with the topic of this thesis), whereas others use the term for a patient who has to wait in accident and emergency for an extended period of time due to a lack of available inpatient beds. However, the most commonly used collective term to signify patients who reside on clinically inappropriate wards is outliers; therefore this thesis adopts this abbreviation. Often these people are further classified according to the directorate they are from, so for example, medical patients on outlying wards are referred to as medical outliers and surgical patients on outlying wards are known as surgical outliers.

Furthermore, there is often debate and subjectivity surrounding the precise definition of an outlier. One interpretation suggests that an outlier is a patient on a ward outside of the clinical directorate that they should be treated within, for example a medical patient on a surgical ward. Following this definition a medical patient on any medical ward, regardless of the sub-specialty of the ward, is not an outlier. A second definition suggests a patient is an outlier when they reside on any ward other than the correct specialty ward for their illness. For example, using this definition a respiratory patient on an oncology ward would be classified as an outlier (despite these two specialties coming under the branch of medicine), as would a urology patient on a plastic surgery ward (despite these two specialties coming under the branch of surgery).

A further factor involved in making appropriate bed allocations and in determining whether a patient is classified as an outlier or not is consideration of what facilities are available. If a hospital does not have certain dedicated specialty units it is difficult to say that a patient who would have been admitted to such a unit in an ideal

world is an outlier if that facility is simply not available. Indeed, a number of specialty units cater for patients according to their age: for example paediatrics, adolescents and care of the elderly. Taking the example of adolescent units (which have been demonstrated to be of benefit to adolescent patients, Viner *et al.* 2007), if there is no dedicated facility for adolescents available, it may be difficult to decide whether an adolescent is best placed on a paediatric or an adult ward and whether each adolescent patient may be classed as an outlier. Similarly, where facilities are available, it is common for medical patients above a certain age (for example 77 years and above although this varies in different hospitals) to be placed on a care of the elderly ward. Such wards treat a variety of acute medical problems. However, in some situations it may be more clinically appropriate for elderly patients to be treated in specialist units. For example, a 77 year old stroke patient may have a better outcome when treated on a specialist stroke unit as opposed to a care of the elderly ward (Mayor 2005). In such situations outlying status is often unclear and is based on subjective report.

An additional issue in deciding whether to label a patient as an outlier comes when patients have co-morbid illnesses, which is very common in secondary care. Armitage & Flanagan (2001, p9) state that “25% of acute medical admissions cannot be clearly assigned to a specialty and require generalist skills for the initial diagnosis and treatment”. Even when diagnoses of the co-morbid illnesses are straightforward it may be difficult to decide which specialty the patient should be treated under. Furthermore, many surgical patients are admitted to hospital with existing medical conditions. For example, Chung *et al.* (1999) report that 54% of patients admitted for day case surgery have one or more additional existing medical conditions. In some instances this may create an added complication for appropriate bed allocation and the provision of specialist care.

To summarise, in some circumstances it may not be completely clear whether a patient should be categorised as being an outlier or not as patients frequently do not neatly fit into one specialty area of medicine or surgery. For the purposes of this thesis the term outlier will denote a patient who is allocated a bed on a ward that is not clinically appropriate for their condition. Further description will be added as necessary throughout the thesis to clarify the way in which the term ‘outlier’ is used.

## **1.6 The scale and causes of the outlier phenomenon**

Information about the numbers of medical and surgical outliers and their demographic characteristics is not routinely collected by hospitals in the UK, despite recommendation from the Department of Health to do so (DoH, 1999). In order to obtain an indication of the scale of the outlier phenomenon, the Audit Commission (2003) asked Trusts across the UK to report how many medical beds were occupied by surgical patients and how many surgical beds were occupied by medical patients on four Thursdays in May 2002. It was discovered that on average 7.5% of surgical beds across Trusts were occupied by medical patients due to a lack of medical beds. Furthermore, it was reported that while only 58% of all hospital beds were classified as medical, 63% of occupied bed days were taken up by medical patients. This highlights the excess demand for medical beds. It is important to note that this survey was carried out in May whereas it is known that the number of outliers and hospital occupancy peaks over the winter months (Fullerton & Crawford, 1999), thus the report may underestimate the scale and significance of the problem when at its peak.

There are several factors documented in the literature which contribute to excess demand for hospital beds and therefore exacerbate the need to place patients on outlying wards. Firstly, overall bed numbers have been reduced in recent decades as patients are increasingly treated in primary care and in the community (McDonagh *et al.* 2000). Furthermore, hospitals have attempted to improve efficiency and therefore cut costs by reducing the inpatient bed base while increasing patient flow. Thus it is often the case that more patients are occupying fewer hospital beds for a shorter length of time (Clements *et al.* 2008).

The Joint Commission Report (2004) attributes the apparent deficit in the number of medical beds to the fact that elective surgical admissions make hospitals more money than emergency medical admissions; consequently the medical bed base has been reduced. The reduction of medical beds means that at times the demand created by emergency admissions is greater than the available supply, thus NHS hospitals must juggle finite resources and formulate bed escalation plans in order to provide cost effective care for all those who require it.

In order to address the documented shortfall of medical beds the Department of Health suggested that there would be ongoing restructuring and reinvestment to ensure that the number of hospital beds available in the UK is appropriate for patients' needs (DoH, 2007). This follows publication of the 'National Bed Inquiry' (DoH, 2000b) which revealed that "the NHS does not have the right beds in the right places to do its job quickly and effectively" (DoH, 2000c, 4.4). Following on from the National Bed Inquiry, the NHS Plan (DoH, 2000c) stated that in excess of 7000 additional beds were to be opened in England by 2004, including 2100 beds in general and acute medicine; the first increase in these areas in 30 years. Although the Department of Health suggested that this aim was met, Macfarlane *et al.* (2005) question the accuracy of the data used to assess overall bed numbers and suggest that it is impossible to monitor whether targets were accomplished. Furthermore, Macfarlane *et al.* (2005, p263) point out that "although the 2003/2004 target for availability of general and acute NHS beds in England was achieved, the increase did not offset the overall decrease in all categories of beds". So it appears that the NHS still does not "have the right beds in the right places" (DoH, 2000c, 4.4). At the time of writing the NHS remains stretched to provide appropriate accommodation for all of its patients and outliers look set to be a feature of secondary care in the future. As Lloyd *et al.* (2005 p710) state: "a shortage of acute hospital beds is an enormous problem in Britain".

Excess demand for hospital beds is also affected by a general lack of intermediate care facilities as a number of inpatient beds are occupied by patients who are fit enough to be discharged from hospital but are not fit enough to return home (Black & Pearson, 2002). Evidence suggests that 6% of NHS patients occupying acute beds are in this position (Health Select Committee, 2002). These patients should ideally be placed in an intermediate care facility that is specially designed to aid rehabilitation. However, if such care is unavailable, patients cannot be discharged from their inpatient bed. Such patients, sometimes pejoratively labelled as bed-blockers, therefore inadvertently contribute to over occupancy (Black & Pearson, 2002).

Outliers also arise when patients are allocated a bed on an outlying ward to prevent them from becoming boarders in accident and emergency (A&E) or admissions units

(Sprivulis *et al.* 2006). Thus when a patient requires admission, swift allocation to an inpatient bed ensures that waiting time targets are not exceeded. Although at the time of writing the coalition government in the UK have proposed that the four hour waiting time target in A&E should be scrapped, pressure is still placed on management if over 5% of patients wait in A&E for more than four hours (Guardian Press Association 2010, Gallagher 2011). Such targets do not take into account whether patients are admitted to a ward that is clinically appropriate for their needs. However, in support of such allocation, Levin *et al.* (2008) suggest that holding admitted cardiac patients within accident and emergency until a bed is available for them on a cardiology unit may result in compromised patient safety and quality of care, consequently they propose that it is a better option to place patients on an outlying ward rather than have them wait in A&E until a bed on the correct specialty ward is available.

In addition, when there is a shortage of staff the number of beds available for occupation on a ward may be reduced (Joint Commission Report, 2004), thus increasing the number of outliers on other wards. Finally, in January 2009 the Department of Health re-emphasised the need to place male and female patients on separate wards with elimination of mixed-sex wards by 2010 (DoH 2009); a factor which adds to the complexity of bed management.

In an ideal world, all patients would reside on the most clinically appropriate ward. However, if a single patient cannot be allocated a bed on the most appropriate ward as all the beds in that ward are occupied, they then take a bed on a different ward that in turn prevents a patient who should be treated on that ward from being allocated to that bed. This second patient may then be allocated a bed on an outlying ward and the cycle continues; resulting in a cascading effect of admitted patients becoming outliers as wards fill with outliers. In order to restore the balance, bed managers must intervene, potentially resulting in multiple ward transfers for outlying patients. Many bed managers try to group outliers together on one or two wards if possible, or failing this ensure that the patients who become outliers are those who are less sick (DoH, 1999).

Capewell (1996, p992) succinctly describes the bed management problem and its consequences as follows: “each year, managers and clinicians are expected to treat

more with less. This increasing "efficiency" may narrow safety margins and increase vulnerability to unforeseen surges in activity or staff illness. Each crisis encourages sensational media headlines describing patients sleeping on trolleys, cancelled operations, or worse."

### **1.7 Theoretical underpinnings - understanding the potential causes of patient safety issues faced by outliers**

It is hypothesised that the quality and safety of the care received by outlying patients may be compromised as a result of residing on a ward that is not clinically appropriate for their needs. Theory developed in patient safety research can be adopted to begin to explore potential causes of safety issues that may be faced by patients as a result of placement on an inappropriate ward.

Reason (2000) describes two broad approaches that can be used to explain the causes of adverse events experienced during the process of healthcare. Firstly, the person approach suggests that individuals are to blame for causing adverse events due to their "forgetfulness, inattention or moral weakness" (Reason, 2000, p768). Following this premise individuals 'at the sharp end' are held accountable for their errors. However, the major problems with this approach, as stated previously, are that human beings will always be fallible and that "the same set of circumstances can provoke similar errors, regardless of the people involved" (*ibid*). Reason suggests that continued adoption of the person approach to medical error will stifle the development of safer healthcare systems.

Because of this, Reason (2000) proposes that a system approach should be adopted to understand the causes of errors and adverse events. Such an approach seeks to identify the gaps within organisational culture that result in error and harm so that defences may be devised to bridge the gaps. The system approach recognises that these gaps in organisational culture mean that the same error could potentially be made by anyone. The approach therefore embraces the fact that human actions have the potential to be flawed by seeking to change the error producing conditions ever present in the environment rather than the individuals working within it (*ibid*).

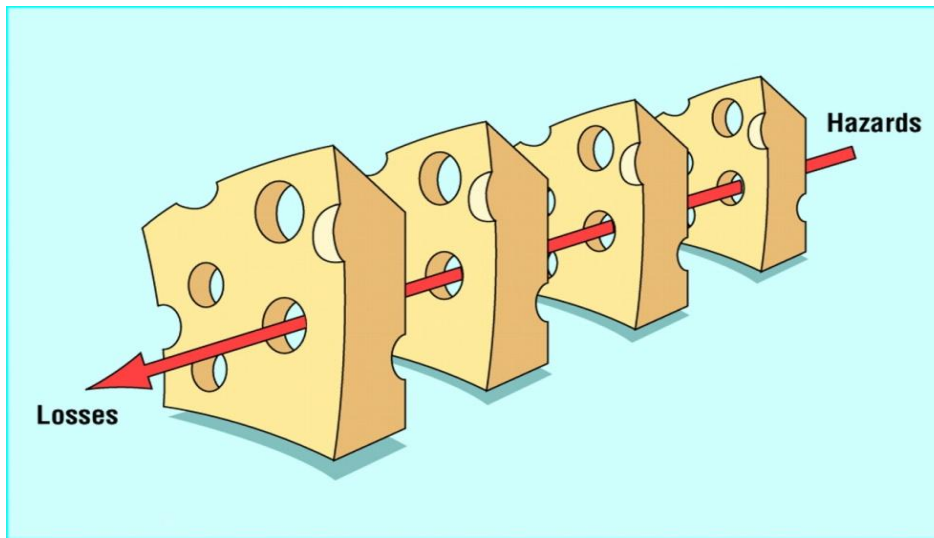
In full concordance with the system approach, Leape (1997, p213) suggests “errors are evidence of deficiencies in systems, not deficiencies in people”. Leape tells us that “most errors result from defects in the systems in which we work. These are failures in the design of processes, tasks, training, and conditions of work that make errors more likely” (*ibid*). In order to prevent future errors, systems failures must be corrected by focusing on the root causes of the problem: “the errors in design and implementation of systems – not on the errors themselves” (*ibid*). However, Leape (1997, p213) acknowledges that there are a number of barriers to correcting systems failures within healthcare. These include “the complexity of health care systems, difficulties in information access, tolerance of stylistic practices, and fear of punishment that inhibits reporting”. Thus errors and adverse events which are underpinned by defective systems remain common in healthcare.

In line with the system approach, Reason (2000) skilfully illustrates the way in which adverse events may occur in complex healthcare systems by likening the gaps within a system’s defences to holes in Swiss cheese. If a slice of Swiss cheese represents a defence and the holes within a slice signify gaps in the defence, it is possible to see that even when a number of defences are put in place there remains the opportunity for adverse events to occur (see Figure 1.1).

*“In an ideal world each defensive layer would be intact. In reality, however, they are more like slices of Swiss cheese, having many holes - though unlike in the cheese, these holes are continually opening, shutting, and shifting their location. The presence of holes in any one "slice" does not normally cause a bad outcome. Usually, this can happen only when the holes in many layers momentarily line up to permit a trajectory of accident opportunity - bringing hazards into damaging contact with victims”.*

(Reason, 2000, p769)

Figure 1.1: The Swiss cheese model of system accidents (Reason, 2000)  
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Reason (2000, p769) goes on to suggest that there are two broad types of factors which may create “holes in the defences”; namely active failures (also known as active errors) and latent conditions. Active failures are those unintentional or intentional acts or omissions “at the sharp end” (specifically slips, lapses, mistakes or violations – see section 1.3.1 for definitions), that directly trigger an adverse event (Reason, 2000). For example, the incorrect administration of a dangerous drug by a healthcare professional constitutes an active failure. Additional examples include the act of conducting wrong site surgery or failure to administer medication.

At the other end of the spectrum, latent conditions are those characteristics that are ever present in the environment and underpin the causation of active errors. For example, a syringe label that does not clearly identify a dangerous drug and the correct route of administration constitutes a latent condition which may bolster a medication error (Vincent, 2006). Latent conditions are created as a result of decisions made regarding policy, strategy, planning, design and maintenance (*ibid*) and are therefore relatively distal to the active error. Such decisions are made by top level management, procedure writers, designers and builders (Reason, 2000). Latent conditions have the potential to create error producing conditions and therefore underpin a system failure. However, the presence of latent conditions alone is often not sufficient to cause an active failure or adverse event.

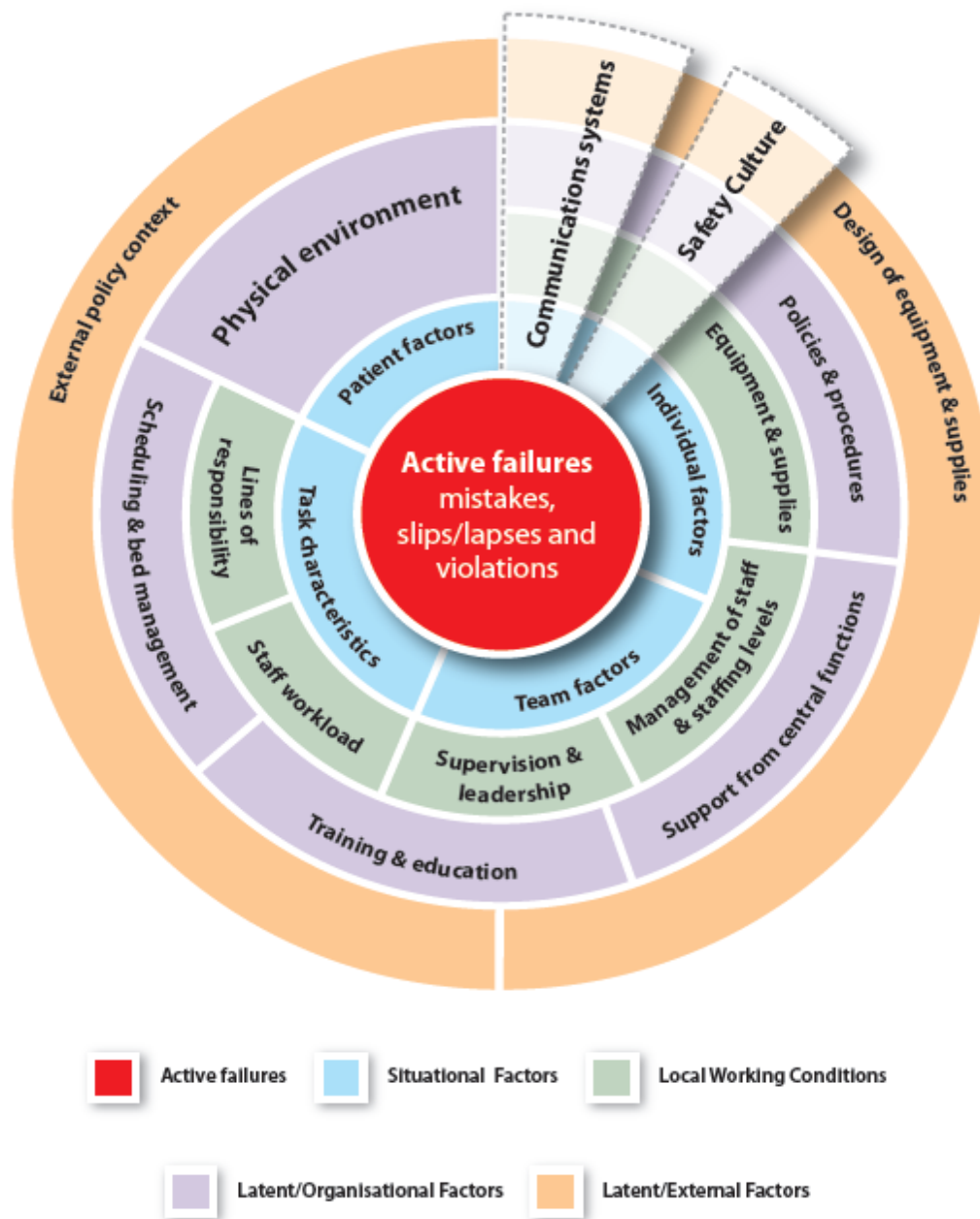


There are often a number of additional contributory factors that are more proximal to active failures which effectively constitute further “holes in the defences” (Reason, 2000, p769). For example, contributory factors which may influence the production of an active error include (but are not exclusive to) the characteristics of the patient, the characteristics of the staff treating the patient or the characteristics of the physical environment. Thus when contributory factors are combined with the latent condition and a lack of suitable defences, the opportunity for error is heightened (Vincent *et al.* 1998).

The identification of contributory factors may help with the subsequent identification and exploration of latent conditions and therefore promote organisational learning. Policy, practice and ultimately patient safety may consequently be improved by making staff and patients aware of these potential holes in the defences. For this reason, a number of theoretical frameworks have been devised to investigate and analyse contributory factors which underlie patient safety incidents in health care, for example: the London Protocol (Taylor-Adams & Vincent, 2004), the World Health Organisation’s conceptual framework for the international classification of patient safety (WHO, 2009), the Eindhoven classification model (van der Schaff & Habraken, 2005) and human factors frameworks (e.g. Henriksen *et al.* 2008). These frameworks help to uncover contributory factors at both the individual level and the organisational level in addition to considering the clinical context in which the incident occurred (Vincent *et al.* 2000). However, while the above frameworks have proved useful tools for investigating patient safety issues, they are not grounded in the context of empirical evidence (Lawton *et al.* 2012).

The Yorkshire Contributory Factors Framework (YCFF) was constructed by Lawton *et al.* (2012) following a systematic review of empirical studies that investigated factors which contribute to error or adverse events in healthcare. The YCFF is therefore an evidence based tool that can be applied to understanding the causes of patient safety issues within a hospital setting. In sum, the YCFF uses a series of concentric circles to deftly illustrate the way in which active failures (slips, lapses, mistakes and violations, which are central to causing a patient safety issue) are compounded by the presence of a variety of proximal contributory factors and distal latent conditions (see Figure 1.2).

Figure 1.2 The Yorkshire Contributory Factors Framework © Bradford Teaching Hospitals NHS Foundation Trust. Permission granted to reproduce.



The YCF (Figure 1.2) identifies ‘situational factors’ which are contributory factors that are ‘close’ to active errors in the hierarchy. These situational factors comprise: patient factors (anything about the patient that makes them difficult to care for, for example, illness severity or behavioural characteristics), individual factors (anything about the staff members providing care which may contribute to error, for example, their personality or their prior experience of the task), team factors (anything related to the team providing care, for example, the expertise of staff in the team) and task

factors (anything related to the task being carried out, for example, the level of complexity or how often the task is performed).

The next ring of the YCFF (between situational factors and latent conditions) considers the contribution that local working conditions play in underpinning active errors in the hospital setting. These local working conditions comprise: the equipment and supplies that are available, staffing and staff management, the supervision and leadership available and the quality of this, staff workload, clear lines of responsibility and accountability, and the physical environment in which care is delivered.

The outer circles of the YCFF depict latent conditions, which are distal to the active error, yet central in underpinning system failures. Lawton *et al.* (2012) make the distinction between latent conditions formed within an organisation, (for example, created by decisions relating to local policies, human resource management, staff training, organisation of the physical environment and bed management) and latent conditions that are created externally to the organisation (specifically national policies and the design and supply of equipment).

Within the YCFF, communications systems and safety culture are illustrated as spanning situational factors, local working conditions and latent conditions as their involvement in creating active failures may be either proximal or distal to the error depending on individual circumstance (see Figure 1.2).

The theoretical underpinnings of this thesis suggest that placing hospital inpatients on clinically inappropriate wards may constitute a latent condition that may in turn expose patients to a number of potential contributory factors (situational factors and adverse local working conditions) that underlie active failures and potentially cause adverse events. Lawton *et al.* (2012, p369) advocate “identifying the latent failures within organisations that represent the preconditions for errors and addressing these before a serious event occurs”.

## **1.8 A review of the literature which investigates patient safety and outliers**

While there is empirical evidence to suggest that placement on specialist rather than general units benefits some patient groups (see section 1.4) there is no established body of research to suggest whether the care of patients on clinically inappropriate wards is less safe than the care of patients who occupy a bed on an appropriate specialty ward. However, anecdotally it is felt that patient safety is of concern for outlying patients. For example, a report by the Audit Commission (2003, p7) suggests that “this so called ‘outlier’ phenomenon is inefficient, inconvenient for hospital staff and may adversely affect the quality of the care provided”. Similarly, the Emergency Services Action Team report (DoH, 1998) states that both staff morale and the quality of care provided to patients are adversely affected as the number of medical outliers present increases. The small number of research studies that have addressed patient safety in outliers suggest that it is indeed a problem. These studies are summarised and critiqued hereafter.

Lloyd *et al.* (2005) conducted a questionnaire study at three different hospital sites in the UK involving 100 qualified trauma nurses and 120 qualified non-trauma nurses (who care for trauma patients placed on outlying wards) to assess the knowledge that trauma nurses and non-trauma nurses have about caring for trauma patients. The questions aimed to ascertain knowledge about aspects of specialist care that should be given to trauma patients; for example checking for compartment syndrome, managing common fractures, managing spinal injuries and awareness of post-operative conditions. The authors present percentages in their results section which suggest that the knowledge of trauma nurses was much greater than that of nurses on outlying wards. For example, “over 80% of trauma nurses monitor drain and wound output post-operatively. This contrasts dramatically with only 17% of nurses on non-trauma wards” (Lloyd *et al.* 2005, p712). However, the results presented are not assessed statistically, thus it is unclear to what extent the results obtained may be due to chance or whether the differences between the two groups are statistically significant. Despite this, the authors suggest their results demonstrate that “outlying wards provide sub-optimal trauma nursing care and a few are positively dangerous” (Lloyd *et al.* 2005, p710).

Furthermore, in the case of orthopaedic patients on non-orthopaedic wards, Elsayed *et al.* (2005, p86) suggest that nursing staff “may not have the specialist training to nurse such patients and may not recognise complications should they arise”. To test this suggestion, they conducted a questionnaire study of 50 trauma nurses and 50 non-trauma nurses in the UK to assess their knowledge of compartment syndrome. Again, statistical analyses of the results are not presented and the authors do not gauge the extent to which the findings may be due to chance or to assess the differences between the two groups in statistical terms. Rather, they simply describe their findings. Elsayed *et al.* (2005, p87-87) state “only two of the non-orthopaedic trained nurses could give an adequate definition of the term compartment syndrome”. Contrastingly, “forty four of the orthopaedic trained nurses were able to give an accurate description of the term compartment syndrome”. The authors suggest that this constitutes evidence for the need to place trauma patients who may be vulnerable to compartment syndrome on the correct specialty ward, or alternatively to provide additional training on compartment syndrome for members of nursing staff on outlying wards (*ibid*).

Mohan *et al.* (2005) used qualitative interviews (5 nurses) and a survey (25 nurses) to examine the experiences of nurses who were required to care for cancer patients on outlying wards (and thus did not have specialist expertise in cancer care) at an Australian hospital. Six main themes emerged following analysis. Firstly, nurses raised the emotional nature of caring for cancer patients as being distressing and found that it could be difficult to deal with families and patients. They felt they lacked the skills necessary to cope with nursing cancer patients. Secondly, nurses felt that they did not have enough time to spend with the cancer patients and their families as they were too busy. Thirdly, some nurses were concerned about their lack of knowledge of cancer care and wished that they were better able to engage in informed discussion with patients about their illness and treatment. To rectify this, the nurses suggested that they needed further education. Fourthly, the nurses found it difficult to support the family members of cancer patients. Fifthly, the nurses raised the inappropriateness of the outlying ward environment for the care of cancer patients. They believed cancer patients would rather be treated alongside other cancer patients and felt that their wards were too busy for people requiring palliative care. Finally, the nurses found it difficult to cope with cancer patients who denied

their diagnosis or refused treatment. In their discussion the authors highlight the lack of training in cancer care of nursing staff on non-specialty wards and the limitations of the environment as being especially counterproductive to the provision of high quality care for cancer patients treated on outlying wards. However, the sample sizes adopted in this study were small and the findings are specific to the care of cancer patients on outlying wards; both of which limit the generalisability of the results.

Lepage *et al.* (2009, p445) suggest “non-specialist wards are not always able to provide optimal quality care, this situation can potentially result in negative consequences for patients and hospitals”. Lepage *et al.* (2009) therefore set out to improve the quality of care of outlying patients in a French hospital. A multidisciplinary team of health professionals conducted a risk analysis to identify modes of failure in the process of care provided for outliers. Suggested improvement measures were drawn up on the basis of this (*ibid*). The study identified a number of instances in which it was felt that the care of outliers was sub-optimal. Lack of input from specialist doctors, poor communication between wards and insufficient detail and standardisation within patient notes were raised as particularly important issues for outlying patients. Consequently three main areas for improvement were suggested. Firstly, it was proposed that wards that often accommodate outlying patients should identify a doctor each day who is in charge of those outlying patients whose clinical needs fall within their sphere of competence. The second suggestion was to identify nurse co-ordinators whose role would involve communicating between the emergency department, specialty wards and outlying wards and ensuring that the location of outlying patients was known and their medical requirements suitably co-ordinated. Finally, the implementation of standardised medical records was suggested, which would facilitate transfer of information between departments and aid health professionals in their provision and interpretation of medical records.

In order to determine whether care processes for outliers improve in response to the suggested changes outlined above, Lepage *et al.* (2009) recommended a number of follow-up strategies. Firstly, they proposed an annual audit of patients on outlying and specialty wards. Secondly, they suggested a comparison of the length of stay of patients treated on the specialty ward versus that of patients on outlying wards

(stratified by diagnosis related group), as if outlying patients were found to have a significantly longer length of stay, this would be indicative of delayed care provision. Thirdly, they suggested the implementation of a survey to assess the satisfaction of both outlying patients and the hospital staff caring for them. Finally, they suggested that the care of a small sample of outlying patients should be evaluated each year.

Although their study serves to demonstrate that staff hold concerns about the safety of outlying patients throughout the process of healthcare, the method adopted by Lepage *et al.* (2009) had several limitations. Firstly, the study was carried out at a single site which may limit the generalisability of the findings to other settings. Additionally, the authors acknowledge the subjectivity involved in classifying patients as ‘outliers’, particularly in patients with co-morbid illnesses. Furthermore, staff members were asked to rank the critical modes of failure according to priority, with the highest ranking given to the most critical problems. This process may have been subject to misclassification and bias as consistency between rankings was reportedly poor, however no assessment of inter-rater reliability is provided which makes it difficult to gauge how successful this method was. Furthermore, the staff members involved in this process described the task as “difficult”. Finally, the time consuming nature of the method adopted prevented further classification of the problems identified and exploration of the effectiveness of the suggested improvement measures. Lepage *et al.* (2009) do however imply that their ongoing research will involve an assessment of their suggested improvement measures.

Creamer *et al.* (2010, p930) aimed to assess the “time burden” created by having to visit patients on outlying wards during four mornings of surgical ward rounds. They achieved this by recording the amount of time physicians spent engaging in different activities (walking between wards, direct patient consultation and discussion). Although similar amounts of time were spent in consultation with both outlying patients and patients residing on the correct specialty ward, 18% of physicians’ time was spent walking to see patients who had been placed on outlying wards. The authors consequently estimate that “travel time to outlying patients for morning ward rounds is more than an hour per week” (*ibid*). It follows that medical review of patients may be delayed when physicians have patients on outlying wards,

potentially compromising the quality of patient care. However, Creamer *et al.* (2010) acknowledge that the morning ward round constitutes a relatively small part of patient care and concede that the “time burden” created by outliers over the course of a day remains unknown. Furthermore, ward rounds were observed within a single specialty (general surgery) at a single hospital in New Zealand on only four days. In total the research team observed 92 consultations with patients on the correct specialty ward and only 18 consultations with patients on outlying wards; however the amount of time spent engaging in observation is not justified. Each of these factors limits the generalisability of the results to other settings.

Alameda & Suárez (2009) sought to determine whether placing heart failure patients on an outlying ward influenced progress and prognosis in comparison to heart failure patients placed on the correct specialty ward. They used routinely available data for heart failure patients in a single Spanish hospital. The results demonstrated that patients who were placed on an outlying ward (101 patients) had a statistically significantly longer length of hospital stay than heart failure patients treated on the correct specialty ward (134 patients), controlling for potentially confounding variables. This result suggests that the management of outlying patients was delayed, potentially indicating poorer quality care. However, there were no differences in mortality, intra-hospital morbidity (infection, haemorrhage or venous thromboembolism) or readmission when comparing heart failure patients placed on outlying wards versus specialty wards. Alameda & Suárez (2009) suggest that it is vitally necessary to establish whether outliers from other diagnosis related groups have longer hospital stays in comparison to their counterparts on specialty wards.

In contrast to the findings of Alameda & Suárez (2009), Woodford & Walker (2005) found that the length of stay of Parkinson’s disease patients was shorter in those patients who were placed on non-specialty wards. They suggest the reason for this was that patients on the non-specialty ward had less complex problems and bed allocation was made on this basis. However, in support of the length of stay finding observed by Alameda & Suárez (2009), the Emergency Services Action Team Report (DoH 1998) states that outliers are often not seen by medical staff until the afternoon and although they may be fit for discharge this is often not achieved, resulting in increased length of stay. A major concern related to delayed discharge is



that the longer a patient remains in hospital, the more likely they are to be subject to a hospital acquired infection (Health Select Committee Report, 2002). Additional implications of delayed discharge include excess cost to the NHS and blocking of beds which contributes to over occupancy and the outlier phenomenon (Black & Pearson, 2002).

Rae *et al.* (2007, p53) devised the 'Delayed Discharge Project' which was aimed at reducing bed occupancy and the number of outliers by facilitating discharge and reducing length of stay in a single hospital in New Zealand. One of the primary reasons for conducting the project was the unsubstantiated claim that "clinicians were concerned about the adverse events experienced by acute medical patients in other wards". The continuous quality improvement project involved a brainstorming session amongst a multidisciplinary team of health professionals to determine causes of delayed discharge and potential solutions. These were displayed using an Ishikawa diagram, a method advocated for studying causes of patient safety issues (Taylor-Adams & Vincent, 2004b). Thereafter simple changes were implemented, such as ensuring consultant-led ward rounds were conducted first thing in the morning seven days a week, increasing the number of transfers from general medicine to geriatric medicine and making discharge plans on the day of admission to ensure social circumstances that might prevent discharge could be sorted as swiftly as possible. Rae *et al.* (2007 p56) report that as a result of these changes the outlier crisis was "solved" with the previous average length of hospital stay of 6.5 days reduced to 3.9 days, no increase in readmissions and a consequent reduction in costs. However, they report that two years later the system "crashed" and the need to place patients on outlying wards returned due to organisational restructuring and bed closures. It is of course difficult to assert that the changes made by Rae *et al.* (2007) were effective in diminishing the outlier phenomenon due to the study design adopted. Their design essentially amounts to an uncontrolled before and after study and consequently it is difficult to directly attribute any changes in the number of outliers to the interventions that were adopted rather than to some other unknown confounding factor. On the other hand, it would arguably be difficult to implement a suitably controlled study design within an inpatient environment and unethical to restrict medical review and discharge planning where these factors have been identified as problematic.

While the studies described thus far demonstrate that placement on an outlying ward may place outlying patients at risk of quality and safety issues, there is also evidence to suggest that the presence of medical outliers on surgical wards may inadvertently harm the surgical patients that ought to be on that ward. For example, the presence of medical outliers on surgical wards may result in the cancellation of elective surgery due to a lack of unoccupied inpatient beds, thus the treatment of elective surgical patients is delayed (Audit Commission 2003). Ashdown *et al.* (2003 p46) undertook a prospective audit of “the number of medical outliers on each surgical ward and the number of operations cancelled per specialty per day” in a single UK hospital during a period where it had become policy to place medical outliers on surgical wards. They compared these figures with those for the previous year (prior to implementation of the policy) and the figures suggested that elective surgical operations were reduced by 14.8% following implementation of the policy. Yet again, the design of this study makes it difficult to directly attribute the reduction in elective surgical procedures to the implementation of the policy which allowed medical outliers to be placed on surgical wards. However, the study usefully serves to raise the potential impact that outliers have on the cancellation of elective surgery as a key issue.

Furthermore, several studies and reports have highlighted the fact that overcrowding within hospitals is associated with adverse outcomes for all patients. For example, A Joint Commission Resources report (2004, p32) states: “compromised patient safety is the most alarming aspect of hospital overcrowding. It shows up in the form of treatment delays, higher error rates, poorer outcomes, patients leaving without being seen and higher readmission rates.” Furthermore, Sprivulis *et al.* (2006) discovered that hospital and emergency department overcrowding was significantly associated with increased patient mortality. Features which became apparent during periods of overcrowding included: medical outliers, no empty beds, boarders (patients who have to wait in accident and emergency due to a lack of inpatient beds), and poor patient flow. The increase in mortality appeared to be unrelated to age, season, diagnosis or urgency (*ibid*). In a systematic review conducted by Hoot & Aronsky (2008) three out of four studies demonstrated a significant relationship between overcrowding and increased patient mortality.

Richardson (2006, p213) suggests that overcrowding in the emergency department is symbolic of overall hospital dysfunction and states that some patient deaths may be directly attributable to “inappropriate discharge or admission to an ‘outlier’ ward”. Richardson predicts that the observed increase in mortality is accompanied by increased morbidity due to a drop in the quality of care provided when hospitals are overcrowded. This supports the work of Cameron (2006) who demonstrated that the number of adverse events experienced by patients increased when the demand for inpatient beds began to outstrip supply.

In a similar vein to the study conducted by Rae *et al.* (2007), Gilligan & Walters (2008) devised and implemented a number of quality improvement measures which were intended to facilitate discharge and thereby reduce the number of medical outliers in an NHS hospital Trust. The changes made included identifying a “physician of the week” to review outlying patients and introduce better continuity of care, introduction of a discharge facilitator to prevent patients from staying in hospital longer than necessary, reduction of the bed base while maintaining staffing levels to increase patient flow and introduction of a dual purpose “quick and sick” ward which would care for both short stay patients and acutely unstable patients who required a high level of medical input, thus preventing these patients from becoming outliers (Gilligan & Walters 2008 p29). The authors report that the quality improvement measures adopted were successful in reducing outliers and the reduction in the number of outliers was accompanied by a drop in hospital mortality rates. However, it is again difficult to attribute the outcomes (reduction of outliers and reduction of mortality) to the improvement measures, particularly as the authors explicitly state that other changes were made during the same time period, including the adoption of early warning scores to aid recognition of deterioration and enabling cancer patients to choose their “preferred place of care”. Furthermore, it appears that some aspects of the intervention were not accepted at a local level and were quickly withdrawn: the medical staff intensely disliked the ‘physician of the week’ rota, and the discharge facilitator role was withdrawn as nursing staff on the wards saw discharge as their responsibility. The authors therefore stress the need for further research into the relationship between overcrowding, outliers and mortality.

Overall, the studies by the Joint Commission Resources (2004), Sprivulis *et al.* (2006), Hoot & Aronsky (2008), Richardson (2006), Cameron (2006) and Gilligan & Walters (2008) suggest that outliers are a feature of hospital overcrowding, and that overcrowding adversely affects patient safety to the extreme that it directly impacts hospital mortality.

A further important patient safety issue that is associated with hospital overcrowding is an increase in infection rates. The Emergency Services Action Team report (DoH, 1998) explains that levels of Methicillin resistant *Staphylococcus aureus* (MRSA) infection are highest when hospitals are busy or overcrowded. Furthermore, infection rates increase in line with number of patient transfers (Eveillard *et al.* 1999), and outliers are commonly transferred a number of times during their hospital stay (West, 2010). These findings are supported by a review conducted by Clements *et al.* (2008) which examined the relationship between hospital overcrowding and failure in mechanisms to control MRSA. They demonstrated that overcrowding (and understaffing) is associated with increased numbers of patient transfers between wards, decreased hand hygiene compliance, and a lack of both screening and isolation facilities. Infection often results in increased length of stay which in turn adds to overcrowding and exacerbates the spread of infection thus creating a vicious cycle (Clements *et al.* 2008).

### **1.8.1 Summary of the literature which investigates patient safety and outliers**

Reports by the Audit Commission (2003) and the Emergency Services Action Team (DoH 1998) suggest that the quality and safety of healthcare received by outlying patients may be compromised. A small number of empirical studies have explored this premise. Three studies suggest that nursing staff become specialised by virtue of working in certain clinical areas and may at times lack the expertise to provide optimum care for outliers (Lloyd *et al.* 2005, Elsayed *et al.* 2005 and Mohan *et al.* 2005). Lepage *et al.* (2009) suggest that patients on outlying wards may be vulnerable to safety issues as a result of lack of input from specialist doctors, poor communication between wards and insufficient detail within patients' case notes. Creamer *et al.* (2010) suggest that placing patients on outlying wards creates a time burden due to the time physicians spend walking between wards. Outlying patients may have prolonged lengths of hospital stay due to delays in their care (Alameda &

Suárez 2009, DoH 1998). The placement of outlying patients on surgical wards may lead to the cancellation of elective surgical procedures (Audit Commission 2003, Ashdown *et al.* 2003). Overcrowding within hospitals has been associated with adverse outcomes (Joint Commission Resources report 2004, Cameron 2006), increased mortality (Sprivulis *et al.* 2006, Hoot & Aronsky 2008, Richardson 2006, Gilligan & Walters 2008) and outbreaks in infection (DoH 1998, Clements *et al.* 2008). Transfers between wards have also been linked to outbreaks in infection (Eveillard *et al.* 1999). Interventions designed to facilitate discharge and reduce the prevalence of outliers have not been wholly successful (Rae *et al.* 2007, Gilligan & Walters 2008).

Of the research that has been conducted, the studies often constitute relatively low grade evidence with some papers offering little more than a point of view supported by limited data. It is therefore difficult to draw firm conclusions about the quality and safety of care given to outlying patients or the effectiveness of quality improvement measures that are designed to ameliorate quality and safety issues. Furthermore, the existing literature often fails to demonstrate clear theoretical underpinnings or grounding in the context of previous research. The existing literature does however serve to suggest that the safety of outliers is a concern of healthcare professionals and researchers internationally, and worthy of further research.

### **1.9 Gaps in the literature and rationale for the research presented in this thesis**

The literature review reveals numerous gaps in the research that investigates the quality and safety of care provided for outlying patients. While it is well known that approximately one in ten NHS inpatients experiences an adverse event which causes them harm as a direct result of the care they receive while in hospital, there is no prior research to suggest what the incidence of patient safety issues in outlying patients may be in comparison to those patients who are placed on the correct specialty ward. An assessment of the feasibility of conducting such a study is needed.

The existing literature suggests that outliers most often come from the medical specialties (Alameda & Suárez, 2009, Ashdown *et al.* 2003, Gilligan & Walters 2008, Wolstenholme *et al.* 2004). Furthermore, it is recommended that hospitals should place patients who are less sick and almost ready for discharge on outlying wards, leaving specialty beds available for patients with greater clinical need (Emergency Services Action Team report, DoH 1999). Beyond this, there is very little evidence to suggest whether any particular types of patient are more likely to become outliers. Further research in this area is required.

Additionally, outside of the findings of Alameda & Suárez (2009) which suggest that outlying patients with heart failure have a significantly longer length of hospital stay, it is not known how the hospital journeys of outlying patients may be affected as a result of being placed on a ward that is not clinically appropriate. Furthermore, it is difficult to draw conclusions about the mortality of outlying patients based on the available evidence, thus further research is needed to describe the epidemiology of patients who are placed on clinically inappropriate wards.

Due to the lack of an evidence base, little is known about the types of quality and safety issues that may be experienced by outlying patients or the contributory factors that may underpin these issues.

Of additional concern is the complete lack of research into patients' opinions and experiences of being placed on outlying wards. This comes despite numerous demands to listen to patients' perspectives regarding the quality of their care and ultimately to encourage patients to play a minor role in ensuring the safety of their own care (Vincent & Coulter, 2002, NPSA, 2004, Lyons, 2007). For example, the World Health Organisation state "involving patients and families in the process of care is increasingly being recognized as an important aspect of care delivery. The patient and family are the only constant and are thus in a position to play a critical role in ensuring continuity of care" (WHO, 2007 p2). It is possible that there would be much to learn about the safety of outliers by listening to outlying patients.

Due to the dearth of research investigating patient safety in outliers the research presented in this thesis aims to investigate the quality and safety of healthcare provided to hospital inpatients who are placed on clinically inappropriate wards. The

theoretical underpinnings of this thesis suggest that being treated on an outlying ward may constitute a latent condition. This exposes patients to contributory factors which may underpin errors and adverse events in healthcare. Thus it is hypothesised that the placement of patients on clinically inappropriate wards may represent a classic system error. No prior published empirical research has suggested that placement on an outlying ward may constitute a latent condition or aimed to explore this proposition.

### **1.10 Research objectives**

The following research objectives were set to address the key gaps in the literature outlined in section 1.9:

- Assess the feasibility of methods for investigating the epidemiology of patient safety issues in outlying patients in comparison to those patients placed on the correct specialty ward (Chapter 3)
- Investigate the epidemiology of outlying patients in terms of trend, demographics and outcomes in comparison to the relevant inpatient population (Chapter 4)
- Explore the potential causes of outliers (Chapters 4 and 6)
- Explore whether outliers face quality and safety issues as a result of being placed on inappropriate wards and investigate the contributory factors that could underpin safety issues (Chapters 6 and 7)
- Involve patients in the research in order to understand quality and patient safety issues for outliers from the perspective of those who it most greatly affects (Chapter 7)
- Use the evidence gained to determine whether placement on an outlying ward constitutes a latent condition (Chapter 8)
- Make recommendations for future research, policy and practice (Chapter 8)

## **CHAPTER 2**

### **An overview of the methodology adopted**

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#### **2.1 Health Services Research**

The research presented in this thesis takes an applied health services research (HSR) approach. Dieppe (2005, p7) suggests “HSR seeks knowledge and evidence that will lead to improvements in the delivery of health care; it is not a distinct discipline or profession rather it is a set of techniques used in applied health research with the aim of improving health, health care and its delivery”. Bowling (2002, p3) places emphasis on the need for HSR “to be translated into action to be of value” and this requires the acquisition of reliable and valid data to develop health services that are “effective, cost-effective, efficient and acceptable” (Bowling 2002, p6).

##### **2.1.1 Multiple methods**

The methodological approach adopted in HSR projects is routinely permitted to be flexible and pragmatic. In line with the pragmatic HSR approach, this thesis uses multiple methods to address the research objectives posed in section 1.10. The term ‘multiple methods’ refers to the considered and practical selection of different research methods to address research objectives or problems within a research study. The methods adopted may be qualitative, quantitative, or as in the case of this thesis, qualitative and quantitative. This is distinct from ‘mixed methods’, as ‘mixed methods’ traditionally refers to integrating both qualitative and quantitative methods in the same study to address the same study objectives, so that the results gained using qualitative and quantitative methods can be assimilated (O’Cathain & Thomas, 2006). In either case, the benefits of using a variety of research methods are succinctly summarised by Brown *et al.* (2008d, p178) in their consideration of the epistemology of patient safety research: “the strength of any conclusions can be increased if different end points concur / the use of both qualitative and quantitative



methods is also advocated to help explain findings, generate theory and help contextualise results”.

This thesis therefore uses (or assesses the feasibility of using) quantitative methods to explore the study objectives concerned with epidemiology and qualitative methods to address the study objectives concerned with patients’ and staff members’ perceptions. The findings of these studies are drawn together in the final chapter, Chapter 8. It was intended that the methods adopted within this thesis would be shaped by the ongoing research process with the results and experience gained in the initial phases guiding future studies rather than forming a rigid research plan at the outset.

## **2.2 Philosophical considerations**

Generally, less importance is placed on producing a fully expansive account of the philosophical context of pragmatic HSR (O’Cathain, 2009). Rather, the HSR approach advocates providing a clear description of the methods utilised, justification of this and a reflexive approach to data collection and analysis. Nevertheless, philosophical considerations remain necessary as “there is no escape from philosophical assumptions for researchers” (Hammersley 1992 p43). The remainder of the chapter describes the philosophical position of the research presented in this thesis with reference to key philosophical debates.

### **2.2.1 Ontological position**

Ontologies are “theories of what exists” (Rawnsley, 1998, p2) or “beliefs about what there is to know about the world” (Snape & Spencer, 2003, p11). A consideration of ontology is of immediate relevance to HSR as the ontological position adopted has a direct influence on all aspects of research from conception through to conclusion. There are three key ontological questions that arise in any discussion of social science research. These are: “whether or not social reality exists independently of human conceptions and interpretations, whether there is a common, shared social reality or just multiple context-specific realities; and whether or not social behaviour

is governed by laws that can be seen as immutable or generalisable” (*ibid*). In answer to the latter of these questions the vast majority of social scientists maintain that human behaviour “is regulated by normative expectations and shared understandings and hence the laws that govern it are not immutable” (Snape & Spencer, 2003, p13). However, the first of these ontological questions generates three main opposing positions amongst social scientists. These are idealism, materialism and realism. Variants of these positions also offer different perspectives regarding the two other ontological questions detailed above. A brief discussion of the fundamental characteristics of these positions is given in order to set the scene, followed by a more focussed discussion of the ontological perspective adopted for the work presented in this thesis.

There are a range of views regarding the idea that social reality exists independently of human interpretation. Idealism lies at the far end of the spectrum occupying a position of nil independence. For example, Murphy *et al.* (1998, p64) define idealism as “the view that the external world consists merely of representations and is a creation of the mind”. The notion of ‘reality’ is thus constrained to human perception and socially constructed meanings and does not exist separately to this. To reiterate, idealists believe “that the basic reality is mental – that the world of your experience is in fact the sum of your sensations and perceptions that have registered in your mind” (Thompson, 2006, p13). Variants of idealism offer contrasting positions on whether there exists a single shared social reality or multiple context-specific realities. For example, subtle idealism ascribes to the former position, suggesting “meanings are shared and there is a collective objective or mind” (Snape & Spencer, 2003, p16), while relativism suggests “there is no single shared social reality, only a series of alternative social constructions” (*ibid*).

In stark contrast to the views of the idealists, the materialist position holds that it is only possible to characterise physical aspects of the world as being real. Materialists suggest that while social features, for example beliefs and attitudes, arise from the material world, they do not influence the material world and as such are not ‘real’. Thus “the ultimate reality is matter – the solid external world that we experience through our senses” (Thompson, 2006, p13). The materialist view therefore allows for the independence of social reality and human interpretation and as such materialism is a variant of realism; a position explained hereafter.

The concept of realism lies at the opposite end of the spectrum to idealism. Realism suggests that “there is an external reality which exists independently of people’s beliefs or understanding about it” (Murphy *et al.* 1998, p4). Thus there is a clear distinction between what people may believe to be true and reality. Those classified as ‘strong realists’ believe that it is possible to state “objective truths about the material world” (*ibid*). A realist would therefore believe that the findings of a scientific study and the justification of those findings are literally true and for this reason quantitative research is often associated with realism. This is a contentious view point and as Murphy *et al.* (1998, p4) point out; most researchers would agree that “science actually produces the best descriptions and explanations that it can in a particular historical context with the tools available”.

There are however less strict forms of realism which can be usefully adopted in HSR. For example, an alternative position, as offered by Hammersley (1992), is one of ‘subtle realism’. This is the ontological position adopted for the work presented within this thesis. Concurrent with the realist view, subtle realists believe that external reality exists independent of human interpretation. Hammersley (1992, p51) explains that this distinction may initially appear complex as humans are acknowledged to be an integral part of reality and in that sense cannot be separate to it, but by independence, Hammersley is simply referring to the fact that “our making of a claim does not itself change relevant aspects of reality in such a way as to make the claim true (or false)”.

However, in contrast to strong realists, subtle realists ascribe to the idealist view that “reality is only knowable through the human mind and socially constructed meanings” (Snape & Spencer, 2003, p16). Therefore the subtle-realist position states that it is impossible for a researcher to detach oneself from the social world in order to study it (Hammersley & Atkinson, 1995).

The main objective of social research according to the subtle realist is to provide representations of the realities of the social world rather than to directly reproduce them (Murphy *et al.* 1998, Hammersley, 1992). The subtle realist approach “accepts that representations of reality are always representations from a particular point of view and that it is futile to search for a body of information uncontaminated by the researcher” (Murphy *et al.* 1998, p69). Despite this “there can be multiple, non-

contradictory and valid descriptions and explanations of the same phenomenon” (Hammersley, 1992, p51).

### **2.2.2 Epistemological position**

Epistemology deals with theories of knowledge. All research encapsulates a theory of knowledge, whether the researcher is aware of this or not (Carter & Little, 2007). To be a reflexive researcher involves engaging a theory of knowledge and illustrating the way in which this theory permits the creation of new knowledge through the analysis and interpretation of research data (*ibid*).

The two main epistemological positions applicable to the generation of knowledge through research are positivism and interpretivism (Grix, 2002). The positivist stance is typically associated with quantitative work in the natural sciences and rarely with the social sciences. This is due to the following premises held by the positivist position: firstly, there is one true reality which exists. It is possible to uncover this reality through research, yet this reality exists independently of research. Secondly, the world remains unaltered by the presence of researchers, thus the behaviour of an object or organism is not altered by virtue of being studied (Green & Thorogood, 2004). Thirdly, it is feasible to produce entirely objective research findings, free from the potential impact of the researcher and the climate in which the research is undertaken. It is therefore possible to use empirical observations to resolve theoretical debates. Finally, when applied to the study of human behaviour, a positivist stance suggests that the methods employed within the natural sciences (for example, the testing of hypotheses and determination of causality) are suitable “because human behaviour is governed by law-like regularities” (Snape & Spencer, 2003, p16).

Because of the rigid assumptions of positivism, Green & Thorogood (2004) state that many of the epistemological assumptions of qualitative research were in fact borne out of rejection of positivism. Interpretivism offers a wholly divergent stance to that offered by positivism and is consequently better aligned to the methods of qualitative research. Interpretivism proposes that due to the subjective assumptions of the researcher and the complex inter-relations between the researcher and the researched, we cannot be objective in the conduct and interpretation of social

research and thus in the provision of knowledge (Snape & Spencer, 2003). The interpretative stance does however suggest that the absence of objectivity can be mediated by offering transparent accounts of researchers' assumptions and actions, a position known as empathic neutrality (*ibid*). Furthermore, in contrast to the positivist approach, the interpretative approach purports that human beings are unpredictable and complex and that their behaviour is not governed in law-like ways (Green & Thorogood, 2004). Human participants are therefore influenced, and their behaviours potentially altered, by virtue of being researched. This renders the methods of the natural sciences inappropriate for the study of human behaviour. Furthermore, in contrast to the positivist approach, the interpretative approach suggests that "the most interesting questions are not about the 'reality' of the world, but about people's interpretations of it" (Green & Thorogood, 2004, p12-13). Therefore, "the aim of interpretative research is an understanding of the world from the point of view of the participants in it rather than an explanation of the world" (*ibid*). The interpretative stance permits this by suggesting that it is possible to create a representation of knowledge via exploration of both researchers' and participants' perceptions. While interpretivism is widely applied in qualitative health research studies, it is less able to accommodate quantitative methods and consequently multiple method HSR projects which incorporate both quantitative and qualitative study designs.

Subtle realism mediates the positivist / interpretivist divide and is therefore applicable to both qualitative and quantitative methods in HSR (O'Cathain & Thomas, 2006). The use of multiple methods to represent knowledge is made possible by presenting clear, reflexive and justified accounts of the entire research process (Mays & Pope, 2006). The subtle realist perspective suggests that "all research involves subjective perceptions and observations / different methods will produce different pictures of the participant(s) being studied" (Duncan & Nicol, 2004, p455). Subtle realists suggest that a researcher can never be absolutely certain of the findings of their research and that not all knowledge claims may be held equal (Hammersley, 1992). Here subtle realism diverges from the relative position which suggests that all research perspectives are equally valid in their own terms (Mays & Pope, 2000). Because of this, the goal of a subtle-realist is to produce research findings of which it is possible to be considerably confident. Such confidence may

be achieved via an assessment of the credibility of knowledge claims. These assessments “must be based on judgements about plausibility and credibility: on the compatibility of the claim, or the evidence for it, with the assumptions about the world that we currently take to be beyond reasonable doubt; and/or on the likelihood of error, given the conditions in which the claim was made” (Hammersley, 1992, p51).

### **2.2.3 Summary**

The ontological and epistemological position adopted within this thesis is one of subtle realism. Subtle realism “accommodates both qualitative and quantitative methods” and is compatible with the goals of pragmatic HSR (O’Cathain & Thomas, 2006, p103). The subtle realist position maintains that all research is subjective and influenced by the person undertaking the research and indeed the research participants. Therefore, absolute certainty regarding research findings cannot be offered. However, it is possible to create a representation of reality via research and the goal is to be confident of the research findings and to offer supporting evidence to make knowledge claims credible. Murphy *et al.* (1998) suggest that the key to producing credible research is to clearly justify the theories adopted and the decisions taken during the research process, thus the work presented in this thesis strives to achieve this.

### **2.3 The study site**

The three primary research studies presented within this thesis were conducted at the NHS Foundation Trust where staff members had raised the need to research the quality and safety of healthcare provided for outlying patients. This research site was a large NHS teaching hospital in the north of England with approximately 1100 inpatient beds. The HES headline figures for England, SHA and individual provider show that during the financial year 2010-2011, the site was within the top 15% of all health care providers in England in terms of the total number of admissions and total number of episodes of care. In the year 2009-2010, the Trust served a local population of approximately 550 people per hospital bed and employed 5.72 staff members per bed (personal communication from the Trust, April 2012).

#### **2.3.1 The local bed management policy**

The definition of an outlier given in the Trust's bed management policy at the time the research presented in this thesis was conducted was "any patient who occupies a bed outside of the clinical directorate bed base". Using this definition a medical patient on a medical ward that does not strictly conform to the patient's specialty is not classed as an outlier whereas a medical patient on a surgical ward is.

The local bed management policy stipulated that during ward rounds senior medical staff should identify those patients suitable to move to a clinically inappropriate ward (should the demand for inpatient beds exceed the available supply), with the provisos that infection control status should be taken into account prior to transfer, the sending ward should complete a transfer checklist to aid handover, and both junior medical staff and nursing staff should take responsibility for ensuring that patients receive medical review on a daily basis. An escalation plan for use by nursing staff was provided for instances in which medical teams failed to conduct a daily review of outlying patients. Repatriation to the correct ward was not part of the policy as the aim was to minimise the number of ward transfers.

Over the winter months (November to February 2008/09 and 2010/11) the Trust had experimented with employing a qualified nurse on a temporary contract whose duty was to keep track of the location of outlying patients and to instruct outlying wards on the nursing care required.

## **CHAPTER 3**

### **An assessment of the feasibility of investigating the epidemiology of patient safety issues in outliers**

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#### **3.1 Introduction to the chapter**

The literature review documented in Chapter 1 revealed that there is no known prior research which has investigated the incidence of patient safety issues in patients who are placed on outlying wards. Therefore, the first of the research objectives set out in section 1.10 was to assess the feasibility of conducting a quantitative study to explore the epidemiology of patient safety issues experienced by outliers in comparison to those patients who are allocated a bed on the correct specialty ward. A review of the research methods best placed to explore this objective in relation to outlying patients at a large NHS hospital Trust in the north of England was undertaken. This chapter will outline the key considerations that were made.

In making decisions about viable research methodologies it was essential to deliberate both practical constraints and the resources available. For example, the research presented within this thesis had to be completed in three years and conducted within a modest research budget. It was important that the research conducted should be useful to the teaching hospital that provided the inspiration for this Ph.D. project, and therefore should take place within this hospital Trust. Consequently, it was necessary to determine what data sources were already available within the Trust and whether they could be utilised to meet the research objectives.

Furthermore, Chapter 1 outlined literature which suggests that patients on outlying wards tend to be relatively medically fit as bed allocation is dependent on illness severity with the sickest patients prioritised for treatment on the correct specialty ward (DoH, 1999, Woodford & Walker, 2005, Emergency Services Action Team Report, 1999). It is well known that positive correlation between illness severity and



adverse events exists, as sicker patients require a greater number of interventions and these interventions may be more complex, increasing the likelihood of error (Brown *et al.* 2008c, Silber & Rosenbaum 1997, Geraci *et al.* 1993, Walker & Wynne 1994). Illness severity is potentially an important confounding factor in any assessment of the epidemiology of patient safety issues in outliers versus patients who are allocated a bed on the correct specialty ward and must be accounted for in any comparative analysis. Therefore, an appropriate measure of illness severity would be required. Additional factors which would require measurement and subsequent adjustment in the analysis include age, gender, specialty and length of hospital stay.

The review of methods presented in this chapter evaluates different interventional and observational epidemiological study designs. The chapter describes potential research methods, with reference to patient safety studies that have used these methodologies. Advantages and limitations of each methodology are discussed, and the potential for each method to be applied to the study of the epidemiology of patient safety issues in outliers considered.

### **3.2 Interventional study designs**

In interventional studies the researcher seeks to modify either the environment or something about the participants in order to see if this has an effect on the outcome of interest (Martin, 2005). The ‘gold standard’ method of research for testing the effectiveness of interventions is the randomised controlled trial (RCT). By randomising the allocation of research participants to intervention or control groups it is possible to control for both known and unknown differences between participants and to nullify the effects of temporal changes and regression to the mean. Therefore, any observed differences between the intervention and control groups post intervention can be attributed to the intervention (Torgerson & Torgerson, 2008). In the case of studying patient safety in outliers, it would theoretically be possible to randomise patients to receive care on either an outlying ward or the correct specialty ward and consequently determine whether there are any significant differences in clinically important outcomes (for example length of stay, mortality and adverse events) experienced by these two groups. This process of

randomisation would greatly enhance the validity of the study, as it would allow us to say that any observed differences were due to patients' ward status and not some other confounding factor (Brown *et al.* 2008a). Of course in reality it would be entirely inappropriate to conduct such a study as it would be unethical to make bed allocations in a random manner. In practice, the decision as to which ward a patient should be placed on should always be based upon clinical need.

It would also be possible to design a study which comprised an intervention aimed at either reducing the prevalence of outliers in a hospital, or aimed at reducing the number of adverse events or errors experienced by outliers, for example similar to the studies conducted by Lepage *et al.* 2009, Rae *et al.* 2007 and Gilligan & Walters 2008 (see section 1.8). However, it is proposed that due to the lack of research which investigates patient safety in outliers, it is not appropriate to intervene in an attempt to improve outcomes for patients (at potentially great cost), unless it can first be unequivocally established that patient safety in outliers is indeed a problem and high quality evidence is available to show why this might be. It is therefore suggested that the preliminary exploration of the epidemiology of patient safety issues in outliers requires the use of observational study designs.

### **3.3 Observational epidemiology**

To clarify, "observational studies involve the investigator collecting data on factors (exposures) associated with the occurrence or progression of the outcome of interest, without attempting to alter the exposure status of participants" (Martin, 2005, p101). In the case of studying the epidemiology of patient safety issues in outliers, researchers would not manipulate the environment (being cared for on an outlying or correct specialty ward), they would simply observe whether patient safety issues are more or less frequent in patients allocated a bed on an outlying ward in comparison to patients on the correct specialty ward. For the study of patient safety in outliers, observational study designs are likely to raise far fewer ethical issues than interventional studies as the care provided would not be altered as a direct result of the research. Observational study designs are therefore best placed to accomplish the

first research objective posed in section 1.10, which relates to exploring the epidemiology of patient safety issues in outlying patients.

Within the broad classification of observational epidemiology, there are several different study designs which may be applied to the study of patient safety in outliers. Some of these study types will be described briefly below, examples of studies within the field of patient safety that have adopted these research methods will be given and an assessment of the applicability of the method to studying the epidemiology of patient safety issues in outliers will be made.

### **3.3.1 Cohort study**

Cohort studies involve following a group of individuals over time. Cohort studies may be undertaken either prospectively or retrospectively. In a prospective cohort study the characteristics of individuals are measured at baseline and again at additional points in time. Retrospective cohort studies identify a group of individuals and then look back in time to identify exposures. In both types of cohort study the exposures that participants encounter are monitored and outcomes are observed in order to determine whether there are any relationships between the exposures and outcomes under investigation. The incidence of the outcome in individuals classed as exposed is then compared with the incidence in those not exposed, allowing calculation of the risk of the outcome for exposed individuals (Gordis 2009, Martin 2005).

Cohort studies have been successfully used in patient safety research. For example, Michel *et al.* (2004) compared the ability of a prospective cohort study to detect adverse events with a cross-sectional study and case-note review. They discovered that “the prospective method identified more preventable cases / had good reliability for identification / represented an acceptable workload, and had higher face validity” in comparison to the other methods (Michel *et al.* 2004, p199).

A cohort study could be adopted to study the epidemiology of patient safety in outliers. A prospective cohort, for example, would involve randomly selecting a group of hospital inpatients and observing whether they experience an adverse event

(the outcome of interest). It would then be determined which patients had come into contact with the exposure (in this case spending time on an outlying ward). It would thereafter be possible to calculate the incidence of adverse events in outliers and patients on the correct specialty ward and the relative risk of experiencing an adverse event if placed on an outlying ward. Within patient safety research, a specific type of cohort study is frequently conducted in order to estimate the incidence of adverse events. The method is known as case-note review because patients' notes are used to assess outcome and exposure status. Case-note review methodology is discussed in detail in the following section (3.3.2).

*Strengths:*

Cohort studies are useful for both generating and testing hypotheses about health outcomes. A particular strength is that they can be used to estimate incident rate ratios which tell us about the likelihood of developing a health outcome if exposed or unexposed to a particular condition (Gordis, 2009). Cohort studies allow multiple exposures and outcomes to be investigated. Reverse causality is not an issue in cohort studies as exposures are measured before the outcome occurs. Although prospective cohort studies may be lengthy and expensive, retrospective cohort studies are less resource intensive as they eliminate the need for long follow up periods (Martin, 2005).

*Weaknesses:*

Cohort studies, particularly prospective cohort studies, can take a long time to complete and may therefore prove costly (Gordis, 2009). When outcomes are rare, large populations must be followed up over time. If an outcome is particularly rare, the costs associated with conducting a large scale prospective cohort study may be prohibitively expensive (*ibid*). Furthermore, any losses to follow up in a cohort study may represent a selection bias "if the reasons for the loss are related to both the exposure and the outcome" (Martin, 2005, p141). In retrospective cohort studies information bias may arise if knowledge about an individual's exposure status influences the outcome judgement or vice versa. Finally, known and unknown differences between the exposed and unexposed groups may bias the results as "it is likely that exposure groups will differ in relation to factors other than the ones being investigated" (*ibid*). Where possible "these confounding factors need to be identified,

measured and controlled for in the analysis” (*ibid*). The major problem with conducting such a study to investigate the incidence of patient safety issues in outliers is that a huge sample size would be needed in order for it to be adequately powered as the study would involve both a rare outcome and a rare exposure.

### **3.3.2 Case-note review**

Case-note review (also known as medical record review or chart review) is essentially a retrospective or prospective cohort study in which medical case notes are used to study exposures and outcomes. Case-note review is a popular method for estimating the incidence of adverse events in health care. Thomas & Peterson (2003, p63) suggest that “large, population based chart reviews have been the foundation of research into errors and adverse events”. The purpose of a case note review study is to look at a sample of medical case notes from patients who are considered representative of the population under study and to determine whether the case notes provide evidence to suggest that a patient has been harmed (or has been subject to error) as a direct result of the health care process. Large scale studies using this method have been carried out by researchers around the world. These studies indicate that between 2.9% and 16.6% of hospital inpatients experience an adverse event as a direct result of their health care (Baker *et al.* 2004). Again, it is important to note that the precise definition of an adverse event can differ across studies, and the populations of patients studied are not always directly comparable which may account for some of the variation in these estimates of incidence.

Case-note reviews usually comprise one or two stages, can be prospective or retrospective, implicit or explicit and may be structured or unstructured. In one stage reviews the case-notes are reviewed by a single group of healthcare professionals whereas in two stage reviews notes are often reviewed first by nurses and second by doctors. Prospective reviews are conducted as patients enter the study population (for example they may be recruited upon admission and the notes reviewed straight after discharge) whereas retrospective reviews sample a group of patients in the past. The implicit method of review involves trained experts making judgements about the safety of the care that patients have received. This can be achieved in either a structured or an unstructured manner. In a structured review the expert is given

questions about patient care or adverse events, the answers to which are judged on review of the medical record. In an unstructured review, the expert simply makes a judgement on the basis of their review of the medical record, without use of a structured set of questions to act as prompts. Conversely, an explicit review seeks to remove subjective opinion by applying pre-determined standards which have been devised by expert groups or as a result of national care protocols (Brown *et al.* 2008c, Hutchinson *et al.* 2010).

Retrospective case-note reviews can be conducted away from the clinical area and may be less time consuming. However, the benefits of conducting a prospective review include the ability to retrieve missing data and seek additional information from patients or staff (Howard *et al.* 2006). Prospective studies may also allow easier identification of specific patient groups. Furthermore, in a prospective study staff may be more likely to report errors and adverse events due to awareness of the study.

Use of two-stage implicit case-note review is most common (Hutchinson *et al.* 2010). In the first stage of a two-stage implicit review a sample of patients' medical records are screened by nurses trained in the use of the screening tool. Those records that screen as positive for an adverse event are passed forward to medical doctors who re-review the notes, determine whether an iatrogenic adverse event has occurred and try to determine causality and preventability. Inter-rater reliability assessments are often undertaken to demonstrate the reliability of reviewers' ratings (*ibid*).

In those case-notes that indicate that an adverse event may have taken place, the review culminates in an assessment of the causality and preventability of the adverse events (Howard *et al.* 2006). This assessment is usually undertaken by multiple trained professionals and concordance in judgement is monitored in an attempt to reduce the chance of misclassification.

When planning to conduct a case-note review, it is important to factor in both the time and resources that will be required for staff training and implementation of the review process. Reviewers must be selected carefully and thorough training of the methods to be used offered as the expertise of the staff conducting the review has been shown to affect the validity of the results (Howard *et al.* 2006). In order to

make estimations about the level of staffing required and the potential costs of this, it is necessary to gain a good estimate of the sample size required in order for the study to be adequately powered to detect an effect.

*Strengths:*

A major advantage of case-note review is that where access is permitted, data are readily available (Thomas & Peterson, 2003). Furthermore, a great strength of case-note review is that it lends itself to the calculation of incidence risks and rates within a pre-defined population. Case-note reviews are considered by many to be the 'gold standard' method of estimating the incidence of adverse events in health care.

*Weaknesses:*

Large case-note reviews are often staff intensive and therefore very costly to conduct (Howard *et al.* 2006). Furthermore, Walshe (2000) suggests that the results of implicit reviews frequently demonstrate poor reliability. Moreover, inter-rater reliability of reviewers' judgements is often poor or moderate at best (Thomas & Peterson, 2003). Walshe (2000) also proposes that extraneous information and circumstances often bias results. For example, if a reviewer was privy to the knowledge that a patient was treated on an outlying ward due to information contained in the case notes, they may either consciously or unconsciously be more likely to make the judgement that the patient experienced an adverse event during their hospital stay, thus creating an information bias. Furthermore, the quality of the data abstracted in case-note review studies depends on the expertise of the staff conducting the review, and whether the review is conducted prospectively or retrospectively (Howard *et al.* 2006). A further complication arises as hospital case-notes may be either missing or incomplete. For example, Wilson *et al.* (1995) discovered that 27% of case notes did not provide sufficient information to make a decision about the presence or absence of adverse events in health care. A lack of accuracy or completeness in case-notes may bias results as an incomplete record may be missing vital clues which would otherwise indicate an adverse event whereas a thorough and detailed record may be more likely to provide evidence of an adverse event or near miss errors (McGlynn *et al.* 2003). Furthermore, Thomas & Peterson (2003) suggest that when documentation within the medical record is incomplete, detection of both active and latent errors is impaired.

### 3.3.2.1 Full assessment of the feasibility of using case-note review to investigate the incidence of adverse events in outliers

The possibility of conducting either a retrospective or prospective case-note review to estimate the incidence of adverse events in outliers in comparison to patients treated on the correct specialty ward was fully assessed for feasibility as part of this Ph.D. project. In such a study, a large random sample of case-notes from patients who had spent time on outlying wards and a large random sample of case-notes from patients exclusively treated on the correct specialty ward would be selected. The purpose of reviewing the notes of patients who were treated on the correct specialty ward and not just outliers' notes is to create a local 'control group', thus the proportion of adverse events experienced by outliers and by those treated on the specialty ward may be compared. The case-note review itself would use standard methodology as developed by Vincent *et al.* (2001), so the review process would involve determination of whether each patient in the sample had experienced an adverse event and the potential preventability and causes of these events. Age, gender, specialty, illness severity, length of stay and the length of time each patient was 'exposed' to an outlying ward would be recorded and adjusted for in the analysis. It would thereafter be possible to look at the incidence of adverse events in patients placed on outlying wards in comparison to those treated on the correct specialty ward. The type, causes and preventability of adverse events in the two groups could also be compared. A case-note review of this type would therefore provide detailed evidence about whether a difference in the incidence or type of adverse events experienced by outliers in comparison to other inpatients exists.

The sample size required to conduct a case-note review of outliers and patients treated on the correct specialty ward was calculated using PS Power. Firstly, it was assumed that a good estimate of the incidence of adverse events in patients treated on the correct specialty ward would be 10% (in line with the studies conducted by Baba-Akbari Sari *et al.* 2007, Vincent *et al.* 2001 and DoH 2000). There are no published studies which offer an estimate of the incidence of adverse events in outliers. It was therefore decided that if 12% of outliers experienced an adverse event in their care, this would constitute a clinically important difference in comparison to the 10% rate expected in patients treated on the correct specialty ward.



In this scenario, the sample size calculation demonstrated that in order for a case-note review to be adequately powered to detect an effect (90% power,  $\alpha=0.05$ ), the total sample size required would be 10,286 case-notes (5143 case-notes from outlying patients and 5143 case-notes from patients treated on the correct specialty ward).

Figure 3.1 Sample size calculation for case-note review

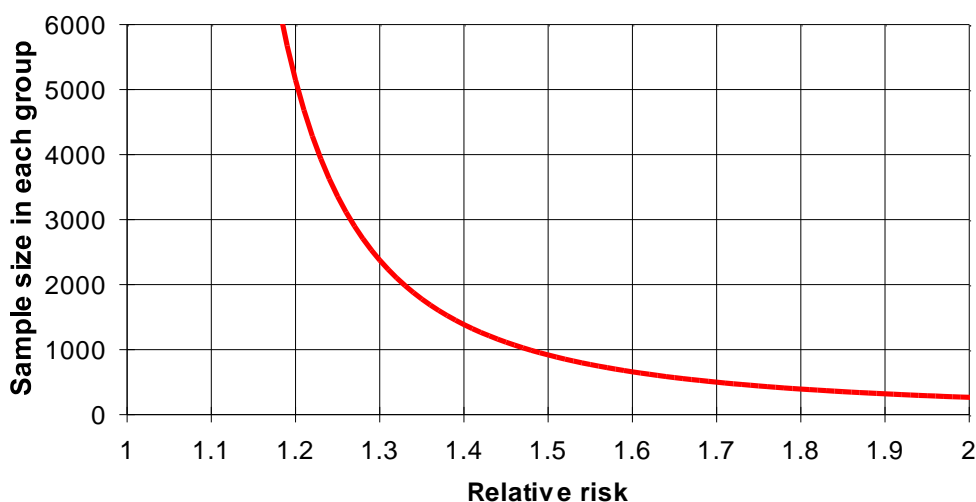


Figure 3.1 demonstrates that if the relative risk of experiencing an adverse event in outlying patients relative to patients placed on the correct specialty ward is 1.2 (therefore 12% incidence of adverse events in outliers compared to 10% in patients on the correct specialty ward), just over 5000 patients are required in each group in order for the study to be adequately powered to detect an effect (90% power,  $\alpha=0.05$ ). If the relative risk of experiencing an adverse event in outlying patients relative to patients placed on the correct specialty ward is 1.5 (therefore 15% incidence of adverse events in outliers compared to 10% in patients on the correct specialty ward), just over 900 patients are required in each group (90% power,  $\alpha=0.05$ ).

Conducting a case-note review of this scale would be hugely time and resource intensive and therefore infeasible within the scope of this Ph.D. project. For the first stage of the review alone it would take at least 225 full working days for nurses to review 10,000 case-notes or 40 full working days to review 1,800 case-notes, assuming that it takes an average of 10 minutes for a nurse to review a set of notes

and a maximum of 45 sets of notes can be reviewed in one working day (Celia Grant, personal communication). Furthermore, Baba-Akbari Sari (2006) states that a complete review of case-notes takes approximately half an hour per patient. Employing nursing and medical staff to complete the review process would therefore have been prohibitively expensive given the research budget available. It is however suggested that if preliminary research indicates that patient safety in outliers is a particular concern via use of other research methods, it may thereafter be beneficial to invest in a large scale project of this type in order to quantify and better understand the problem.

Once a case-note review involving outliers and patients treated on the correct specialty ward had been ruled out as a potential research methodology for this thesis, the possibility of conducting a case-note review of outliers' notes alone was also contemplated. The notes of patients treated on the correct specialty ward would not be reviewed. Standard two-stage case-note review methodology would be used to search for evidence of adverse events in the notes of patients who had been identified as being outliers during their hospital stay. This could have been done either retrospectively or prospectively. The primary reason as to why this method was considered is that the sample size required would be considerably smaller than that needed for a case-note review which compares outliers with patients treated on the correct specialty ward. It was estimated that 1,000 case-notes would need to be reviewed in order for the study to be adequately powered to detect an effect (based on methods and findings adopted in previous case-note review studies, for example Vincent *et al.* 2001, Baba-Akbari Sari *et al.* 2007). The first stage of a case-note review of 1,000 patients' notes would take at least 22.5 full working days of research nurse time. The major pitfall of reviewing the notes of outliers only is of course that there would be no 'control group' comparator. Although the rate of adverse events observed in outliers' notes could be compared to national averages (for example the 10% incidence of adverse events, DoH 2000), it would not be possible to assert whether the incidence of adverse events observed for outliers in a single hospital Trust was specifically due to placement on an outlying ward, because the incidence of adverse events in that Trust as a whole may be higher or lower than national averages. Due to the expense that would be incurred in hiring staff to undertake a review that would be likely to produce low grade evidence because of lack of an

adequate control group, it was decided that conducting a case-note review of outliers' notes was an inappropriate method for this Ph.D. project.

### **3.3.3 The Global Trigger Tool**

The global trigger tool (GTT) is a specific method that can be applied during retrospective case note review to detect adverse events in healthcare and assess their severity. Developed by the Institute for Healthcare Improvement, the GTT comprises a list of known triggers for adverse events. The tool is designed to be used on a sample of medical records and demonstrates good inter-rater reliability when used by trained reviewers (Classen *et al.* 2008).

#### *Strengths:*

The GTT allows the rate of adverse events occurring over a specified time period to be calculated. This tool may be particularly useful to examine the rate of adverse events before and after an intervention (Griffin & Resar, 2009). Different tools are available for capturing different types of adverse event.

#### *Weaknesses:*

The GTT is only useful for studying errors that result from acts of commission (for example, wrong drug or wrong dose) and cannot be used to detect acts of omission (for example, prescribed drug not given) (*ibid*). As acts of omission may be a particularly important factor in the safety of patients who are placed on clinically inappropriate wards, the GTT was considered an unsuitable method for the study of patient safety in outliers.

### **3.3.4 Electronic record review**

Electronic record review (also known as a clinical database study) involves the application of a search strategy that is designed to uncover evidence of adverse events or errors to electronically stored patient records. For example, a strategy may be devised to search for potentially adverse drug interactions. However, careful consideration must be given to the search criteria adopted in order to strike a balance

between the sensitivity (obtaining all potentially relevant results) and specificity (obtaining results which demonstrate the adverse event of interest) of the search criteria applied in an electronic review (Morris *et al.* 2004). Conduct of such a study depends upon the availability of comprehensive electronic patient records.

*Strengths:*

Electronic reviews may be a less time consuming method of providing an estimate of the incidence of adverse events than traditional case note review methodology (Howard *et al.* 2006). Furthermore, once an initial investment has been made, electronic review is likely to be less expensive than case note review as fewer staff are needed. Jha *et al.* (1998) demonstrated that although electronic reviews only identify two thirds of the adverse events uncovered by case note review, they are able to do so at one fifth of the cost. Additionally, electronic review can be used to monitor adverse events in 'real time' (meaning that the system can be used to flag up potential errors as electronic information is entered), and a comprehensive system can integrate multiple data sources such as medical and nursing notes and prescriptions (Thomas & Peterson, 2003). It is possible to combine an electronic record review with a case note review. This has the advantage of simplifying the initial search for adverse events thus reducing costs, while maintaining the thorough examination of case notes for causality and preventability in the second phase of the study (Howard *et al.* 2006).

*Weaknesses:*

The use of this method is restricted to organisations which hold electronic patient records. In Britain, electronic records in secondary care are still, at present, a rarity (Howard *et al.* 2006). Additionally, the susceptibility of electronic record review to data entry and programming errors must be considered (Thomas & Peterson, 2003) as the quality of the data abstracted depends on the accuracy of the electronic database (Howard *et al.* 2006). Missing data lead to underestimates of adverse events or errors. Furthermore, the choice of the search strategy implemented may directly influence the results obtained, thus careful consideration of the search criteria employed is necessary. Use of electronic record review as a sole research technique provides little information on the causality and preventability of adverse events and errors (Howard *et al.* 2006). Finally, Thomas & Peterson (2003) point out that

electronic record review is a relatively poor method for detecting latent errors within a health care system.

At the time that the research presented in this thesis was conducted the Trust that was host to the research did not have full electronic patient records, making electronic record review impracticable for studying the epidemiology of patient safety issues in outliers.

### **3.3.5 Case-control study**

In a case-control study, people with the outcome of interest (for example people who are known to have experienced an adverse event) are selected for participation as cases in the study. These cases are then matched with eligible control participants who have not experienced the outcome of interest (Gordis, 2009). It is then necessary to ascertain exposure status (for example time spent on an outlying ward) in both cases and controls. A comparison can then be made as to whether the odds of experiencing the outcome is greater or less in those people who have been in contact with the exposure in comparison to those people who have not (Gordis, 2009, Martin, 2005).

Gawande *et al.* (2003a) successfully conducted a case-control study using patients who had instruments and sponges retained within them following surgery as cases. The aim of the study was to identify risk factors (exposures) for this type of error. Cases were identified by reviewing claims and incident reports filed with a large malpractice insurer. Use of case-control methodology was effective and the results of this study were used to suggest that emergency surgery, change in the surgical procedure, and patient BMI are potential risk factors for retained instruments and sponges post surgery.

#### *Strengths:*

A smaller sample size is required for case-control studies than for cohort studies. This tends to make case-control studies cheaper and less time consuming to implement. Routinely available data can sometimes be used to identify cases and to

assess exposure status. Case control studies are “useful as a first step when searching for a cause of an adverse health outcome” (Gordis, 2009, p190).

*Weaknesses:*

Martin (2005) states that case-control studies have a propensity to two types of bias because both the exposure and the outcome have already occurred at the outset of the research. Firstly, selection bias may arise if the choice of cases or controls for inclusion in the study is influenced by their exposure status. Secondly, recall or observer bias may be problematic if the recording of exposure status is influenced by knowledge of case or control status. For example, people may be more likely to judge that cases have been exposed. Furthermore, in order to avoid information bias, it is important that the completeness and accuracy of the data provided is the same for both cases and controls. As with other study designs it is important to assess the temporal relationship between exposures and outcomes to avoid the pitfall of reverse causality. Failing to do so could lead to an overestimate of the effect of the exposure. Finally, while case-control studies hold their strength in the investigation of rare outcomes, they are often ineffective for assessing the effect of rare exposures (Martin, 2005), and placement on an outlying ward falls into this category.

3.3.5.1 Full assessment of the feasibility of conducting a case-control study to investigate the epidemiology of safety issues in outliers

The possibility of conducting a case-control study as part of this Ph.D. project was fully explored as this method is useful for investigating rare outcomes such as patient safety issues. In this context a case-control study would therefore involve determining whether being placed on an outlying ward increases the odds of experiencing a patient safety issue in comparison to placement on the correct specialty ward.

It was decided that the best way to identify cases would be to use incident reports relating to patients who had experienced a patient safety issue. The clinical incident database at the Trust where the research presented in this thesis was conducted stores information about all of the adverse events or near misses that have been reported. It was therefore necessary to decide what type or types of adverse event would be

suitable to represent an outcome of interest. The adverse event of interest needed to have a reasonable chance of being induced by the exposure (spending time on an outlying ward) and needed to have a good chance of being reported as an incident. Because they are highly likely to be reported, it was decided that serious untoward incidents (SUIs – incidents which have a very serious outcome or result in patient death) would be a good outcome of interest. The problem with choosing other types of incident as the outcome of interest (for example medication errors or falls) is that these types of incident often go unreported and furthermore there is a chance that the barriers to reporting less serious incidents may increase when patients are on clinically inappropriate wards. Choosing less serious outcomes may therefore underestimate the effect of the exposure (spending time on an outlying ward) on the outcome (experiencing an adverse event).

It was intended that eligible cases would then be matched to control patients who were either treated on the same ward as the case patient or were from the same specialty as the case patient (or possibly to one of each). It was important to consider methods for selecting controls in an unbiased fashion and to ensure that control patients would have met the case definition if they too had experienced an SUI during their hospital stay. It would also have been checked that control patients had not experienced the adverse event of interest by reviewing their case-notes. The patient administration system (PAS) database in use at the Trust would have been used to identify control patients.

The next step would be to ascertain exposure status; in this case whether the patient resided on an outlying or correct specialty ward during their hospital stay. As patients frequently move between wards, ward exposure would be measured as a continuous time variable for each patient (for example number of hours spent on outlying wards and number of hours spent on the correct specialty ward or admissions units). Determination of exposure status would involve hiring medical or nursing staff to make a judgement about whether patients were outliers or not and if so how long for. These judgements would of course be subjective and may be complicated when making decisions about patients with co-morbid illnesses. Information about the wards that patients were placed on was to be extracted from the PAS database in use at the Trust.

The odds of experiencing an SUI when placed on an outlying ward would then be compared to the odds of experiencing an SUI when placed on the correct specialty ward. The relationship between the two was to be assessed using logistic regression with potentially confounding factors controlled for in the analysis (for example, number of hours exposed, length of stay, age, gender, illness severity). However, due to the retrospective nature of case-control studies it may have proved difficult to assess and adjust for illness severity which is a potentially important confounding factor in any comparison of patients treated on outlying versus specialty wards.

The implementation of this study fell at the first hurdle when determining how many cases existed. The clinical risk department at the study site revealed that data were available for 48 patients who had experienced SUIs within the previous three years. Both the clinical incident database and the PAS database (which would have been used to identify controls) only held patient information for the previous three years, so it was not possible to look further back in time. A total of 48 cases is small for a case-control study as 200 or more cases would normally be expected (Martin Bland, personal communication). Furthermore, investigation of the 48 cases revealed that none had been placed on outlying wards at any point during their hospital stay. Unfortunately this rendered a case-control study using SUIs as the outcome infeasible.

### **3.3.6 Cross-sectional study (prevalence survey) with patients**

Within epidemiology, cross-sectional studies are often used to assess the prevalence of an outcome in a population or the distribution of an outcome in a population. They are administered via survey (Martin, 2005). This design could therefore be adopted to study the epidemiology of patient safety issues experienced by outliers by questioning patients. Cross-sectional studies may also be used to assess change in an outcome over time, for example in response to a quality improvement measure (*ibid*).



Thus far, cross-sectional studies have generally been found to be a comparably weak method for the assessment of prevalence of adverse events in health care. For example, Michel *et al.* (2004) compared the ability of a cross-sectional study to detect adverse events with a prospective cohort study and a case-note review. The number of patients (who had experienced at least one adverse event) identified using each method was compared for the three study types. In comparison to the other study designs, the cross-sectional study produced a large number of false positives and failed to identify the most serious events.

*Strengths:*

Cross-sectional studies are relatively cheap to implement and quick to run. They are able to offer prevalence estimates and allow the investigation of a number of different outcomes and exposures (Martin, 2005). Either healthcare professionals, patients or both may be questioned. Surveys may also be used to ascertain perceptions.

*Weaknesses*

There is an inherent selection bias in this design as those people who refuse to participate may be systematically different in some way to those who consent. Furthermore, not all hospital patients would be able to complete a survey which requires them to be knowledgeable about their illness, the care they received and their ward status. People may be unable to participate for medical, behavioural or social issues. Thus the results of a cross-sectional study may not be representative of the population. Additionally, within cross-sectional studies it is difficult to establish cause and effect between the exposure and the outcome (Martin, 2005). For example, if this method was applied to the study of patient safety in outliers, it is possible that a patient may experience an adverse event which then leads to a longer length of hospital stay and consequently transfer to a bed on an outlying ward. It would therefore be important to establish the temporal sequence of events precisely and confirm that the exposure (being on an outlying ward) preceded any outcome (e.g. an adverse event). However, this may be further complicated by recall bias whereby participants recall events in the past inaccurately. This would pose a particular problem if participants were unable to recall their ward location or adverse events experienced during their care. Survival bias is also an issue in cross-sectional studies

as patients who die do not become part of the prevalence estimate. Cross-sectional studies are generally a poor method for studying rare outcomes (such as adverse events or placement on an outlying ward) as a large sample of the population would need to be surveyed in order to accurately estimate prevalence. Furthermore, poor response rates and loss to follow up within a sample also bias prevalence estimates (Martin, 2005). Thus although cross-sectional studies are generally considered inexpensive and relatively straightforward to implement, it is likely that the quality of evidence gained from a cross-sectional study of patient safety in outliers would not warrant the conduct of such a study.

### **3.3.7 Observation**

Observation can be used to estimate the incidence of adverse events in health care. Patient care may be directly observed by trained researchers or healthcare staff or videotaped and subsequently observed in order to assess the incidence of adverse events. For example, Smith *et al.* (2006) successfully used observation to explore adverse events in anaesthetic practice. Smith observed 103 ‘minor events’ in 50 anaesthetic procedures. Interestingly, although five ‘critical incidents’ were observed during discussions amongst colleagues, only one of the five was reported formally.

Furthermore, Andrews *et al.* (1997) successfully conducted an observational study of adverse events occurring in three units of a large teaching hospital as a means of investigating the incidence of adverse events. Four ethnographers trained in observational methods spent nine months on the wards and in meetings, witnessing situations in which adverse events may have been discussed. The study revealed that 17.7% of patients had at least one serious adverse event during their care. This figure is markedly higher than those produced in most case note review studies. There are a number of possible explanations for this finding. Firstly, the definition chosen to represent an adverse event in the study by Andrews *et al.* (1997, p310) was “situations in which an inappropriate decision was made when at the time an appropriate alternative could have been chosen”, whereas in other studies the definition of an adverse event encapsulates only those patients that have experienced harm as a result of the event. Furthermore, the findings demonstrate that adverse events or near misses may not always be recorded in the patients’ case notes,

demonstrating the need to use a range of methods to produce the best possible estimate of adverse event incidence. It may be important to note that although the observers in the study by Andrews *et al.* (1997) were trained in ethnography and observational research, they were not medical professionals. This may have influenced their perception of the events that they witnessed and in turn the behaviour of the medical professionals being observed may have been influenced by the fact that they knew that they were involved in a study which was monitoring the incidence of adverse events.

*Strengths:*

Observation can be used to estimate incidence of adverse events in healthcare. Thomas & Peterson (2003) suggest that observation may be particularly appropriate for detecting active errors (e.g. slips, lapses, mistakes and violations performed by healthcare professionals – see section 1.3.1). This may partially account for the high level of adverse events recorded in studies using observation as a method.

*Weaknesses:*

Thomas & Peterson (2003, p65) point out that it is difficult to train reliable observers as the method is both time and resource intensive, requiring the use of researchers trained in ethnography who preferably come from a healthcare background. It could be difficult and potentially unethical to observe patient care around the clock and gain consent for the study from staff and patients. If short observation periods were adopted some errors or adverse events may be missed thus the incidence estimate would be dependent upon the reports of patients and physicians. Observation is therefore a poor method for detecting latent errors because “errors may have occurred in a different time or place than is being observed” (*ibid*). Applied to the study of outliers, it would be necessary to observe both outliers and patients treated on the specialty ward in order to make a meaningful comparison. Doing this would likely be time consuming and expensive. Furthermore, the Hawthorne effect may result in an information bias if observers expect to witness more errors in one group and hindsight bias may also effect observers’ judgements (this may be particularly important in a study of outliers where the observer is not blinded to a patient’s bed status). For these reasons observation did not appear to be a good method for researching the epidemiology of patient safety issues in outliers.

### **3.4 Summary of the chapter**

An appraisal of potential methods was undertaken to ascertain the feasibility of conducting a quantitative study that would investigate the epidemiology of patient safety issues in patients who are placed on clinically inappropriate wards in comparison to those patients who are placed on the correct specialty ward. The potential for conducting either a case-note review or a case-control study was explored in detail as these methods appeared the most suitable. However, given the resources and data sources available, these methods were not practicable. These impracticalities arose due to the inherent difficulties faced when designing a study that seeks to estimate the effect of a rare exposure (placement on an outlying ward) on a rare outcome (experiencing a patient safety issue). Once the potential safety issues faced by outliers have been further explored in lower cost studies, it may be viable to invest in a large multi-site study to investigate the epidemiology of patient safety issues in outliers and therefore quantify the phenomenon.

## **CHAPTER 4**

### **Descriptive study of the epidemiology of outliers**

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#### **4.1 Introduction**

The following sections introduce the study by describing the study rationale and the research questions addressed. The background to this research is presented in Chapter 1.

##### **4.1.1 Study rationale**

The literature review presented in Chapter 1 demonstrated the lack of research investigating patient safety in outliers and indeed the characteristics of outlying patients in general. We therefore know little about the descriptive epidemiology of outliers and the scale of the phenomenon beyond that which is available from anecdotal evidence. However, a single study conducted in a Spanish hospital compared 101 patients with heart failure who were placed on outlying wards with 134 patients with heart failure who were placed on the correct specialty ward (Alameda & Suárez, 2009). They found that patients who were placed on an outlying ward had a statistically significantly longer length of hospital stay than patients treated on the correct specialty ward. This significant difference remained when adjusting for potentially confounding factors including age, gender and co-morbidities. However, there was no evidence for differences in mortality, intra-hospital morbidity (infection, haemorrhage or venous thromboembolism) or readmission. In their concluding remarks Alameda & Suárez (2009) recommend that future research in this area should include patients with a variety of diagnoses in order to improve external validity and should adopt larger sample sizes to improve the power of the study to detect an effect. Their study was published after the data for the present study had been collected; however the present study meets these recommendations.

Due to the dearth of published research describing the epidemiology of outliers and therefore the extent of the outlying phenomenon, the descriptive characteristics of outlying patients in a single large NHS teaching hospital in the north of England (hereafter referred to as ‘the Trust’) were studied, utilising routinely available data. The Trust had approximately 1100 inpatient beds. The local bed management policy was summarised in section 2.3.1 of this thesis. Descriptive epidemiology was chosen as a methodology as it enables exploration of the characteristics of a population who have an outcome of interest (in this case placement on an outlying ward) and the results may be used to plan the future allocation of resources (Martin, 2005). Furthermore, descriptive studies using routinely collected data are often very cheap to run and may be considerably less time consuming than studies that involve prospective primary data collection (Thomas & Peterson, 2003) and therefore act as a useful precursor to more expensive studies.

The aims of the study were to investigate: seasonal trends and where the outliers were allocated beds in order to inform supply and demand issues relating to beds within the Trust, who the outlying patients were in terms of age, gender and specialty, and what happened to outlying patients during their hospital stay in terms of internal transfers between wards, their length of stay in hospital and whether they died at the end of their hospital stay. Consequently, the trend of outliers over the course of one year according to specialty was explored to investigate the nature and scale of the phenomenon, and the demographic characteristics and hospital stays of a sample of outliers were compared to those of the remaining inpatients to demonstrate whether outliers were systematically different, and thereafter to discuss whether outlying patients’ risk of experiencing quality or safety issues may also differ. At the outset it was hoped that this study would prove useful in generating hypotheses about quality of care and patient safety in outliers, and help to inform the design of future research studies and the subsequent interpretation of results.

This chapter will describe the methods and present and evaluate the results of this descriptive study of outliers and other inpatients. The findings of this study are discussed in conjunction with the findings from qualitative interviews with staff and patients in Chapter 8.

### **4.1.2 Research questions addressed**

#### *Trend*

How does the trend of outliers in the Trust vary over the course of one year?

Which wards are outliers placed on?

#### *Demographics*

What are the demographic characteristics of outliers in terms of age, gender and clinical specialty and how do these characteristics compare to the comparative inpatient population?

#### *Outcomes*

What proportion of time is spent by outliers on outlying and specialty wards?

How do outliers and other inpatients compare in terms of the number of times they are internally transferred between wards, length of hospital stay and mortality?

## **4.2 Methods**

Two distinct datasets were created for the analyses presented in this chapter; firstly, a dataset containing information about the outlying patients in the Trust over the course of one year which was compiled to answer questions about the trend of outliers, and secondly a dataset containing more detailed data for outliers and other inpatients present in the Trust during May and November 2008 which was compiled to answer questions about demographics and key outcomes. Both datasets were constructed retrospectively using routinely available data. Construction of the second dataset involved three sequential steps, labelled (a), (b) and (c). The methods used to construct these datasets are described in turn in the following sections. This is followed by a description of the methods of analysis and a statement regarding ethical considerations.

#### **4.2.1 Dataset 1: Data for outlying patients over the course of one year**

Information about all outliers at the study site over the course of one year was extracted from bed managers' reports for the year 1st April 2008 to 31<sup>st</sup> March 2009. This period was selected for study as this research project was begun in April 2009 and data were collected retrospectively due to restraints on resources. Each ward in the hospital was required to complete a 'sleep-out list' every day which provided basic details about any outlying patients currently on the ward. This list was compiled and faxed to the bed manager by 4 am each morning. The bed manager then created a report which contained a single amalgamated sleep-out list detailing the location of all outlying patients in the Trust that day. The purpose of the list was to allow bed managers and clinical staff to keep track of the location of all outlying patients.

The daily sleep-out lists contained the following information about each outlying patient:

- Current ward
- Patient name
- Consultant
- Initial admitting ward
- Ward transferred from
- Transfer date
- Ought to be in ward
- Diagnosis
- Specialty (medical, surgical, elderly, orthopaedic, ENT, gynaecology or plastics)

The daily sleep-out lists produced by the bed managers in the year April 2008 to March 2009 were therefore used to create a dataset containing the above information about all the outliers recorded as present in the Trust over the course of one year.



#### **4.2.2 Dataset 2: Detailed data for outliers and for comparisons between known outliers and other inpatients**

Figure 4.1 presents a flow chart summarising steps (a), (b) and (c) which led to the construction of dataset 2.

*Step (a): Collection of detailed data for outlying patients during one winter month and one summer month*

To obtain more detailed information about the characteristics of outliers in the Trust (for example, age, gender, length of hospital stay and mortality), a sample of outlying patients were explored in greater depth, thus giving additional information to that which was available using the sleep-out lists. Due to the vast number of patients appearing on sleep-out lists in the year April 2008 to March 2009 (approximately 3500 patients) and restraints on resources, outliers who appeared on the sleep-out lists in the months of May 2008 and November 2008 were selected. One summer month and one winter month were chosen to allow for the assessment of seasonal differences, as anecdotally there are more outliers during winter months due to increased hospital admissions. Additional reasons for choosing these months included the fact that the hospital's bed base was restructured in December 2008 with introduction of two new hospital wards, so it was preferable to look at a winter month that would not have been affected by this restructuring. Furthermore, the months of May and November had relatively complete data sets with few days where patient identifiers were missing in comparison to some of the other months in 2008 - 2009.

Initial databases were constructed for each of the chosen months which contained the names and basic details of outlying patients as provided on the May and November 2008 sleep-out lists (current ward, name, consultant, initial admitting ward, ward transferred from, transfer date, ought to be in ward, diagnosis and specialty). The data contained in these databases were sorted primarily according to patient name (alphabetically), and secondarily according to the date that the information was entered onto the sleep-out list. Doing so enabled easy recognition of patients who appeared on sleep-out lists more than once in the same month (patients appeared in the initial database as many times as they had appeared on the sleep-out lists that

month thus patients who were sleep-outs for X number of days appeared X times). This permitted easy identification and removal of duplicates therefore ensuring that detailed data about each individual patient would only be collected once.

The Patient Administration System (PAS) in use at the Trust was thereafter used to collect further information about the outlying patients who appeared on sleep-out lists in May and November 2008. As the only patient identifiable information contained within the sleep-out lists and thus the initial database was patient name, the only way of finding patients in PAS was to search using each outlier's name. Patient names were missing from the sleep-out lists for three days in May and four days in November. Therefore outliers present in the Trust on these days could not be traced. Other identifiers such as hospital number or NHS number were not given on the sleep-out lists. It was possible to accurately identify the correct patient by comparing the information given on the sleep-out list to the information provided in PAS (for example current ward, consultant, initial admitting ward, ward transferred from, transfer date, and diagnosis). Once it was certain that the correct patient information had been located within PAS, further data about the patient were extracted.

The data extracted from PAS for outliers who appeared on sleep-out lists in May and November 2008 comprised:

- Primary diagnosis
- Date of admission
- Date of discharge
- Age in years
- Gender
- Number of ward transfers
- Details of each ward stayed on and transfer dates
- Number of days spent on outlying wards
- Number of days spent on specialty wards
- Length of hospital stay in days to the nearest quarter of a day and additionally to the nearest whole day
- Whether or not the patient died at the end of their hospital stay

In instances in which a patient could not be traced using PAS, the case was marked as such in the database. This enabled calculation of the percentage of patients that were traceable using PAS and consideration of the many possible reasons why some patients were not able to be traced (see section 4.4.2). Once data had been extracted from PAS for outliers who appeared on sleep-out lists in May and November, duplicate databases were created with all patient identifiable information removed.

Detailed data from PAS were successfully extracted for 181 outlying patients out of a possible 266 patients (68%) who appeared on sleep-out lists in May 2008, and for 252 patients out of a possible 320 patients (79%) who appeared on sleep-out lists in November 2008. In total, detailed data from PAS were obtained for 433 out of 586 patients (74%) who appeared on sleep-out lists in May and November 2008. Hereafter, the 433 outlying patients for whom data were extracted from PAS are referred to as the 'known outliers'.

Date of admission did not form part of the inclusion or exclusion criteria for known outliers (the only inclusion criteria were appearance on the May or November 2008 sleep-out lists and ability to locate the patient using PAS), thus 24 of the outliers who appeared on sleep-out lists in May 2008 were actually admitted before 1<sup>st</sup> May 2008 and similarly 26 outliers who appeared on sleep-out lists in November 2008 were actually admitted before 1<sup>st</sup> November 2008.

*Step (b): Collection of data for the comparative inpatient population during one winter month and one summer month*

In order to compare the sample of known outliers to other inpatients admitted to the same hospital at the same time of year, data were obtained for the inpatient population. The inclusion criteria for the comparative inpatient population remained as broad as possible to avoid biasing the results by selecting an unrepresentative group of inpatients as a comparator. The Information Services department at the Trust were therefore requested to provide data for all elective and emergency inpatient admissions to the Trust during May and November 2008 excluding the following:

- Patients aged under 16 years, and patients aged 16 or over admitted to paediatrics
- Maternity admissions
- Early pregnancy assessment unit (EPAU) admissions
- Day case admissions

These exclusion criteria were put in place as paediatric, maternity, EPAU and day case patients are very unlikely to become outliers due to the way in which beds in the Trust were managed. Using these inclusion and exclusion criteria there were 7657 inpatient admissions during this time. At this point the database included the 'known outliers' who were admitted during May or November 2008 and appeared on the May or November sleep-out lists.

The data provided for each inpatient admission meeting the inclusion criteria comprised:

- Age at admission in years
- Gender
- Emergency or elective admission
- Admission date
- Discharge date
- Length of stay in days (to the nearest whole day)
- Specialty
- Discharge method (medical advice / self or relative / died)
- Wards stayed on: name of ward, start date and end date for each ward (enabling calculation of number of internal transfers between wards)

The data supplied by the Trust and the data extracted from the sleep-out lists and PAS were recorded on the same basis, so for example the inpatient population dataset supplied by the Trust recorded the age in years of patients on the date of admission with no decimal places and no rounding, thus the age of 'known outliers' was recorded on the same basis. Similarly length of stay was recorded to the nearest whole day for patients in the inpatient population dataset supplied by the Trust, thus the length of stay of known outliers was calculated on the same basis.

*Step (c): Final dataset for comparisons between outliers and other inpatients admitted during one winter month and one summer month*

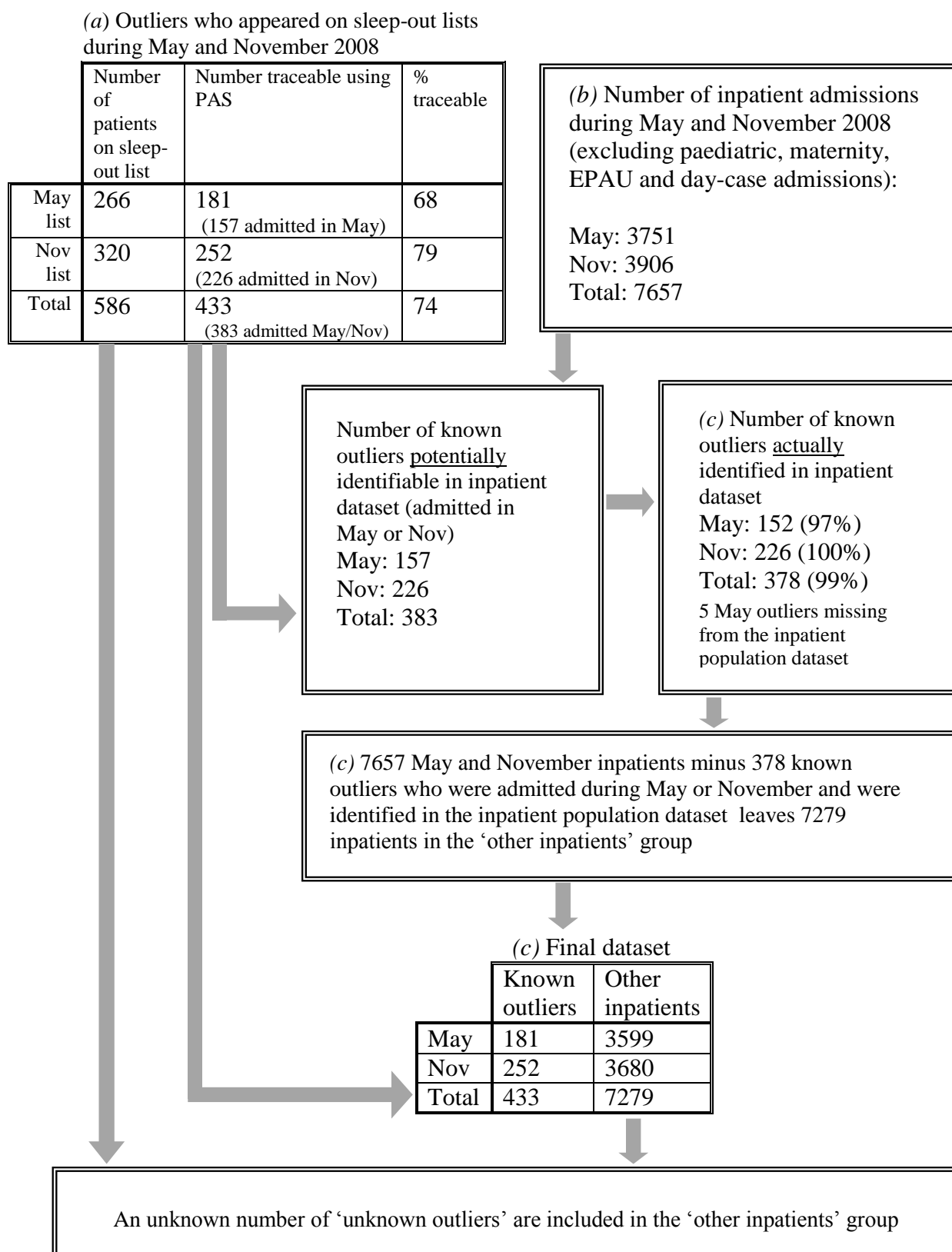
The ‘known outliers’ (whose detailed data had been extracted from PAS) were located within the May and November inpatient population dataset. This was done by sorting the cases in both datasets (May and November ‘known outliers’ and May and November ‘other inpatients’) according to age, gender, admission date, discharge date, wards stayed on and number of transfers. It was subsequently possible to directly compare across the two datasets and identify the known outliers within the inpatient population dataset. This created two groups of patients within the final dataset: 433 ‘known outliers’ and 7279 patients in the ‘other inpatients’ comparative group.

As 24 of the May 2008 ‘known outliers’ for whom detailed data were available were actually admitted during April 2008 and 26 of the November 2008 ‘known outliers’ were actually admitted in October 2008, 50 of the ‘known outliers’ did not appear in the May and November inpatient population database supplied by the Trust. Thus it was only necessary to try to locate 383 (433 – 50) outlying patients who had been admitted in May or November 2008 within the May and November inpatient population database. A total of 378 out of 383 outliers were successfully identified. Data for the five outliers who could not be identified were checked to ensure accuracy during data extraction and accuracy was confirmed. These cases were not paediatric, maternity or EPAU admissions. However, it is probable that they were day case admissions who remained in hospital for longer than planned and thus became outliers, although it was not possible to confirm this using the information available. Data for these five cases were retained within the relevant analyses presented in section 4.3. However, the multivariate analyses were repeated excluding these five patients to assess whether their inclusion had any impact on the results.

Furthermore, up to 153 out of 7279 (2%) people in the ‘other inpatients’ group were outliers that appeared on sleep-out lists in May and November 2008 but were not traceable using PAS. Additionally, a further unknown proportion of the 7279 patients in the comparative group will have been outliers at some point during their hospital stay but were not adequately recorded as such on the sleep-out lists. An

unknown number of outlying patients may also be absent from the sleep-out lists because they were admitted and discharged on the same day thus their details were not recorded on the sleep-out lists which were compiled in the early hours of the morning. Together these patients comprise a sub-group of 'unknown outliers' within the 'other inpatients' group.

Figure 4.1 Flow chart for construction of dataset 2



### **4.2.3 Method of analysis**

Analyses were carried out using Microsoft Excel 2007 and PASW Statistics 18.0 2009.

#### **4.2.3.1 Dataset 1: Data for outlying patients over the course of one year**

Data from the sleep-out lists for the year April 2008 to March 2009 were used to present descriptive statistics showing the trend of outliers over the course of one year, the proportions of outliers from each of the broad clinical specialties, and the wards that outlying patients were placed on.

#### **4.2.3.2 Dataset 2: Detailed data for a sample of known outliers and other inpatients during one summer month and one winter month**

The data collected from PAS were used to produce descriptive statistics demonstrating outliers' diagnoses, the wards outliers ought to have been placed on and the proportion of time spent by outliers on outlying and specialty wards. The final dataset was used to compare age, length of stay, number of transfers between wards, gender, specialty and mortality of the known outliers and the other inpatients. Histograms, bar-charts and tables were used to provide descriptive information and summary statistics for each of the different variables as appropriate.

#### *Univariate analyses*

Univariate analyses provided initial statistical comparisons of known outliers and other inpatients. Comparisons of means were conducted using the large sample  $z$  method; a normal distribution and homogeneity of variances are not required for this test. Pearson's Chi Squared tests were conducted to examine associations between categorical data items. Validity of the test was checked by ensuring that no cells contained expected counts of less than 5.

#### *Multivariate analyses*

Direct (forced entry) logistic regression analyses were performed using PASW Statistics 18 to assess the association between predictors of a variable and the variable itself in terms of the odds ratios, while controlling for potentially confounding factors. Prior to conducting the logistic regression analyses the size of



the sample was considered and it was confirmed that there were sufficient numbers of cases in each category of the categorical predictors. The potential for multicollinearity between predictor variables was also explored by assessing the sensitivity of the model to including and removing predictors. Where necessary, correlation between non-normally distributed continuous variables was assessed using Spearman's Rho. The full models were also run excluding data for the five 'known outliers' who could not be located in the inpatient population dataset to assess the sensitivity of the results to including and omitting these patients.

In the first logistic regression analysis predictors of outlying status (being an outlier or not) were examined. This enabled the determination of whether there were any significant differences between the known outliers and the other inpatients on any of the predictor variables (age, length of stay, gender and specialty), while simultaneously adjusting for each of the other variables. It was decided to omit number of transfers between wards as a predictor within this analysis as internal transfers are frequently a direct part of the mechanism of being an outlier (patients are either transferred for clinical reasons or for non-clinical reasons, the latter being directly implicated in creating outliers). In the second logistic regression analysis predictors of mortality were assessed in order to determine whether there was any significant difference in the mortality of known outliers and other inpatients while adjusting for age, length of stay, gender, and specialty.

The purpose of conducting multivariate analyses was not model building and consequently statistical information relevant to statistical modelling (for example goodness of fit tests and the value of R squared) is not presented in the results section. P-values, odds ratios and 95% confidence intervals for the odds ratios are reported.

#### **4.2.4 Ethical considerations**

Access to the data was approved by the Trust's Caldicott guardian and data collection was undertaken under supervision at the hospital site. The anonymised datasets were stored on a password protected computer within a locked room at The University of York for the purposes of analysis.

## 4.3 Results

### 4.3.1 Dataset 1: Analysis of data for outlying patients over the course of one year

#### 4.3.1.1 The trend of outliers over the course of one year

The total number of outliers in the Trust each day during the period 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009 is plotted in Figure 4.2.

*Figure 4.2 Total number of outliers each day from 1st April 2008 - 31st March 2009*

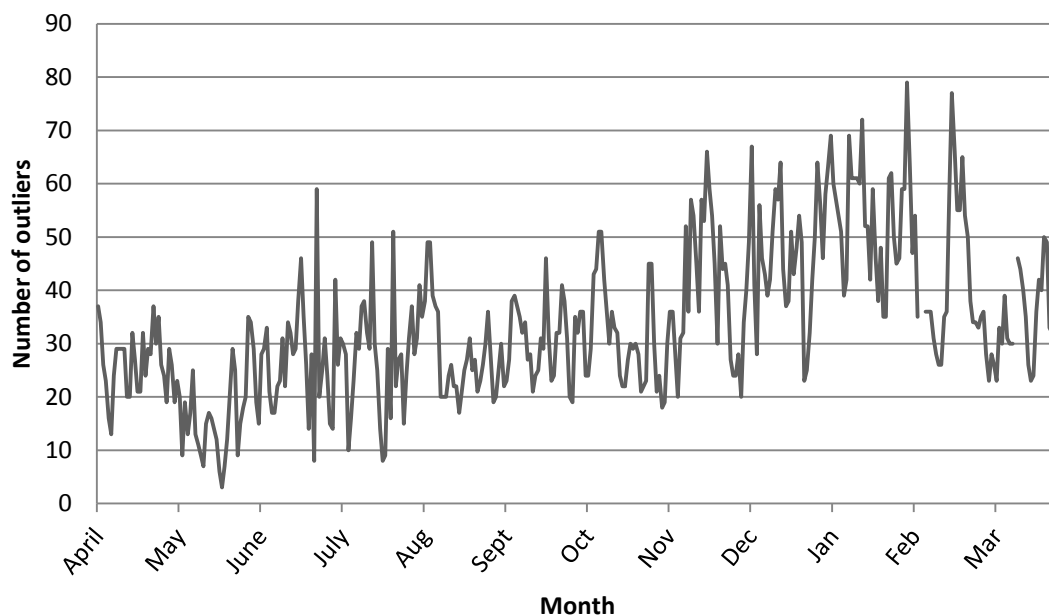


Figure 4.2 demonstrates that there was a great deal of variability in the number of outliers recorded as present in the Trust each day. The Figure also shows an increase in the total number of outliers over the winter months (November, December, January, February). The mean number of outliers present each day during winter months was statistically compared to the mean number of outliers during the summer months (May, June, July, August).

*Table 4.1 Mean number of outliers in the Trust each day in winter months and summer months*

	Summer: 123 days (May, June, July, Aug)	Winter: 118 days* (Nov, Dec, Jan, Feb)	z test	p value	95% Confidence intervals
Mean number of outliers each day	24.72	46.61	z = 13.56	p<0.001	18.71 to 25.07
Standard error	0.94	1.31			
Standard deviation	10.41	14.26			

\*Two days worth of data were missing in February 2009

Table 4.1 shows that the mean number of outliers present each day during winter was almost doubled in comparison to summer. There were a statistically significantly greater number of outliers in the Trust in the winter months ( $p<0.001$ ).

#### 4.3.1.2 The trend of outliers over the course of one year according to clinical specialty

Outliers who appeared on sleep-out lists were recorded as belonging to one of seven broad specialties (medicine, surgery, care of the elderly, orthopaedics, ENT, plastics or gynaecology). The major specialties of outlying patients during the year 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009 were explored to shed light on the proportions of outliers from each of these broad specialties and thereafter to demonstrate how these proportions may vary according to time of year.

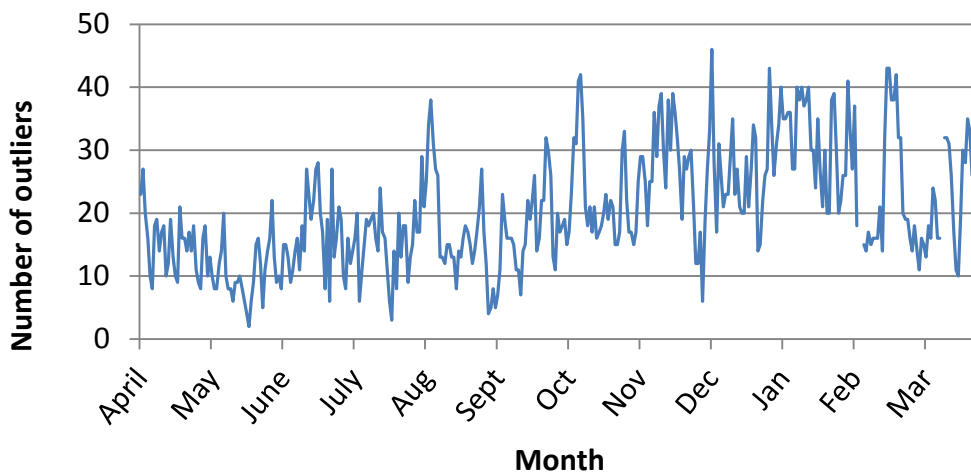
*Table 4.2 Number of nights that patients from each specialty appeared on the sleep-out lists over the course of one year (April 2008 to March 2009)*

Specialty of outlying patients	Number of outlying nights	Percentage (%)
Medical	7380	60.57
Elderly	1984	16.28
Orthopaedic	1468	12.05
Surgical	888	7.29
Plastics	276	2.26
ENT	115	0.94
Gynaecology	74	0.61
TOTAL	12185	100

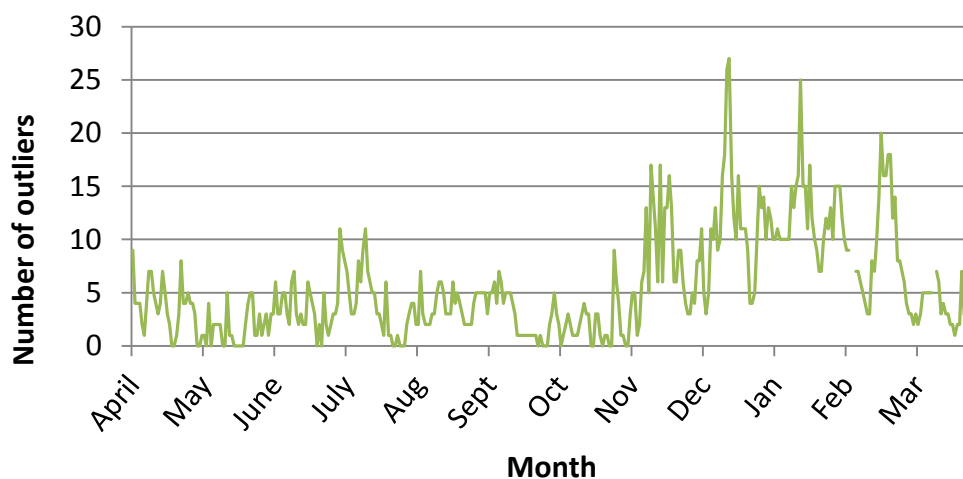
Table 4.2 shows that the majority of outlying nights in the year April 2008 to March 2009 were spent by patients from the medical specialties (7380 days or 61% of outlying days). Few outlying nights were spent by patients from plastics, gynaecology and ENT.

Figures 4.3 and 4.4 demonstrate that the number of medical and elderly outliers increased over the winter months (November 2008 to February 2009). The other broad specialties showed no particular seasonal trend (see Appendix 4A).

*Figure 4.3 Number of medical outliers each day from 1st April 2008 to 31st March 2009*



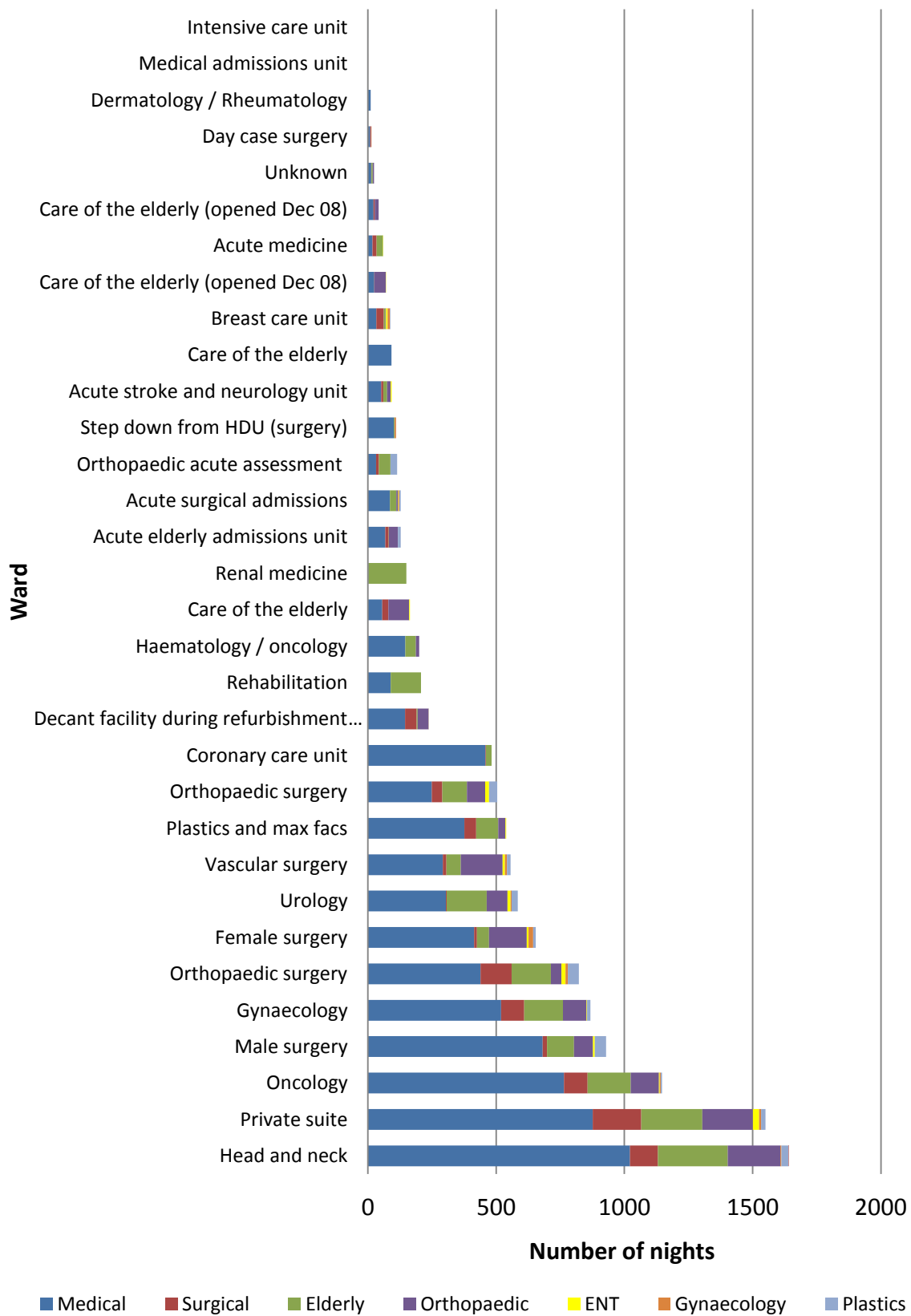
*Figure 4.4 Number of care of the elderly outliers each day from 1st April 2008 to 31st March 2009*



4.3.1.3 Which wards were outlying patients placed on?

The basic data provided in the daily sleep-out lists were used to examine how many nights outlying patients were recorded as having spent on each ward in the year April 2008 to March 2009. Importantly, two of the care of the elderly wards were opened in December 2008, three quarters of the way through the period of study, thus the number of nights spent by outliers on these wards may have increased substantially in subsequent years. It is evident from Figure 4.5 that some wards had many more outliers than others. The head and neck ward, the private suite, the oncology ward, the male surgery ward, the gynaecology ward and one of the orthopaedic surgery wards had a particularly high number of outliers as recorded on the sleep-out lists. Although some wards clearly take more outliers than others, there did appear to be some attempt to place outliers on the most appropriate outlying ward where possible. For example, gynaecology outliers were most frequently placed on the female surgery ward. Similarly there appeared to be an attempt to put outliers from surgical specialties (e.g. orthopaedics, ENT, plastics) on surgical wards.

Figure 4.5 Total number of nights that outlying patients were present on each ward from 1st April 2008 to 31st March 2009 with indication of patients' clinical specialty



### 4.3.2 Dataset 2: Analysis of detailed data for ‘known outliers’

#### 4.3.2.1 Comparison of May 2008 outliers with November 2008 outliers

An initial exploration of any potential differences between the May 2008 outliers and the November 2008 outliers was conducted to determine whether there may be any seasonal differences in the characteristics of outliers. Table 4.3 summarises the comparisons that were made.

Table 4.3 Comparison of May 2008 and November 2008 outliers

	May outliers (n=181)	Nov outliers (n=252)	Statistical test	p value	95% CIs
<b>Mean age (years)</b>	56.45	58.56	z = -0.98	p=0.33	-6.34 to 2.12
Standard deviation	22.7	21.19			
Standard error	1.69	1.34			
<b>Mean number of transfers between wards</b>	1.30	1.42	z = -1.03	p=0.30	-0.33 to 0.10
Standard deviation	1.14	1.09			
Standard error	0.09	0.07			
<b>Mean length of hospital stay (days)</b>	6.37	8.66	z = -2.10	p=0.04	-4.43 to -0.15
Standard deviation	9.67	13.03			
Standard error	0.72	0.82			
<b>Mean number of days on outlying ward</b>	5.54	6.78	z = 1.60	p=0.11	-0.28 to 2.77
Standard deviation	7.21	8.90			
Standard error	0.54	0.56			
<b>Mean number of days on specialty ward</b>	1.34	1.99	z = 1.19	p=0.24	-0.43 to 1.72
Standard deviation	3.79	7.41			
Standard error	0.28	0.47			
<b>Number (%) Female</b>	92 (50.8)	140 (55.6)	$\chi^2 = 0.95$ df = 1	p=0.56	
<b>Number (%) Mortality</b>	4 (2.2)	12 (4.8)	$\chi^2 = 1.93$ df = 1	p=0.71	

There is no evidence for statistically significant differences between May and November outliers when examining age, number of transfers between wards, number of days spent on outlying wards, number of days spent on specialty wards, gender or mortality ( $p>0.05$ ). However, the mean length of stay of November outliers was statistically significantly longer than the mean length of stay of May outliers ( $p=0.04$ ). A breakdown of the proportion of May and November outliers according to broad clinical specialty is presented in Table 4.4. The data for May and November outliers were combined to create one group of patients, referred to as the ‘known outliers’ ( $n=433$ ).

#### 4.3.2.2 Known outliers’ specialties compared to the proportion of inpatients admitted to each specialty

The proportion of patients admitted to hospital under each specialty was compared to the proportion of outliers from each specialty to determine any discrepancies between the two (Table 4.4). These figures were explored for May and November separately to assess any seasonal differences and thereafter for May and November combined.

*Table 4.4 Number and percentage of patients from each broad clinical specialty*

Broad specialty	Number (%) of patients from each specialty					
	May admissions	May outliers	November admissions	November outliers	May and November admissions	‘Known outliers’
Medical	1348 (36%)	99 (54%)	1404 (36%)	166 (66%)	2752 (36%)	265 (61%)
Surgical	895 (24%)	39 (22%)	947 (24%)	12 (4%)	1842 (24%)	51 (12%)
Elderly	487 (13%)	20 (11%)	529 (14%)	40 (16%)	1016 (13%)	60 (14%)
Orthopaedic	331 (9%)	1 (1%)	350 (9%)	20 (8%)	681 (9%)	21 (5%)
ENT	265 (7%)	1 (1%)	256 (7%)	2 (1%)	521 (7%)	3 (1%)
Plastics	217 (6%)	13 (7%)	212 (5%)	10 (4%)	429 (6%)	23 (5%)
Gynaecology	208 (5%)	8 (4%)	208 (5%)	2 (1%)	416 (5%)	10 (2%)
Total	3751	181	3906	252	7657	433



Table 4.4 demonstrates that when directly comparing the May outliers and November outliers in terms of the proportion of patients from each specialty, medical outliers increased in November (from 54% to 66%), elderly outliers increased in November (from 11% to 16%), orthopaedic outliers increased in November (from 1% to 8%), the proportion of ENT outliers stayed the same (1%), plastics and gynaecology outliers decreased in November (from 7% to 4% and 4% to 1% respectively) and the proportion of surgical outliers in November was greatly reduced (from 22% to 4%).

Table 4.4 shows that the greatest proportion of known outliers were from the medical directorate (61%), however, only 36% of all inpatients admitted during May and November 2008 were admitted to a medical specialty indicating excess demand for medical beds within the Trust.

#### 4.3.2.3 Known outliers' diagnoses:

To provide further information about the diagnoses of outlying patients, the primary diagnosis of each of the 433 outlying patients was placed into one of the following categories: gastrointestinal system, respiratory system, musculoskeletal, infection, cardiovascular system, psychiatric, central nervous system, malignant disease, gynaecological and urinary tract disorders, nutrition and blood, skin, ear nose and oropharynx or miscellaneous. The number of outlying patients in each of these categories is presented in Figure 4.6.

*Figure 4.6 Known outliers' broad type of illness*

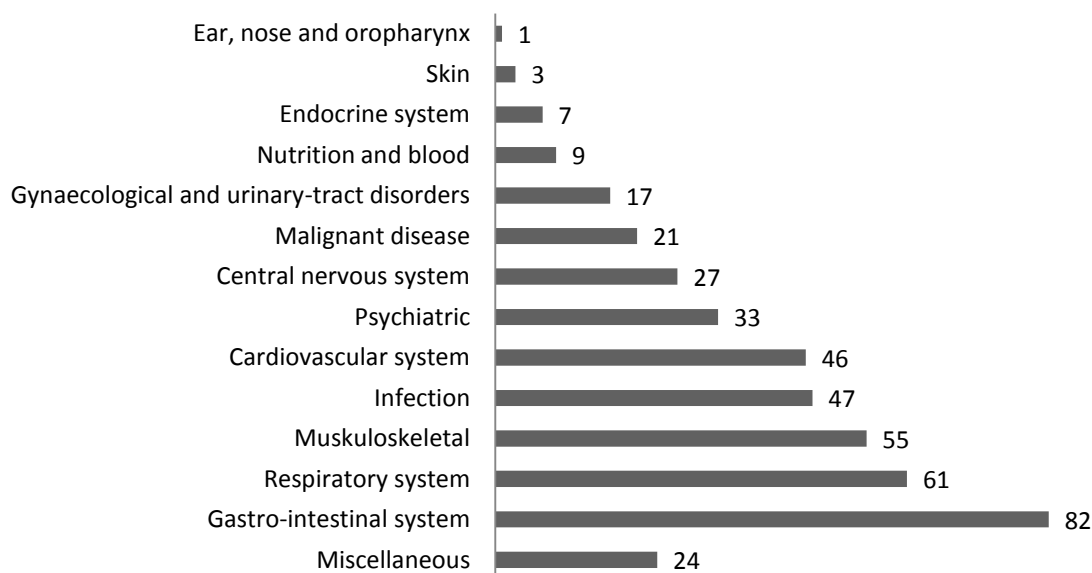
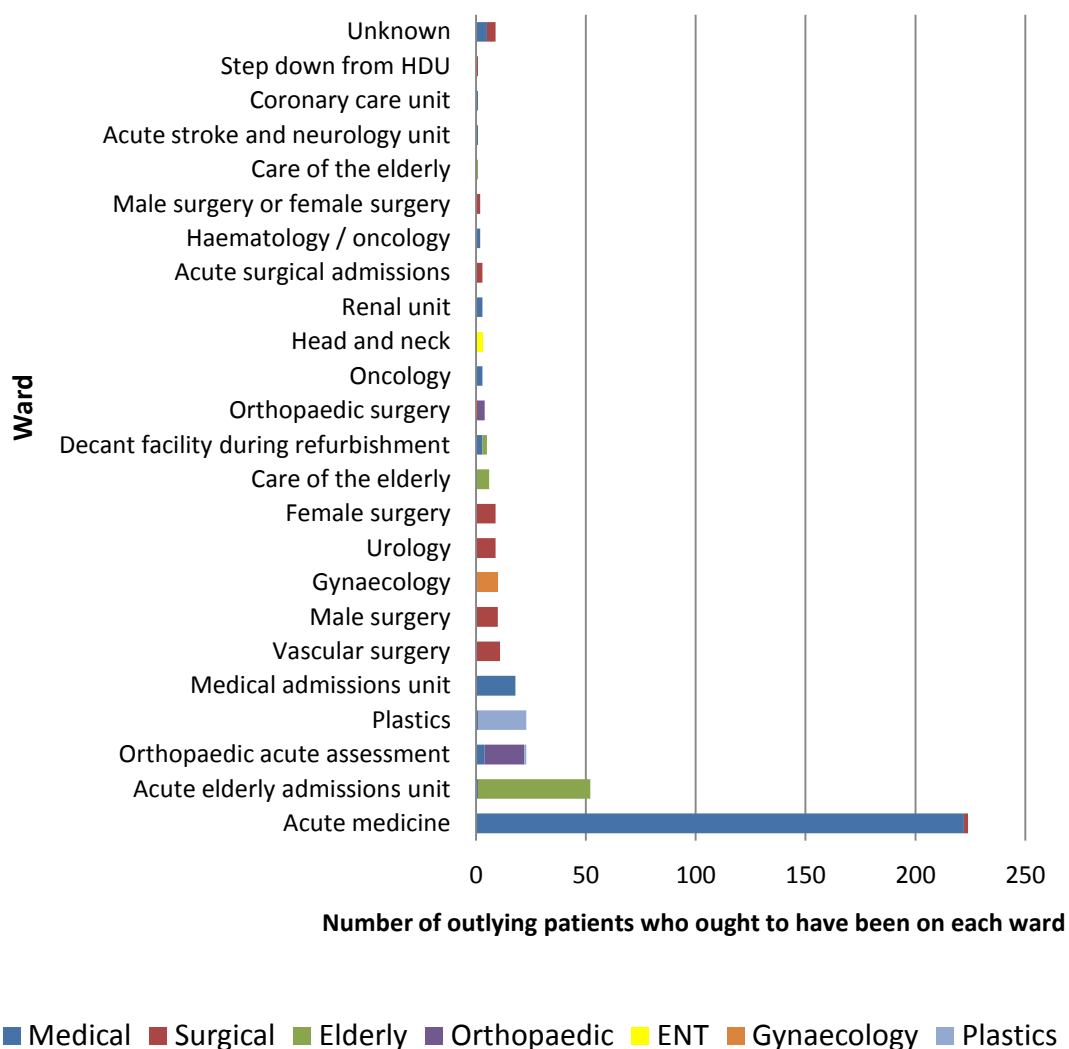


Figure 4.6 begins to demonstrate the wide variety of diagnoses that outlying patients in May and November 2008 were given. It is particularly interesting to note that 35 outliers had a primary diagnosis of mental or behavioural disorder due to use of alcohol, poisoning, overdose or self harm. This relates to a salient point raised in the interview study with NHS staff (section 6.4.2.2) and will be addressed in the discussion (Chapter 8). However, not all of these patients were placed in the 'psychiatric' category as in some cases poisoning could not be confirmed as intentional. These cases were placed in the miscellaneous category along with other patients whose primary diagnosis could not be categorised with confidence due to a lack of information.

4.3.2.4 Wards that known outliers ought to have been placed on

During compilation of the sleep-out list the nurse completing the list is required to indicate which ward they believe each outlying patient ought to be on. Using the data available for the 433 ‘known outliers’, Figure 4.7 was constructed. This figure illustrates that staff recorded that the majority of the outliers (who were predominantly medical patients) should ideally have been allocated a bed on the acute medicine ward.

Figure 4.7 May and November 2008 outliers (n=433): Ward that outliers ought to be on with indication of patients’ clinical specialty



#### 4.3.2.5 The proportion of time spent by known outliers on outlying and specialty wards

The only inclusion criterion for becoming a ‘known outlier’ was that the patient appeared on the May or November sleep-out lists at some point during their hospital stay. Therefore a number of the ‘known outliers’ also spent time on the correct specialty ward for their illness during their stay. Consequently the amount of time spent by the ‘known outliers’ on outlying and specialty wards was assessed using the data extracted from PAS. The length of time spent by outliers on outlying and specialty wards was recorded to the nearest quarter of a day thus descriptive statistics presented in Table 4.5 were calculated on this basis.

*Table 4.5 Mean number of days spent by known outliers on outlying and specialty wards (n=433)*

	Mean	Standard deviation	Standard error of the mean	Min	Max	Median
Number of days on outlying ward(s)	6.26	8.25	0.40	0	101	3
Number of days on specialty ward(s)	1.72	6.16	0.30	0	95	0

The mean number of days spent by the known outliers on outlying wards was 6.26 days in comparison to 1.72 days on specialty wards (Table 4.5). However, as the distributions are positively skewed (Figs. 4.8 and 4.9) it is useful to look at the median values which demonstrate that most outlying patients spent no time on the correct specialty ward.

Figure 4.8 Histogram showing the frequency of the number of days spent by outliers on outlying wards (up to 20 days, outlying data points excluded from figure)

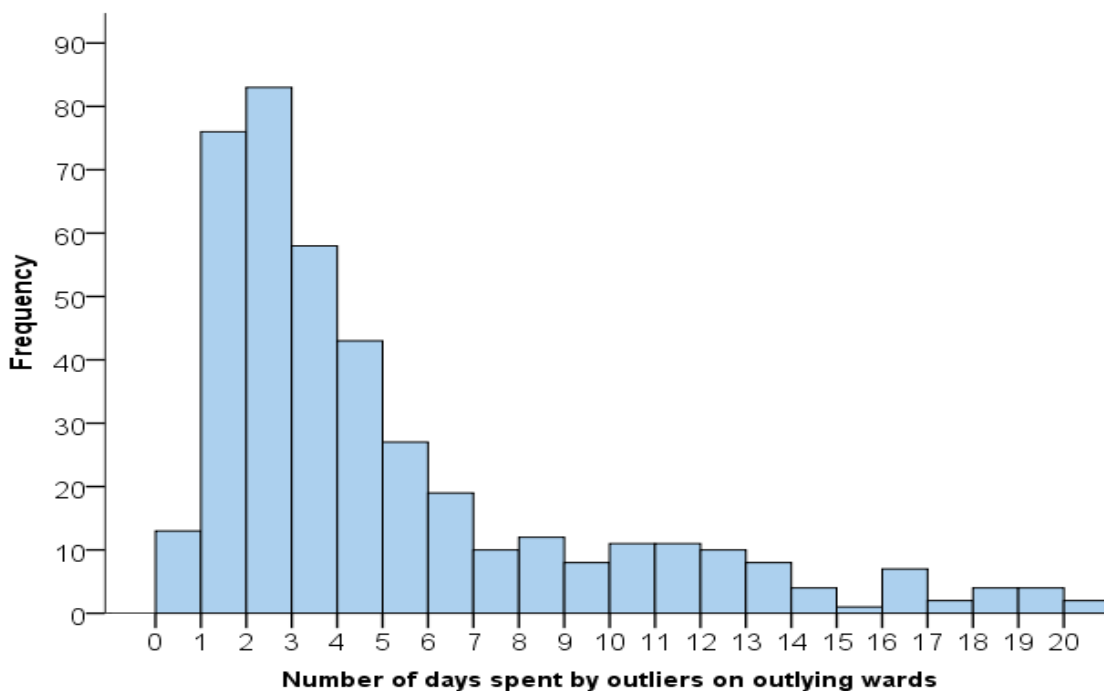


Figure 4.9 Histogram showing the frequency of the number of days spent by outliers on the correct specialty ward (up to 20 days, outlying data points excluded from figure)

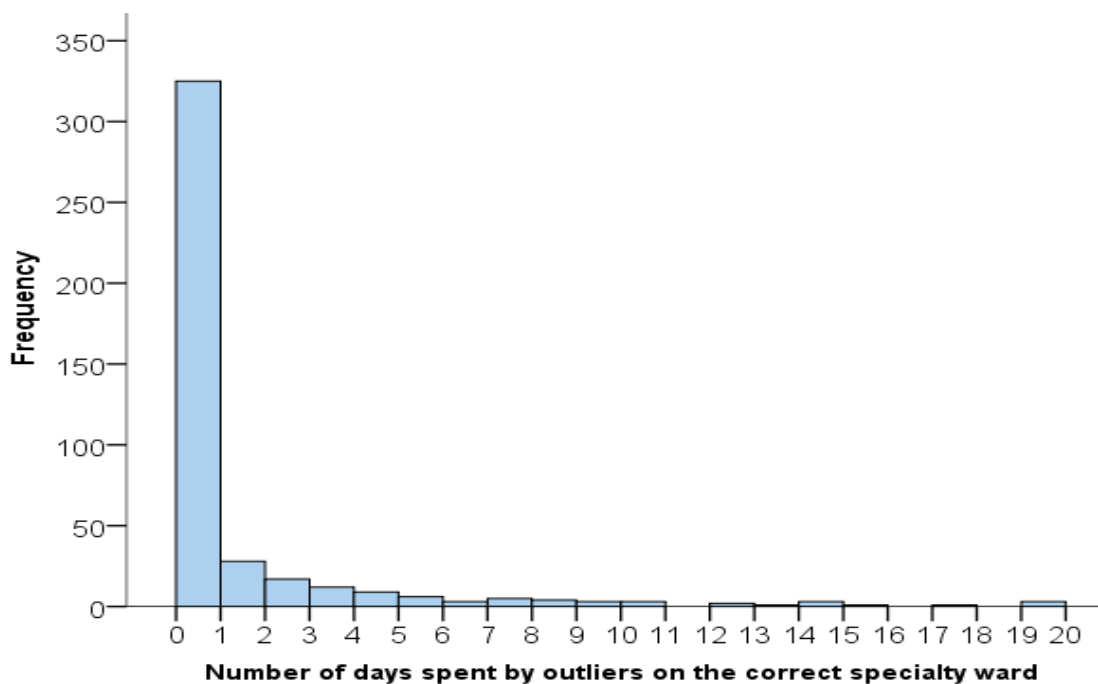


Figure 4.9 shows that the vast majority of the known outliers (325 out of 433 = 75%) spent less than one day on the correct specialty ward for their illness. For those patients who did spend time on the correct specialty ward, examination of the data demonstrated that some patients started on the correct specialty ward and later moved out to outlying wards whereas others were repatriated from outlying wards to the correct specialty ward. A few patients were transferred back and forth between outlying and specialty wards.

As Figures 4.8 and 4.9 do not show the number of patients who stayed on outlying or specialty wards for part of one day, the numbers of known outliers who spent less than one day but part of one day or no time at all on outlying or specialty wards are given in Table 4.6, demonstrating that 308 out of 433 (71%) known outliers spent no time at all on the correct specialty ward during their hospital stay.

*Table 4.6 Number of known outliers who spent no time or less than one day on outlying or specialty wards*

	No time	>No time, <1day
Outlying ward	0	12
Specialty ward	308	17

### 4.3.3 Dataset 2: Analysis of detailed data for ‘other inpatients’

Comparisons were made of the characteristics of the May inpatients and the November inpatients (excluding known outliers), again to determine whether there were any seasonal differences. The findings are summarised in Table 4.7.

Table 4.7 Comparison of inpatients admitted in May and November 2008 (excluding known outliers)

	May 2008 inpatients (n=3599)	Nov 2008 inpatients (n=3680)	Statistical test	p value	95% Confidence Intervals
<b>Mean age (years)</b>	54.73	55.28	z = -1.09	p=0.27	-1.54 to 0.44
Standard deviation	21.55	21.51			
Standard error of mean	0.36	0.36			
<b>Mean length of hospital stay (days)</b>	4.28	4.05	z = 1.13	p=0.26	-0.17 to 0.62
Standard deviation	8.21	8.94			
Standard error of mean	0.14	0.15			
<b>Mean number of transfers between wards</b>	0.47	0.44	z = 1.32	p=0.19	-0.01 to 0.07
Standard deviation	0.87	0.85			
Standard error of mean	0.02	0.01			
<b>Number (%) Female</b>	1929(53.6)	1947(52.9)	$\chi^2 = 0.35$ df =1	p=0.56	
<b>Number (%) Mortality</b>	119 (3.3)	114 (3.1)	$\chi^2 = 0.14$ df = 1	p=0.71	

There were no statistically significant differences between May inpatients and November inpatients when examining age, number of transfers between wards, length of hospital stay, gender and mortality. The May and November inpatients were therefore combined to create a single group of ‘other inpatients’ (n=7279) which were compared to the ‘known outliers’.

#### **4.3.4 Dataset 2: Comparisons between ‘known outliers’ and ‘other inpatients’: Descriptive statistics and univariate analyses**

Descriptive statistics and univariate analyses were initially used to describe and compare the ‘known outliers’ and the ‘other inpatients’.

*Table 4.8 Descriptive statistics and univariate comparisons of known outliers and other inpatients*

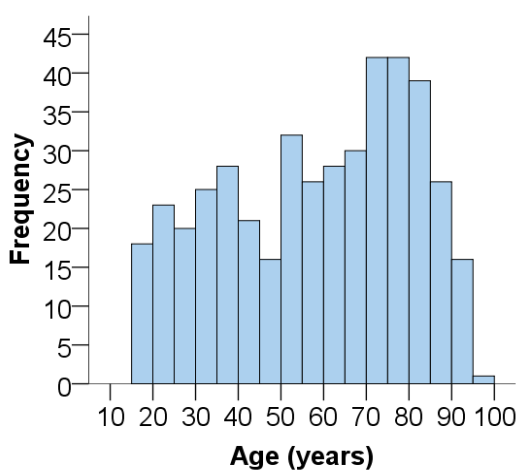
	<b>Known outliers (n=433)</b>	<b>Other inpatients (n=7279)</b>	<b>Statistical test</b>	<b>p value</b>	<b>95% confidence intervals</b>
<b>Mean age (years)</b>	57.67	55.01	$z = 2.47$	$p=0.014$	0.55 to 4.79
Standard error	1.05	0.25			
Standard deviation	21.84	21.53			
Median	61	56			
Range	16 - 95	16 - 102			
<b>Mean length of stay (days)</b>	7.70	4.17	$z = 6.15$	$p<0.001$	2.41 to 4.67
Standard error	0.57	0.10			
Standard deviation	11.78	8.59			
Median	4	1			
Range	0 - 129	0 - 161			
<b>Mean number of internal transfers</b>	1.37	0.46	$z = 16.78$	$p<0.001$	0.81 to 1.02
Standard error	0.05	0.01			
Standard deviation	1.11	0.86			
Median	1	0			
Range	0 - 7	0 - 11			
<b>Gender</b>			$\chi^2=0.018,$ $df =1$	$p=0.893$	
Number (%) female	232 (53.6)	3876 (53.2)			
<b>Specialty</b>			$\chi^2=94.23,$ $df=6$	$p<0.001$	
Number (%)					
Medical	256 (61)	2551 (35)			
Surgical	51 (12)	1778 (24)			
Elderly	60 (14)	956 (13)			
Orthopaedic	21 (5)	653 (9)			
ENT	3 (1)	515 (7)			
Gynaecology	23 (5)	411 (6)			
Plastics	10 (2)	415 (5)			
<b>Mortality</b>			$\chi^2=0.359,$ $df=1$	$p=0.549$	
Number (%) died	16 (3.7)	231 (3.2)			



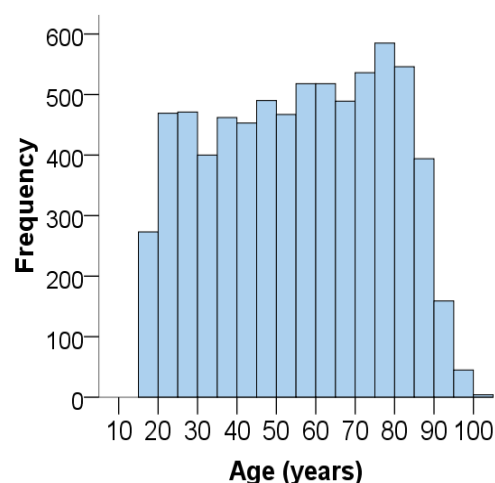
#### 4.3.4.1 Age

Table 4.8 demonstrates a statistically significant difference in the mean age of the ‘known outliers’ (58 years) compared to the mean age of ‘other inpatients’ (55 years) ( $p=0.01$ ) and also shows that the median age of outliers (61 years) is greater than the median age of other inpatients (56 years). Furthermore Figure 4.10 shows that the distribution of the age of outliers is negatively skewed with more patients appearing in the older age bands. This distribution does not appear to be as marked in the inpatient population (Figure 4.11).

*Figure 4.10: Histogram of known outliers’ age (n= 433)*



*Figure 4.11 Histogram of other inpatients’ age (n= 7279)*

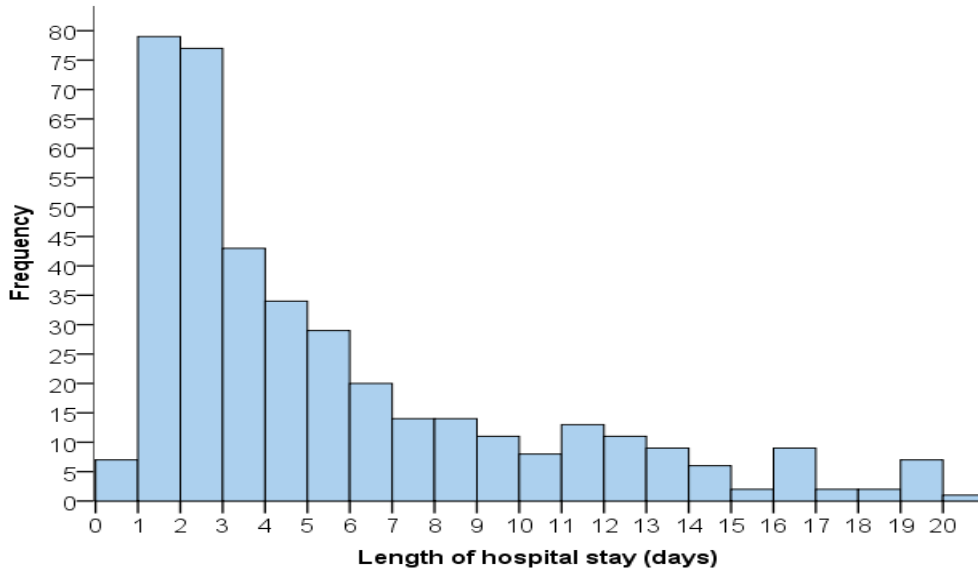


#### 4.3.4.2 Length of stay

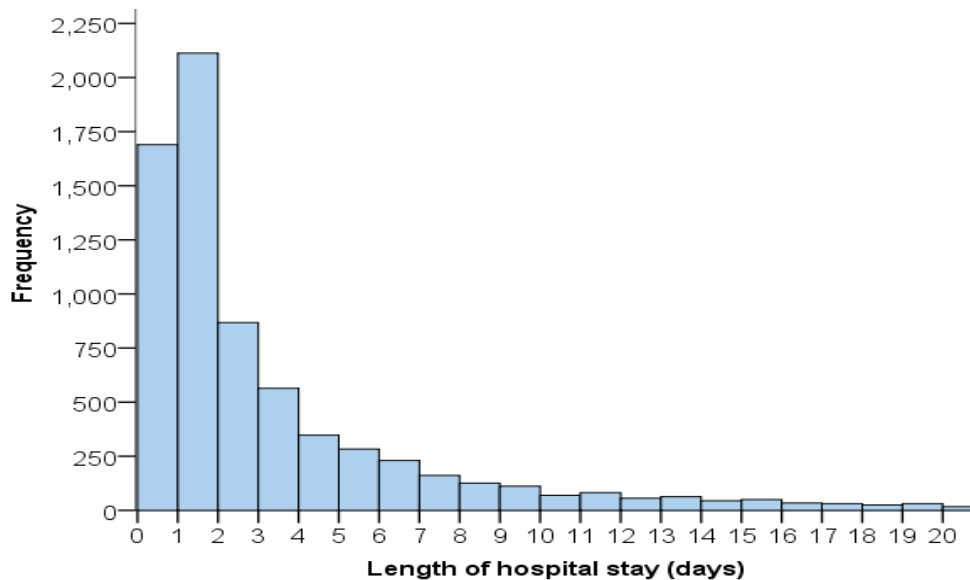
Table 4.8 shows that the mean length of hospital stay of ‘known outliers’ (7.7 days) was statistically significantly greater than the mean length of stay of ‘other inpatients’ (4.17 days), ( $p<0.001$ ). Figures 4.12 and 4.13 demonstrate that the length of stay of both outliers and other inpatients is positively skewed with the majority of patients staying for a relatively short time and a few patients staying for a long time. The figures show that many of the ‘other inpatients’ group had a length of stay of less than one day whereas very few of the ‘known outliers’ stayed for less than one day. Short stay patients may be particularly unlikely to become outliers by virtue of being in hospital for a short time and thus spend their hospital stay on admissions or specialty wards. However, as the sleep-out lists were completed by the wards in the

small hours of the morning, any outlying patients who did not stay overnight would not have been captured and thus placed in the known outliers group.

*Figure 4.12 Histogram showing known outliers' length of hospital stay to the nearest whole day (up to 20 days, outlying data points excluded from figure)*



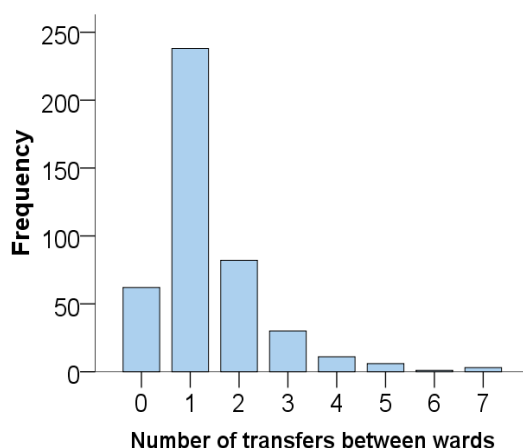
*Figure 4.13 Histogram showing other inpatients' length of hospital stay to the nearest whole day (up to 20 days, outlying data points excluded from figure)*



## 4.3.4.3 Number of transfers between wards

Table 4.8 shows that the mean number of transfers between wards was statistically significantly greater for outliers (1.37) than for other inpatients (0.46), ( $p < 0.001$ ). It is usual for admissions who require an inpatient stay to be transferred from an admissions unit to a specialty ward. However, it is not routine for patients to be transferred between wards multiple times during their hospital stay. Figure 4.15 shows that a relatively small number of patients in the 'other inpatients' group were transferred between wards two or more times. However, the presence of a small number of patients who were transferred numerous times usefully serves to demonstrate that it is likely that there are 'unknown outliers' within the 'other inpatients' group, as it is unlikely that a patient would be transferred for clinical reasons up to eleven times during a single hospital stay. In total 600 out of the 7279 'other inpatients' (8%) were transferred twice or more during their hospital stay, some of whom may be 'unknown outliers'.

*Figure 4.14 Known outliers: bar-chart showing number of transfers between wards (n= 433)*



*Figure 4.15 Other inpatients: bar-chart showing number of transfers between wards (n=7279)*

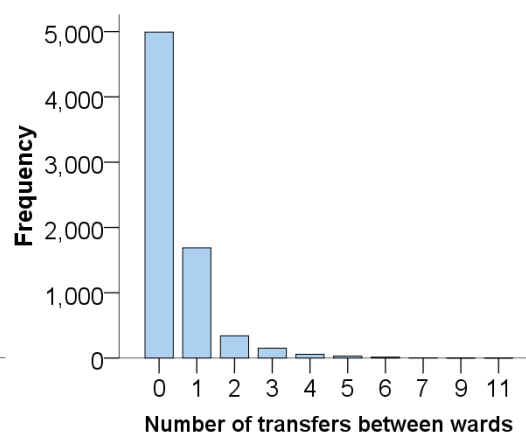


Figure 4.9 and Table 4.6 showed that outlying patients often spend little or no time on the correct specialty ward for their illness. However, Figure 4.14 shows that many outlying patients are transferred between wards twice or more during their hospital stay suggesting the majority of these transfers are made from one outlying ward to another.

#### 4.3.4.4 Gender

The proportions of male and female ‘known outliers’ (53.6% female) appear approximately equal to the proportions of male and female ‘other inpatients’ (53.2% female). Pearson’s chi-squared test (Table 4.8) demonstrated no evidence for an association between outlying status and gender ( $p=0.89$ ).

#### 4.3.4.5 Specialty

Pearson’s chi-squared test was used to examine the association between outlying status and specialty (Table 4.8) and demonstrated a statistically significant difference between the ‘known outliers’ and the ‘other inpatients’ according to the frequency of patients from each specialty ( $p<0.001$ ). Table 4.8 demonstrates that 61% of ‘known outliers’ were from the medical specialties compared to only 35% of ‘other inpatients’. Conversely, only 12% of outliers were classed as surgical compared to 24% of other inpatients. The proportion of ENT patients was also less in the ‘known outliers group’ (1%) than in the ‘other inpatients’ group (7%). The proportions of elderly, orthopaedic, gynaecology and plastics patients were roughly equal across both groups (4% difference or less).

#### 4.3.4.6 Mortality

In the ‘other inpatients’ group, 231 patients (3.2%) died at the end of their hospital stay. In comparison 16 patients (3.7%) in the ‘known outliers’ group died at the end of their hospital stay. Pearson’s chi-squared test (Table 4.8) demonstrated no evidence for an association between outlying status and mortality ( $p=0.55$ ).

Of the 16 ‘known outliers’ who died, seven of these patients appeared to have died on the correct specialty ward for their illness (and may therefore have been repatriated for clinical reasons) whereas nine of these patients appeared to have died on an outlying ward. Four of the deaths were in patients who had been outliers during May 2008 and twelve of the deaths were in patients who had been outliers during November 2008. Basic details regarding the 16 outlying patients who died during their hospital stay are given in Appendix 4B.

**4.3.5 Dataset 2: Comparisons between ‘known outliers’ and ‘other inpatients’:  
Multivariate analyses**

4.3.5.1 Logistic Regression (1): Predictors of outlying status

Direct (forced entry) logistic regression was used to determine whether age, gender, length of stay and specialty were significant predictors of outlying status while simultaneously adjusting for each of the other variables in the analysis. The analysis was run five separate times to look at the effect of including and omitting certain predictors and a further two times to determine whether the results remained unaltered when looking at medical outliers alone. These seven analyses are referred to as models 1 to 7.

Table 4.9 Logistic regression using age, gender, length of stay and specialty to predict outlying status (433 known outliers, 7279 other inpatients)

Variables	p value Unadjusted OR & 95% CIs	p value Adjusted odds ratio (OR) and 95% confidence intervals (CIs)				
		Model 1	Model 2	Model 3	Model 4	Model 5
Age (years)	<u>p=0.01</u> 1.01 1.001 to 1.01	p =0.45 1.002 0.996 to 1.01	p=0.115 1.005 0.999 to 1.01		p=0.169 1.003 0.999 to 1.008	<u>p=0.013</u> 1.006 1.001 to 1.01
Gender <i>Female = baseline</i>	p=0.89 0.99 0.81 to 1.20	p=0.60 0.95 0.78 to 1.16		p=0.58 0.95 0.78 to 1.15	p=0.998 1.00 0.82 to 1.22	p=0.987 0.998 0.82 to 1.21
Length of stay (days)	<u>p&lt;0.001</u> 1.03 1.02 to 1.03	<u>p&lt;0.001</u> 1.02 1.02 to 1.03		<u>p&lt;0.001</u> 1.02 1.02 to 1.03	<u>p&lt;0.001</u> 1.03 1.02 to 1.03	
Specialty <i>Medical = baseline</i>	<u>p&lt;0.001</u> 1	<u>p&lt;0.001</u> 1	<u>p&lt;0.001</u> 1	<u>p&lt;0.001</u> 1		
<i>Surgical</i>	<u>p&lt;0.001</u> 0.43 0.33 to 0.57	<u>p&lt;0.001</u> 0.44 0.33 to 0.57	<u>p&lt;0.001</u> 0.43 0.33 to 0.56	<u>p&lt;0.001</u> 0.44 0.33 to 0.57		
<i>Elderly</i>	p=0.33 0.72 0.54 to 0.95	<u>p=0.008</u> 0.63 0.45 to 0.89	<u>p=0.005</u> 0.62 0.44 to 0.87	<u>p&lt;0.001</u> 0.68 0.51 to 0.90		
<i>Orthopaedic</i>	p=0.11 0.47 0.32 to 0.70	<u>p&lt;0.001</u> 0.47 0.32 to 0.70	<u>p&lt;0.001</u> 0.47 0.32 to 0.7	<u>p&lt;0.001</u> 0.47 0.32 to 0.70		
<i>ENT</i>	<u>p&lt;0.001</u> 0.12 0.06 to 0.28	<u>p&lt;0.001</u> 0.14 0.06 to 0.30	<u>p&lt;0.001</u> 0.13 0.06 to 0.29	<u>p&lt;0.001</u> 0.13 0.06 to 0.30		
<i>Plastics</i>	p=0.08 0.41 0.25 to 0.69	<u>p=0.003</u> 0.45 0.27 to 0.76	<u>p=0.001</u> 0.42 0.25 to 0.71	<u>p=0.002</u> 0.45 0.27 to 0.75		
<i>Gynaecology</i>	<u>p&lt;0.001</u> 0.18 0.09 to 0.39	<u>p&lt;0.001</u> 0.20 0.09 to 0.44	<u>p&lt;0.001</u> 0.20 0.09 to 0.42	<u>p&lt;0.001</u> 0.20 0.09 to 0.42		

Model 1 (Table 4.9) examined the association between each of the predictor variables (age, gender, length of stay and specialty) and outlying status while adjusting for all of the other variables. The length of stay and specialty predictors made unique statistically significant contributions to the model when each of the other predictor variables were adjusted for. Age and gender did not.<sup>1</sup>

In model 1, specialty overall (with the medical specialties adopted as a baseline) was a highly significant predictor of outlying status ( $p < 0.001$ ). The odds ratios demonstrate that medical patients are significantly more likely to become outliers than patients from any of the other broad specialties. Thus conversely, in comparison to medicine, patients from each of the other broad specialty groups (surgery, care of the elderly, orthopaedics, ENT, plastics and gynaecology) are significantly less likely to become outliers. For example, the odds of a care of the elderly patient becoming an outlier are reduced by a factor of 0.63 (37%) in comparison to the odds of a medical patient. Patients admitted to ENT and gynaecology show particularly reduced odds of becoming outliers. Being an ENT patient reduces the odds of being an outlier by a factor of 0.14 (86%) while being a gynaecology patient reduces the odds by a factor of 0.2 (80%) in comparison to the odds for a medical patient. Therefore specialty is evidently an important part of the mechanism of becoming an outlier.

In model 1 the odds ratio for length of stay is very small but highly significant demonstrating that the odds of being an outlier increase by a factor of 1.02 (or 2%) for every additional day spent in hospital, adjusting for all other variables in the model. The mean length of stay of all inpatients (outliers inclusive) in May and November 2008 was 4.36 days. Using this mean length of stay the odds of becoming an outlier would be  $\exp(0.02 \times 4.36) = 1.09$ . Thus the adjusted odds of becoming an outlier are 9% in patients with the mean length of hospital stay.

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<sup>1</sup> The full model was also run omitting data for the five 'known outliers' who could not be located in the inpatient population dataset. No differences in the significance of the results were created as a result of this.

In model 1 the p-values for age and gender are insignificant thus there is no evidence for a significant difference between 'known outliers' and 'other inpatients' in age or gender when each of the other predictor variables are adjusted for. Results of the chi-squared test presented in Table 4.8 had demonstrated no evidence for a relationship between gender and outlying status. However, univariate analysis (Table 4.8) and the unadjusted odds ratios (Table 4.9) demonstrated that the mean age of the known outliers was significantly greater than the mean age of the other inpatients, yet model 1 shows that this significant difference disappears when adjusting for gender, length of stay and specialty. It was hypothesised that the significant difference in age is removed when adjusting for specialty because the known outliers group contained a higher proportion of medical and care of the elderly patients (see Table 4.8) who may be expected to be older than patients from other specialties.

To test this hypothesis the model was re-run using only age and specialty as predictors of outlying status (model 2). In line with this hypothesis age remained an insignificant predictor of outlying status. It is therefore evident that age and specialty are correlated as differences in the odds ratios for age when including and removing specialty demonstrate that the model is unstable due to correlation between these two predictors. This is not surprising as one of the categories of the specialty variable is 'care of the elderly', a specialty which caters for patients aged 77 years and above. To assess the sensitivity of the results to having these two correlated variables in the analysis, the original model was re-run omitting age in the first instance and retaining all other predictors (model 3) and omitting specialty in the second instance while retaining all other predictors (model 4). However, neither of these analyses produced any differences in the significance of the results in comparison to those presented in the full model, model 1.

The model was then run once again with age and gender as the only predictors (model 5). With length of stay omitted from the analysis age once again becomes a significant predictor of outlying status. However, the odds ratio for age is extremely small and the confidence intervals very narrow ( $p=0.01$ , odds ratio 1.006, 95% confidence intervals for odds ratio 1.001 to 1.01).



The results suggest that length of stay is also an important mechanism in becoming an outlier as length of stay is a highly significant predictor of outlying status across models 1, 3 and 4 ( $p < 0.001$ ). Furthermore, the findings suggested that age may be correlated with length of hospital stay as the significant difference in age disappears when adjusting for length of stay (model 4). The relationship between age and length of stay was therefore explored using Spearman rank correlation. It was necessary to use a non-parametric test as both age and length of stay demonstrate skewed distributions (see Figures 4.10, 4.11, 4.12, 4.13). Spearman's  $Rho = 0.29$ ,  $p < 0.001$ . There was significant weak positive correlation between age and length of stay. This suggests that older patients can have a longer length of hospital stay although this is not consistently the case.

Due to correlation between age and specialty, the analyses were continued using data for medical patients, who make up the greatest proportion of outliers, and excluding patients from all other specialties.

*Table 4.10 Medical patients only: predictors of outlying status*

*(n = 256 known medical outliers, 2551 other medical inpatients)*

Variables	p value Unadjusted OR & 95% CIs	p value Adjusted odds ratio (OR) and 95% confidence intervals (CIs)	
		Model 6	Model 7
Age (years)	p=0.93 1.00 0.992 to 1.01	p=0.45 0.997 0.989 to 1.005	p=0.96 1.00 0.99 to 1.01
Gender <i>Female = baseline</i>	p=0.095 0.80 0.61 to 1.04	p=0.12 0.81 0.62 to 1.06	p=0.096 0.80 0.61 to 1.04
Length of stay (days)	<u>p&lt;0.001</u> 1.02 1.02 to 1.03	<u>p&lt;0.001</u> 1.02 1.02 to 1.03	

Model 6 (Table 4.10) demonstrates that for medical patients alone, known medical outliers had a significantly longer length of hospital stay than other medical inpatients when adjusting for age and gender ( $p < 0.001$ ). There was no evidence for a

significant association between outlying status and age or gender, adjusting for the other variables.

Model 5 demonstrated that age became a significant predictor of outlying status when age and gender alone were included as predictor variables due to the fact that there were a greater proportion of medical and elderly patients in the 'known outliers' group. When the analysis is repeated including only medical patients (model 7), age is no longer a significant predictor of outlying status. We can conclude that there is no evidence of a difference in age between the 'known outliers' and the 'other inpatients' when the differences in the proportion of patients from each specialty are taken into account.

#### 4.3.5.2 Logistic Regression (2): Is outlying status a significant predictor of mortality?

Table 4.8 demonstrates that 3.7% of the known outliers died in hospital at the end of their hospital stay compared to 3.2% of other inpatients. However, the comparisons of means (Table 4.8) demonstrated that the outliers were older and had a longer length of hospital stay. Additionally, the proportion of medical patients was greater in the known outliers group. All of these factors may confound any apparent relationship between outlying status and mortality. The odds of death according to outlying status were therefore assessed statistically using direct (forced entry) logistic regression, which permitted adjustment for age, gender, length of stay and specialty. Thus this second logistic regression analysis used mortality as the outcome and outlying status, age, gender, specialty and length of stay as predictors (model 8, Table 4.11).

Table 4.11 Logistic regression using age, length of stay, gender, specialty and outlying status to predict mortality

(n = 433 known outliers - 16 deaths, 7279 other inpatients - 231 deaths)

Variables	p value Unadjusted OR & 95% CIs	p value Adjusted odds ratio (OR) & 95% confidence intervals (CIs)
		Model 8
Age (years)	<u>p&lt;0.001</u> 1.07 1.06 to 1.08	<u>p&lt;0.001</u> 1.07 1.05 to 1.08
Length of stay (days)	<u>p&lt;0.001</u> 1.04 1.03 to 1.05	<u>p&lt;0.001</u> 1.03 1.02 to 1.04
Gender (Female = baseline)	p=0.75 0.96 0.74 to 1.24	p=0.25 1.17 0.90 to 1.53
Specialty (Medical = baseline)	<u>p&lt;0.001</u> 1	<u>p&lt;0.001</u> 1
<i>Surgical</i>	<u>p=0.011</u> 0.60 0.40 to 0.89	<u>p&lt;0.001</u> 0.45 0.30 to 0.68
<i>Elderly</i>	<u>p&lt;0.001</u> 3.99 2.99 to 5.32	p=0.33 0.83 0.57 to 1.21
<i>Orthopaedic</i>	<u>p=0.001</u> 0.18 0.07 to 0.50	<u>p&lt;0.001</u> 0.12 0.04 to 0.33
<i>ENT</i>	<u>p=0.004</u> 0.18 0.06 to 0.57	<u>p=0.005</u> 0.19 0.06 to 0.60
<i>Plastics</i>	<u>p=0.009</u> 0.07 0.01 to 0.52	<u>p=0.013</u> 0.08 0.01 to 0.58
<i>Gynaecology</i>	<u>p=0.01</u> 0.08 0.01 to 0.54	p=0.11 0.20 0.03 to 1.46
Outlying status (other inpatients = baseline)	p=0.55 1.17 0.70 to 1.96	p=0.54 0.85 0.50 to 1.46

In Table 4.11, the unadjusted odds ratio demonstrates statistically insignificant yet increased odds of mortality for known outliers in comparison to other inpatients (OR=1.17), yet in model 8 the adjusted odds ratio suggests reduced odds of mortality for known outliers in comparison to other inpatients (OR=0.85), however this is not statistically significant. Thus there is no evidence for a significant difference in the mortality of the known outliers and the other inpatients, adjusting for age, length of stay, gender and specialty (p=0.54).

Statistically significant predictors of mortality included age, length of stay and specialty (model 8). For each additional year in age the odds of mortality are increased by a factor of 1.07 (7%). Similarly, for each additional day spent in hospital the odds of mortality increase by a factor of 1.03 (3%). The odds of death in surgical, orthopaedic, ENT and plastics patients were significantly less than the odds of death in patients from the medical specialties. There was no significant difference in the odds of death for care of the elderly or gynaecology patients in comparison to medical patients, adjusting for each of the other variables.<sup>2</sup>

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<sup>2</sup> The analysis was repeated excluding the data for the five ‘known outliers’ who could not be located in the inpatient population dataset. No differences in the significance of the results were created as a result of this.

## **4.4 Discussion**

This discussion section provides a summary of the results, evaluates the methodology adopted and discusses the results in relation to prior research. A table which succinctly summarises the key findings is presented in Chapter 8 (Table 8.1). Chapter 8 integrates the results presented in this chapter with the other findings presented in this thesis. Within Chapter 8, the implications of the research for policy and practice are offered and recommendations for future research are made.

### **4.4.1 Summary of results**

This descriptive study explored the trend of outlying patients in a single large NHS teaching hospital over the course of one year (April 2008 to March 2009) and compared the age, length of stay, number of internal transfers, gender, specialty and mortality of a sample of known outliers to the other inpatients admitted during the same months (May and November 2008).

The total number of outliers present in the Trust increased over the winter months (November to February); with almost double the mean number of outliers each day in winter in comparison to summer. When looking at this trend by specialty it was evident that medical and care of the elderly outliers demonstrated an increase over the winter months. The largest proportion of outliers were from the medical specialties, followed by care of the elderly, orthopaedics, surgery, plastics, ENT and lastly gynaecology. The wards that outliers were most frequently placed on were: head and neck, the private suite, oncology, male surgery, gynaecology, and orthopaedic surgery.

Comparisons of outliers admitted in May 2008 with outliers admitted in November 2008 revealed that the November outliers had a significantly longer length of hospital stay. There was no evidence for differences in age, gender, number of internal transfers between wards, number of days spent on outlying wards, number of days spent on specialty wards or mortality. Again, the majority of both May and November outliers were from the medical specialties. The proportion of medical,

elderly and orthopaedic outliers increased in November in comparison to May while the proportion of surgical outliers decreased.

The May and November 2008 outliers were combined to create a single group of 'known outliers'. While only 36% of May plus November inpatient admissions were categorised as being under the medical specialties, 61% of the known outliers were from the medical specialties indicating excess demand for medical beds. The known outliers had a broad range of primary diagnoses. The majority of the known outliers ought to have been placed on the acute medicine ward. Approximately 71% of the known outliers spent no time at all on the correct specialty ward for their illness during their hospital stay.

Univariate statistical comparisons revealed that the mean age of the known outliers was significantly greater than the mean age of other inpatients. The mean length of stay of the known outliers was significantly greater than the mean length of stay of other inpatients. The mean number of transfers between wards made by outliers was significantly greater than the mean number of transfers made by other inpatients. There was a significant difference in the proportions of outliers and other inpatients categorised under each broad clinical specialty. There was no evidence for an association between patients' gender and outlying status and there was no evidence for a difference in mortality of known outliers and other inpatients.

However, the univariate comparisons between known outliers and other inpatients were subject to the influence of confounding factors, therefore multivariate analyses were conducted. The first logistic regression analyses examined predictors of outlying status in a series of seven models in order to determine whether there were any differences between the known outliers and the other inpatients in age, gender, length of stay or specialty while adjusting for each of the other variables. Internal transfers were omitted from the analyses as being transferred between wards is part of the mechanism of becoming an outlier. The full model demonstrated no evidence for a significant difference in gender of known outliers and other inpatients, adjusting for the other predictor variables. The known outliers had a significantly longer length of hospital stay than the other inpatients, adjusting for age, gender and specialty. Known outliers were significantly more likely to come from medicine than

from any other specialty, adjusting for age, gender and length of stay. In contrast to the univariate analysis, when adjusting for specialty the significant difference in age between known outliers and other inpatients disappeared. Additionally, when the analysis was repeated with medical patients only, there was no evidence for a significant difference in the age of medical outliers and other medical inpatients, adjusting for gender and length of stay.

A second logistic regression analysis was conducted to determine whether there was a difference in the mortality of known outliers and other inpatients while adjusting for age, gender, specialty and length of stay and demonstrated no evidence for a difference. There were 16 deaths in the known outliers group: 7 deaths appeared to have occurred on the correct specialty ward thus patients may have been repatriated for clinical reasons whereas 9 deaths occurred on outlying wards.

#### **4.4.2 Evaluation of methodology**

##### 4.4.2.1 Data collection

The interpretation of the results must entail an assessment of the quality of the data that were available for this retrospective study as the data provided in the sleep-out lists were often incomplete. Precise compilation of the bed managers' reports of the outliers in the Trust each day was reliant upon human input and therefore prone to inaccuracy.

Firstly, the accuracy of the data depended on each ward having correctly compiled a list of all the outlying patients on that ward overnight throughout the study period. It was evident that this task was not always completed precisely as specific details about individual patients were occasionally missing. For example, one entry read "12 medical patients" instead of detailing each individual patient and another read "Mr. A.". Additionally, by looking at the figure which shows the total number of outliers in the Trust each day over the course of one year (Figure 3.2), it appears that there is a lot of variation in reporting, demonstrating few outliers one day and many more the next. It is anticipated that the curve would be smoother if reporting was accurate.

Due to the inaccuracy of the data contained within the sleep-out lists there were a number of instances in which it was not possible to trace patients who appeared on the sleep-out lists in May and November 2008 using PAS. On occasion, insufficient detail regarding patients' names was provided on the sleep-out list. For example, omission of a patient's forename or surname. This rendered searching for the patient using PAS impossible as no other patient identifiers were provided on the sleep-out lists. Additionally, there were a number of instances in which it came to light that a patient's name had been spelt incorrectly on the sleep-out list. By searching for a name with a similar sound but different spelling (for example Catherine, Katharine, Kathryn) it was sometimes possible to locate the correct patient by cross checking all the other available information. It is thought that there were instances in which it was not possible to trace patients using PAS because their names had been spelt incorrectly on the sleep-out lists. This may constitute a potential bias in the results if a subset of patients could not be traced due to a systematic difference related to their name (for example incorrect spelling of the names of people from ethnic minorities).

Furthermore, it is possible that those outlying patients who had longer lengths of stay were easier to trace than outlying patients with shorter lengths of stay as the longer patients stay, the greater the opportunity for their details to be recorded with accuracy on the sleep-out list. This is a potentially important source of bias, particularly as it was demonstrated that outlying patients had a significantly longer hospital stay than other inpatients.

Additionally, missing data often occurred at weekends when staffing levels are generally lower thus accurate reporting of the outliers on each ward may be compromised. Due to incomplete data within the sleep-out lists it is therefore not possible to know how many individual patients were outliers in May and November 2008 in addition to the 586 for whom very basic data were available. It is not thought that there is systematic bias in the missing data that is related to patients' characteristics, with the exception perhaps that outliers who have a very short length of stay or who stay in hospital over the weekend may be less likely to have their information recorded on the sleep-out lists. The proportion of patients that were traceable from each specialty was comparable to the proportion of outliers from each



specialty suggesting that missing data was not influenced by the patients' clinical specialty. This implies that there is probably no single directorate whose wards are worse at accurately compiling sleep-out lists.

Consequently, data were successfully extracted from PAS for 68% of the May 2008 outliers and 79% of the November outliers. The 11% difference in traceable patients may indicate that recording of sleep-outs improved between May and November. This may be related to the fact that a new nursing post was created during the winter of 2008 whereby a nurse actively used the sleep-out lists to visit the outliers in the Trust each day to help facilitate their management and discharge.

Errors are likely to occur when the staff on each ward compile the sleep-out list early each morning. It is understandable that this procedure is a relatively low priority so patient information is often recorded inaccurately. The accuracy of the data also depends upon the bed manager correctly synthesising the information provided by each ward into a single document which provides details of all of the outliers in the Trust each day. It is possible that this task was not always executed precisely leading to errors or omissions in the databases that were constructed for the purposes of this study. Poor quality data is a problem often encountered in research studies that utilise routinely collected data rather than data that are collected for the sole purpose of research (Martin, 2005). However, in addition to compromising the quality of the data in this retrospective study, these data entry errors may create problems when consultants and other health care professionals are trying to locate their patients using the sleep-out lists and when bed managers are trying to resolve issues with bed allocation.

Finally, mistakes may have been made in the data extraction carried out for this study. It would not have been feasible to carry out double data extraction or additional checking of the data due to restraints on resources and time. Data extraction was objective and involved copying across information recorded on the sleep-out lists and the Patient Administration System. The exception to this was the recording of 'time spent by outliers on outlying and specialty wards' which was judged subjectively using the data in PAS in conjunction with information available about patient diagnosis, current (outlying ward) and the ward that the patient ought

to be placed on. Therefore, the time spent by known outliers on the correct specialty ward and outlying wards may have been under or overestimated if the patients' diagnosis or clinical needs changed during their hospital stay, thus the figure suggesting 71% of the known outliers spent no time on the correct specialty ward during their hospital stay is an estimate.

Due to the fact that data were collected retrospectively using routinely available sources of information, data on some potentially important factors could not be collected. For example, had it been available, data which enabled an estimate of the severity of illness of outliers and other inpatients may have been of great use in discussing and providing potential explanations for the results, particularly the observations that known outliers had a significantly longer length of hospital stay yet there was no evidence for a significant difference in mortality. Furthermore, the data available could not be used to make inferences about the numbers of patients with co-morbid illnesses as patients were assigned to a single broad clinical specialty. Additionally, Alameda & Suárez (2009) found that outliers were significantly more likely to have been admitted on a weekend or a bank holiday than patients placed on the correct specialty ward. This was not assessed or adjusted for in the present study as their paper was published after data collection had finished. Alameda & Suárez (2009, p766) point out that the pitfall of retrospective studies and routinely collected data is that this design "impairs the study of confounding factors".

Furthermore, as the present study utilised routinely available data, it was not possible to collect information on outcome variables which could be used to indicate differences in the quality or safety of care of outliers and other inpatients (length of stay, transfers and mortality aside). For example, the present study did not extract data on infection, haemorrhage or venous thromboembolism, as was studied by Alameda and Suárez (2009). With hindsight it would have been possible to extract data on readmission (e.g. within 30 days) using information available from the patient administration system. However, this may have been complicated dependent on whether patients were readmitted with the same problem or a different problem.

4.4.2.2 Case definition: Defining ‘known outliers’ and ‘other inpatients’

The potential for problems related to case definition of outliers and other inpatients have been considered. The definition of an outlier given in the Trust’s bed management policy at the time that this study was taking place was “any patient who occupies a bed outside of the clinical directorate bed base”. Thus using this definition a medical patient on a medical ward that does not strictly conform to the patient’s specialty is not classed as an outlier whereas a medical patient on a surgical ward is. However, this classification system appeared to be inconsistent and subjective. During the data extraction process there were numerous instances in which medical patients on medical wards were recorded as being outliers. The same was true of the surgical and orthopaedic specialties. However, even where these potential discrepancies arose, data were used exactly as recorded on the sleep-out lists.

There are potentially two reasons for the discrepancy between the Trust’s definition of an outlier and the reality of the classification. Firstly, medical patients may be admitted directly to an outlying ward, bypassing assessment and allocation to a consultant on an admissions ward. Until such patients have undergone a senior medical review they are classified as outliers regardless of the ward they are placed on. Secondly, assessment of the appropriateness of a patient’s bed allocation is usually based on the patient’s clinical need (See Chapter 6 section 6.4.2.1). It depends upon the specific condition of the patient as to whether an alternative ward may be more appropriate for their needs. An uncomplicated medical patient may be placed on a medical ward that does not strictly conform to the patient’s specialty but because they are easily cared for by that ward they would not be considered an outlier. Conversely, a medical patient with complex needs who is placed on a medical ward that does not strictly conform to the patient’s specialty may be considered to be an outlier because their needs may be better catered for on the correct specialty ward. Therefore the working definition of an outlier has a degree of subjectivity and is dependent on the view of the person making the classification. Consequently, at the time of writing, the definition of an outlier as given in the bed management policy was not used consistently across the Trust.

An additional matter which complicates the study of outliers is the fact that patients may spend time on both outlying and specialty wards, and perhaps admissions units, during their hospital stay. Patients may initially start their hospital stay on a specialty ward and then move to an outlying ward, or conversely be repatriated to the correct specialty ward from an outlying ward. Furthermore, patients may be moved between different outlying wards during their hospital stay, for example when a ward shuts overnight or on a weekend. This renders recording an accurate measure of 'exposure' (time spent on outlying wards versus time spent on specialty wards) difficult. For the purposes of this study a 'known outlier' was a patient who was recorded on the sleep-out lists as residing on an outlying ward at some point during their hospital stay. Therefore 'known outliers' may or may not have spent time on the correct specialty ward for their illness and the proportion of time spent by these patients on outlying and specialty wards varied. In section 4.3.2.5 an exploration of the time spent by a sample of known outliers on outlying and correct specialty wards was presented and demonstrated that a minority of the sample of outliers (29%) spent time on the correct specialty ward for their illness at some point during their hospital stay. A further group of outliers consists of patients for whom there is no correct specialty ward at the study site. Pain management (as highlighted by one of the patient interviewees in Chapter 7) is an example of this.

During interpretation of the analyses it is therefore important to remember that not all of the 'known outliers' were outliers for the whole of their hospital stay. Although for the purposes of statistical analyses this was perhaps not ideal, it reflects real life and thus has the benefit of being more generalisable and less biased than findings based on highly selective samples of patients.

Furthermore, as it was only possible to extract detailed data from PAS for 433 out of 586 patients (74%) who appeared on the May and November sleep-out lists, there would have been 153 'unknown outliers' who were recorded as having spent time on an outlying ward during May or November 2008 within the 'other inpatients' group (equivalent to 2%). Furthermore Figure 4.15 demonstrated that a number of the 'other inpatients' were transferred between wards multiple times during their hospital stay. It is unlikely that patients would be transferred between wards multiple times for purely clinical reasons. As a rough guide 600 of the 7279 other inpatients

were transferred between wards twice or more during their hospital stay which equates to 8%. A further unknown proportion of the 'other inpatients' group consists of patients who spent time on an outlying ward during May or November 2008 but whose details were not recorded on the sleep-out lists. For example, a number of outlying patients may be absent from the sleep-out lists because they are admitted and discharged on the same day thus their details are not recorded on the sleep-out list which is compiled in the early hours of the morning. In sum, presence of 'unknown outliers' within the other inpatients group may have diluted any differences between the known outliers and the other inpatients as this would have made the two groups more similar.

Finally, each individual case had been assigned to a single broad clinical specialty. This may provide an inaccurate representation of the specialty data as patients with co-morbid illnesses may not fit neatly into a single clinical specialty.

#### 4.4.2.3 Overall strengths and weaknesses

Aside from issues relating to the quality of the routinely available data and case definition, perhaps the major limitation of this study is the potential lack of generalisability to other NHS hospitals as the study was conducted using data from a single Trust. Furthermore, in the case of the mortality comparison in particular, the sample sizes adopted may have made the statistical comparison underpowered to detect an effect due to the relatively small number of deaths in each group. However, due to the lack of empirical research in this area, a small scale exploratory study is justified. A particular strength of the study was the use of samples which captured the whole of the relevant patient population during the specified time periods (and therefore included patients with a variety of diagnoses). Furthermore, the use of routinely available data proved to be a relatively fast and inexpensive research method. The results yielded were consistent with prior research (for example, Alameda & Suárez, 2009) and no unusual or surprising results were gained. Therefore, the methods adopted were a good way to begin to explore the epidemiology of outlying patients in terms of trend, demographics and outcome.

### **4.4.3 Discussion of results**

#### **4.4.3.1 Dataset 1: The trend of outliers over the course of one year**

The results demonstrated an increase in the number of medical and elderly outliers over the winter months and therefore an increase in the total number of outliers over the winter months. This is in line with the findings of Fullerton & Crawford (1999) who found that the number of medical, orthopaedic and elderly inpatients in a single large teaching hospital peaked over the winter months due to increased hospital occupancy. Over-occupancy during winter is due to a combination of increased admissions (DoH, 2004), longer lengths of hospital stay (Douglas *et al.* 1991) and delayed discharges (Rae *et al.* 1997); in particular as a result of the increased number of people admitted with respiratory conditions and heart problems during spells of colder weather (Donaldson & Keatinge, 1997). Further discussion of the causes and consequences of increased numbers of outliers over winter and the resulting effect on admissions, discharges, occupancy and length of stay and the subsequent effect on quality and safety of care is presented in Chapter 8.

The results clearly showed that the majority of outlying patients came from the medical specialties and ought to have been placed on medical wards. For example, Figure 4.7 suggests that beds on acute medicine were in great demand. It is however possible that the nurses erroneously recorded that some of the outlying patients ought to be on the acute medicine ward due to force of habit or because they were unsure where the patient ideally ought to be. It follows that outliers were usually placed on wards which rarely had to sleep-out their own patients as the data presented in Tables 4.4 and 4.8 demonstrated relatively low numbers of ENT, surgical, gynaecology and orthopaedic outliers in comparison to outliers from the medical specialties and care of the elderly. Section 8.3.2.2 provides further discussion as to why medical patients most commonly become outliers.

4.4.3.2 Dataset 2: Comparisons of known outliers and other inpatients

- *Age*

The known outliers in this study were significantly older than the other inpatients, and multivariate analysis demonstrated that this was due to the greater proportion of medical and care of the elderly patients in the known outliers group. When looking at medical outliers and medical inpatients alone, there was no evidence for a significant difference in age between the two groups. Similarly, Alameda and Suárez (2009) found no evidence for a significant difference in the age of heart failure patients treated on specialty and outlying wards.

Age was of particular interest as many previous studies have demonstrated a significant positive association between age and adverse events, in particular falls and adverse reactions to medication (for example Leape *et al.* 1991, Brennan *et al.* 2004, Baker *et al.* 2004, Davis *et al.* 2002, Thomas & Brennan, 2000). However, Thomas and Brennan (2000) used multivariate analysis to look at the effect of age on adverse events and when adjusting for indicators of illness severity, age was no longer a significant predictor of adverse events. Therefore Thomas and Brennan's study demonstrated that adverse events were more frequent in patients aged 65 years and older because of the complexity of care required by older patients; for example increased interventions, a greater number of drugs and the reduced ability of patients to compensate for errors physiologically.

- *Gender*

There was no evidence for an association between outlying status and gender and therefore no indication that excess demand for beds is gender specific in this particular Trust. Alameda & Suárez's (2009) study also demonstrated no evidence for a difference in gender according to outlying status.

- *Specialty*

In their study, Alameda & Suárez (2009) recommended that future research investigating the characteristics of outliers should include patients from a variety of diagnosis related groups. This study achieved this by including outliers and other inpatients from each of the seven broad clinical specialties as defined by the Trust. Known outliers were significantly more likely to come from medicine than from any other broad clinical specialty, thus demonstrating excess demands for medical beds in this particular Trust. However, 'Roemer's law' (Roemer 1961) describes the principle that patients will always fill hospital beds as the number of beds available alters physicians' threshold of the decision to admit. Thus it appears that in the NHS the decision to both refer and admit acute medical and elderly patients is directly influenced by the number of beds available in such a manner that medical patients will always fill medical beds and then 'spill over' into other specialties' beds regardless of the number of beds available (Audit Commission, 2003), hence creating outliers. Again this will be discussed further in Chapter 8.

Patients included in this study were classified by specialty as recorded on the sleep-out lists (for known outliers) or as recorded in the database supplied by the Trust (for other inpatients). However, this classification failed to take into account patients with co-morbid illnesses who may fit into more than one broad clinical specialty.

The proportion of outliers from each broad clinical specialty was of particular interest as research has shown that the proportion of adverse events experienced by patients varies according to clinical specialty. For example, Brennan *et al.* (2004) demonstrated that patients receiving complex and therefore high risk surgeries (for example cardiac surgery and neurosurgery) were more likely to experience adverse events than general medical patients. Similarly, Vincent *et al.* (2001) found that 8.8% of general medical patients (including geriatrics) whose case notes were reviewed experienced an adverse event in their healthcare compared to 14.1% of general surgical patients.



- *Length of stay*

The length of stay of outliers was significantly greater than the length of stay of other inpatients, adjusting for age, gender and specialty. The findings of Alameda & Suárez (2009) were consistent with this as they found that the length of stay of heart failure patients placed on outlying wards was significantly greater than the length of stay of heart failure patients allocated a bed on the specialty ward when adjusting for confounding variables.

There are a vast number of potential reasons to suggest why the length of stay of outlying patients may be significantly longer than the length of stay of other inpatients. As Rae *et al.* (2007) state, it is often a combination of clinical, psychological and social factors that impact upon a patient's length of hospital stay. Furthermore, environmental factors may increase the length of stay of outliers. This multifaceted phenomenon will be discussed further in Chapter 8 by integrating the findings presented in the three results chapters that comprise this thesis.

It could be suggested that outliers are more likely to experience complications or adverse events in their care as a result of being placed on an outlying ward, which may consequently increase their length of hospital stay (Alameda & Suárez, 2009). Length of stay is indeed positively and significantly associated with adverse events (Taylor *et al.* 2001, Davis *et al.* 2002, Andrews *et al.* 1997). However, the causal relationship between length of stay and adverse events is hard to define precisely, thus it can be suggested that the relationship works in two directions: staying in hospital for longer may make a patient more susceptible to experiencing an adverse event by providing greater opportunity for error, and conversely experiencing an adverse event may lead a patient to stay in hospital for longer as the patient consequently requires additional care. However, Alameda & Suárez, (2009, p765) concluded that the increased length of stay of outliers was likely to be due to “worse management” (for example reduced input from medical staff, lack of experience of nurses on outlying wards and hindered communication between medical and nursing staff) rather than “worse care”.

- *Number of internal transfers*

Known outliers made a significantly greater number of internal transfers between hospital wards in comparison to other inpatients. 71% of the known outliers spent no time at all on the correct specialty ward for their illness; however, a large number of outlying patients were transferred between wards twice or more during their hospital stay. The majority of these transfers were therefore made from one outlying ward to another as outlying patients may be moved between outlying wards to accommodate elective admissions or when wards shut overnight or at the weekend.

High numbers of transfers may be detrimental to patients' hospital experience (as discussed in Chapters 6, 7 and 8) and furthermore internal transfers have been linked to outbreaks in infection (West, 2010). Transferring patients between wards is therefore an important quality issue that has the potential to degrade safety. It should be noted that it was not possible to distinguish between those transfers that were made for clinical reasons, for example when a patient's diagnosis changed or a patient deteriorated, and those that were made for non-clinical logistic reasons. Future studies would benefit from taking this difference into account. West (2010) cites figures which suggest that roughly one in ten NHS inpatients will be transferred between wards for non-clinical reasons. However, as West suggests, the figures are imprecise estimates as the majority of Trusts fail to record whether transfers are made for clinical or non-clinical reasons.

- *Mortality*

Because outliers are usually the fittest patients (discussed in section 6.4.2.1), it would be reasonable to expect the odds of mortality to be significantly reduced in comparison to other inpatients who are presumably are sicker. The odds of mortality were reduced for outliers in comparison to other inpatients when adjusting for age, gender, specialty and length of stay; however, this reduction in odds was not statistically significant thus the present study revealed no evidence for a significant difference in the odds of mortality of outliers and other inpatients. However, the odds ratios and 95% confidence intervals for mortality were not well estimated as relatively few people in the two study groups died. To summarise, mortality is a rare

event and therefore an insensitive outcome and in this study mortality was not risk adjusted according to illness severity. However, Alameda & Suárez (2009) also examined morality, and observed no significant difference in mortality according to outlying status when controlling for a number of potential confounding factors such as age, gender and co-morbidities. It could therefore be the case that the quality and safety of the care received by outliers is compromised, resulting in mortality rates that are higher than might be expected taking into account their reduced illness severity. This hypothesis remains to be tested in future research.

#### **4.5 Chapter conclusion**

Between April 2008 and March 2009, medical and elderly outliers at an NHS Foundation Trust in the north of England increased over the winter months. Samples of known outliers and other inpatients present at this Trust during May 2008 and November 2008 were compared. Outliers were transferred between wards a significantly greater number of times than other inpatients which may negatively impact quality and safety of care. Multivariate analyses demonstrated no differences in age, gender, or mortality; however, outliers stayed in hospital significantly longer than other inpatients and outliers were significantly more likely to come from medicine than from any other specialty. This study was useful in determining which specialties outliers came from and which wards they were being placed on thus demonstrating supply and demand issues relating to beds within the Trust. The findings relating to length of stay are particularly interesting as they could potentially be indicative of poor quality or unsafe care in a group of patients who are anecdotally expected to be relatively medically fit. Although the routinely available data were subject to a number of potential biases, the methods adopted were a relatively fast and inexpensive way to begin to explore the epidemiology of outlying patients in terms of trend, demographics and outcomes. Future research in this area should be conducted at a number of sites to improve generalisability, should seek to measure and adjust for illness severity and should measure additional clinical outcomes; for example, readmission and infection.

## **CHAPTER 5**

### **Methodology for qualitative interview studies with NHS staff and outlying patients**

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#### **5.1 Introduction to the chapter**

This chapter provides an overview of qualitative research and goes on to introduce the applicability, strengths and weaknesses of qualitative interviews as a research methodology. The methods adopted for two separate qualitative interview studies that were conducted for the purposes of this thesis are then presented in full. These studies comprised semi-structured interviews with NHS staff and semi-structured interviews with outlying patients.

#### **5.2 Overview of qualitative research**

In short, qualitative research involves the collection and analysis of textual data and aims to comprehend the underlying meaning of human actions and perceptions (Carter & Little, 2007). Silverman (2000, p8) outlines the prime reason for researchers to adopt qualitative methods: “the methods used by qualitative researchers exemplify a common belief that they can provide a ‘deeper’ understanding of social phenomena than would be obtained from purely quantitative data”. Similarly, Smith *et al.* (2006, p716) tell us that qualitative research is concerned with trying to establish “the meanings of individuals’ actions and explanations rather than their quantification”. For these reasons qualitative research is useful for exploring under-researched topics and generating hypotheses. In their discussion of methodologies used in patient safety research Brown & Lilford (2008, p162) suggest that “qualitative data provide a more complete picture than quantitative data alone, explaining findings and contributing to theory.”

### **5.3 Semi-structured interviews as a research methodology**

A research interview can be thought of as being “a conversation with a purpose” which aims to elicit participants’ beliefs and assumptions (Burgess, 1984, p102, cited in Finn & Waring, 2006). Interviews may either be structured, with set questions that follow a predetermined order, or semi-structured which allows question ordering to be flexible and for additional questions to be added as necessary. During semi-structured interviews, the researcher guides participants through the topics of interest in order to try to uncover the participant’s view of each topic. The methodology allows interesting or unusual points to be discussed in greater depth which may not be possible using other methods, for example a survey. Interview studies are relatively inexpensive and fast to carry out. As stated above, qualitative interview studies are particularly useful for generating hypotheses in under-researched areas. Interviews allow for the comparison of the viewpoints of different groups of individuals, for example different staff groups working in a hospital, or the views of staff members versus patients. Qualitative interviews have been used successfully in many studies of patient safety involving staff, patients or both (for example, Gawande *et al.* 2003b, Smith *et al.* 2006, Weissman *et al.* 2008).

*“For patient safety research, ethnographic interviews could involve, for example, asking professionals to describe their work in detail, identifying what they regard to be threats to safety, or more implicitly examining norms, assumptions and beliefs around issues pertaining to safety”*

(Finn & Waring 2006, p165)

However, a problem that may be encountered when conducting interviews with healthcare staff or patients is the perceived lack of anonymity and the possibility that people will either refrain from taking part or withhold information. Therefore, steps must be taken to ensure people know the purpose of the research and feel at ease with the process, and to reassure confidentiality and anonymity. Furthermore, in relation to interview studies involving patients, it is important to remember that a sub-set of the patient population will not be able to participate due to illness, lack of ability to converse or mental or behavioural disorders, thus the sample recruited may not be representative of the population.

As detailed in Chapter 2 section 2.1, to limit bias and to ensure quality in qualitative research, the pragmatic HSR approach advocates providing a clear description of the methods utilised, justification of this, acknowledgement of the study strengths and weaknesses and the adoption of a reflexive approach to data collection and analysis.

#### **5.4 Introduction to the qualitative interview studies with NHS staff and outlying patients**

For the purposes of this thesis, two separate qualitative interview studies which explored the quality and safety of care provided for outlying patients were conducted at the large NHS teaching hospital which provided the setting for this Ph.D. project. The first of the two interview studies investigated the perceptions of NHS staff members who were directly involved in either the care of outliers or in the management of wards which cared for a high number of outliers. Recruitment and data collection for this study took place between January and July 2010. The second interview study aimed to explore the experiences of NHS patients who had spent time on an outlying ward at some point during their hospital stay. Recruitment and data collection for this study took place between January and April 2011. These studies were designed to achieve the research objectives concerned with exploring the causes of outliers, the quality and safety issues outliers may face and, in the case of the second study, inclusion of a patient perspective in the research (see section 1.10). The interviews with staff were conducted and analysed before commencement of the interviews with patients, allowing the results of the staff interviews to inform some of the questions adopted in the semi-structured interviews with patients, in accordance with the pragmatic HSR approach. The HSR approach and the philosophical position of the research presented in this thesis were described in Chapter 2.

The study rationale, objectives, sampling strategy and recruitment methods are presented separately for the study with staff and the study with patients in sections 5.6 and 5.7 respectively. However, as the procedures for conducting the interviews and storing and analysing the data were broadly similar, these details are presented in section 5.8 and are applicable to both studies unless otherwise indicated within the text.

### **5.5 Setting**

The qualitative interview studies were conducted at a single large NHS Foundation Trust in the north of England which has approximately 1100 inpatient beds. This is the same Trust that was utilised in the descriptive study of outliers (Chapter 4). At the time this study was conducted the Trust's bed management policy stated that senior medical staff should select a patient that is suitable to move to an inappropriate ward (should the need arise) during each ward round, infection control status must be identified and taken into account prior to transfer, the sending ward must complete a transfer checklist to aid handover of the patient, and the responsibility for ensuring that patients on inappropriate wards are identified and reviewed on a daily basis lies with both junior medical staff and nursing staff on the receiving ward. Repatriation to the correct ward was not part of the policy as the aim was to minimise the number of ward transfers.

## **5.6 Interviews with NHS staff: rationale, design, objectives, sampling and recruitment**

### **5.6.1 Rationale for the research**

Due to a lack of research, this study was necessary to generate hypotheses regarding patient safety in outliers and to begin to address gaps in the literature. Qualitative interviews with a range of NHS staff were conducted as staff are able to comment on the entire care process of outlying patients and make valuable and informed comparisons between the treatment of patients who are placed on inappropriate wards versus the treatment of patients who are placed on the correct specialty ward. Interviews were chosen as the research method as it was felt that the potentially sensitive nature of the topic (patient safety) should be investigated in a confidential environment rather than expecting members of staff to discuss these issues in a focus group. Additionally, it was not felt that studying the interactions between participants within a group interview would add to understanding of the topic. Furthermore, semi-structured interviews enabled the collection of detailed information about staff members' perceptions and experiences. Other methods, for example a survey, would not offer the opportunity to explore these issues in such depth. In sum, the study explored NHS staff members' perceptions of the characteristics of outliers, the quality and safety issues outliers may face and the perceived causes of these quality and safety issues, helping to address a number of the research objectives detailed in section 1.10.

### **5.6.2 Study Design**

Qualitative semi-structured interviews with 29 members of staff from a single large NHS teaching hospital in the North of England were conducted. The content of the topic guide was developed following five pilot interviews with three doctors, one nurse and one manager.



### **5.6.3 Study objectives**

The primary purpose of this study was to conduct an exploration of NHS staff members' opinions and experiences of patient safety in outliers. As part of this objective, the study attempted to uncover staff members' perceptions in answer to the following questions:

- Why do patients become outliers?
- Are there any characteristics that make patients more likely to become outliers?
- What are the specific patient safety issues that may be faced by outliers?
- What are the potential causes of patient safety incidents in outliers?
- What would improve the safety and quality of care given to outliers?

### **5.6.4 Sampling strategy**

During the planning stage of this study a purposive sampling strategy was constructed in line with guidance provided by Ritchie *et al.* (2003a). The overall aim of the sampling strategy was to recruit participants who were able to provide evidence that was relevant to the objectives of the study and to gain the viewpoints of a wide range of staff from a variety of specialties. It was decided that nurses, doctors, bed managers and patient service managers would be recruited (discussed further below). The number of participants to be recruited was flexible, allowing cessation of recruitment when it was felt that new insights were unlikely to be gained by conducting further interviews. This was determined by taking a cyclical approach to data collection and analysis whereby a small number of interviews were conducted and transcribed followed by a period of analysis then further interviews and so on. The impact of the sampling strategy upon the interpretation of the findings was borne in mind during analysis with particular attention paid to the similarities and differences between different staff groups. This is discussed further in section 5.8.4.

- *Nurses*

Different grades of nursing staff were recruited (sisters, staff nurses and health care assistants). Nursing staff were recruited from wards that commonly cared for outliers and from a ward that occasionally has outliers with the overall aim of recruiting nurses from a variety of wards. Information about the number of outlying patients cared for on each ward was gleaned from the descriptive epidemiology presented in Chapter 4 of this thesis allowing recruitment to be targeted on certain wards. It was initially proposed that around 10 or 12 members of nursing staff of different grades would be recruited based on previous research and the experience of the research advisory group for this project. Student nurses were not asked to participate as it was felt that they may have lacked the experience necessary to inform the topic.

- *Doctors*

It was initially proposed that approximately three to five registrars and approximately three to five consultants, from a range of different specialties, would be recruited. Again, these numbers were based on previous research and the experience of the research advisory group. The decision was taken not to recruit doctors at a more junior level than registrar, as registrars and consultants would have more experience of the potential patient safety issues faced by outliers. The medical and elderly specialties were targeted in particular for the recruitment of doctors as the descriptive study presented in Chapter 4 had revealed that the majority of outliers in the Trust came from these specialties.

- *Non-clinical / management staff*

The initial aim was to recruit approximately two to three bed managers. The primary role of bed managers is to facilitate the effective use of beds within the hospital and oversee patient movement. Bed managers are therefore centrally involved in the bed allocation of outlying patients. Additionally, it was proposed that patient service managers from a range of specialties would be recruited as these staff members have insight into all aspects of ward management and often deal with patient complaints.

### **5.6.5 Inclusion criteria**

- Participants had to be a member of staff at the hospital where the research was being conducted.
- Participants had to have at least 6 months experience of one of the following: caring for outliers, bed management, or management of wards which often care for outliers. This was ascertained when each interview was arranged.

### **5.6.6 Recruitment**

Participant information sheets (Appendix 5A) were distributed via email or in person to members of staff who fitted within the sampling frame. Potential participants were free to make contact and ask questions about the study before agreeing to take part. At least 24 hours elapsed between being invited to take part in the study and actually taking part. If following review of the information sheet a member of staff wished to take part in the study, an interview was arranged to take place at a time and location that was convenient to the participant. All interviews took place at the hospital site and as this was the participants' place of work, there were no costs for participants.

## **5.7 Interviews with outlying patients: Rationale, design, objectives, sampling and recruitment**

### **5.7.1 Study rationale**

The literature review presented in Chapter 1 demonstrated the absence of research investigating patients' opinions and experiences of being an outlier. This comes despite numerous demands to listen to patients' perspectives regarding the quality and safety of their care and to ultimately encourage patients to play a minor role in ensuring the safety of their own care (Vincent & Coulter 2002, NPSA 2004, Lyons 2007, WHO 2007). It is thought that patients are often in a good position to observe and monitor their own safety as they themselves are the single person that is present throughout their care and patients often have good knowledge about their symptoms,

illness and treatment (Lyons 2007). Weingart *et al.* (2005) conducted interviews with 228 patients and also reviewed their case-notes. They discovered that patients were able to self-identify the adverse events they had experienced and were able to recount more adverse events than were captured within their case-notes. This suggests that patients themselves are in a strong position to comment on the safety of their care. It therefore seemed possible to learn a great deal about the quality and safety issues faced by outlying patients by investigating the views of outlying patients. One-on-one interviews were chosen as the research method as the topics covered were potentially sensitive. Interviews allowed for the in depth exploration of people's feelings about being placed on an outlying ward versus the correct specialty ward and their experiences of this. Data collected from a survey may have proved less rich in detail; furthermore, a survey may have placed unnecessary cognitive demands on some participants.

### **5.7.2 Study design**

Qualitative semi-structured interviews with nineteen people who had spent time as an inpatient on an outlying ward at a single large NHS teaching hospital in the North of England were conducted. The study site was the same as that used in the interviews with staff and the descriptive study of outliers.

### **5.7.3 Study objectives**

The study sought to address the following questions:

- What are patients' overall feelings about residing on an outlying ward?
- Did patients perceive any differences in the nursing or medical care provided on specialty and outlying wards?
- Did patients observe quality issues on specialty and outlying wards?
- Did patients face any patient safety issues during their hospital stay?

#### **5.7.4 Sampling strategy**

A purposive sampling strategy was constructed during the planning phase of the study in order to recruit participants who were able to provide evidence relevant to the objectives of the study (Ritchie *et al.* 2003a). The descriptive study of outliers (Chapter 4) was used to inform the sampling strategy by providing detailed information about which wards outliers are most often placed on at the study site, thus enabling targeted recruitment. Five wards helped to facilitate recruitment to the study, thus permitting comparisons of the different ward types during the analysis. These wards were: gynaecology, head and neck, plastics and two separate orthopaedic surgery wards. Patient service managers were also asked to invite suitable outlying patients to take part in the study; however no participants were recruited in this manner. It was intended that participants would have a broad variety of diagnoses and would be from a variety of specialties and this was achieved. The impact of the sampling strategy adopted upon the interpretation of the findings was considered throughout the analysis. This is discussed further in section 5.8.4.

#### **5.7.5 Inclusion criteria**

Potential participants had to meet all of the following criteria to take part in the study:

- Participants had to be over the age of 18 years
- Participants had to have the capacity to provide their fully informed consent
- Participants had to have been an inpatient at the study site within the previous 5 weeks at the time of interview
- Participants had to have spent a minimum of 12 hours on an outlying ward and where possible a minimum of 12 hours on the correct specialty ward (time spent on the correct specialty ward could be at any time in the last 6 months whereas time spent on the outlying ward must have been during the most recent hospital stay)
- The health of participants had to be appropriate to the demands of the research

### **5.7.6 Exclusion criteria**

Potential participants were excluded from the study if they met any of the following criteria:

- The person did not have the capacity to provide fully informed consent for any reason (for example mental or behavioural disorders, e.g. confusion or dementia, psychiatric disturbance)
- The person had not spent any time on an outlying ward during their most recent hospital stay
- The person was unable to understand and converse in English. (This exclusion criterion was due to a lack of funds for translation and production of materials in languages other than English)

### **5.7.7 Recruitment**

The descriptive epidemiology presented in Chapter 4 was used to identify four wards that were known to care for a relatively large number of outliers (head and neck, gynaecology and two separate orthopaedic surgery wards) and one ward which was known to care for a moderate number of outliers (plastics and maxillofacial surgery). These wards were asked to help with the identification of eligible participants. Prior to commencement of recruitment, the research project was explained to each of the ward managers.

Potential participants who met the inclusion criteria were given a copy of the participant information sheet to read while they were an inpatient staying on an outlying hospital ward (please see Appendix 5B). If a patient indicated that they were interested in the study and were happy to provide their contact details, they were contacted by LG a few days later and invited to take part. Interviews were arranged to take place at a time and location convenient to each participant and took place as soon as possible and within two weeks following discharge from hospital. The ethics application ensured that participants could be interviewed in whichever location was most convenient for them. All participants requested the interview to take place in their home or in the home of a family member. Recruitment of outlying

patients ceased when the ongoing collection and analysis of data suggested to LG and the supervisory team that further insights were unlikely to be gained by conducting more interviews.

## **5.8 Interviews with staff and patients: Ethical considerations, interview process, data handling and analytic strategy**

### **5.8.1 Ethical considerations**

Research Governance approval for both interview studies was sought from the Department of Health Sciences at the University of York and approval to continue with the study was granted. Thereafter both studies gained the necessary approvals from an NHS Research Ethics Committee (REC) and the R&D department at the study site.

Staff interviews REC reference number: 09/H1311/69

Patient interviews REC reference number: 10/H1307/101

### **5.8.2 Interview process**

All interviews were conducted by LG. The interviews were conducted in a systematic way and according to the objectives of each study. Immediately before each interview the purpose of the research and the themes to be discussed were re-explained to participants. Participants were given an additional copy of the participant information sheet and were talked through the study process (Appendices 5A and 5B). Participants were reminded that the interview would be audio recorded and instructed that direct quotations of things they said could be published but nothing would be published that could be used to identify them. Participants were told that the data they provided would be stored securely and reported anonymously. They were informed that they had the right to withdraw at any time without giving a reason (contact details were provided on the participant information sheets). Participants were also asked whether they would like to be informed of the results of

the study upon completion and if so what their preferred method of contact would be. Participants were then invited to ask any further questions about the research. Additionally, prior to the start of the interview, participants were required to read and sign a consent form (Appendices 5C & 5D) which reaffirmed each of the statements listed above.

Separate topic guides were produced for the staff interviews and the patient interviews (Appendices 5E and 5F). The topic guides were used to provide a rough framework for each semi-structured interview. The topic guides were informed by the objectives of each study and were created following the literature review (Chapter 1), discussions with the research advisory group and five pilot interviews with members of staff at the hospital. In line with the pragmatic HSR approach detailed in section 2.1, the findings of the interview study with staff were used to inform the questions posed in the topic guide that was constructed for the interviews with outlying patients. Questions were not necessarily posed in a set order and a flexible approach was adopted to allow the interviewer to question the interviewee in more detail where it was felt this was necessary. The use of a topic guide ensured that participants were asked similar questions and therefore permitted comparison of themes across each subject during the analysis of the data. However, the ongoing analytic strategy permitted the inclusion of additional questions in each topic guide to inform future interviews. The questions presented in each topic guide were memorised by LG to allow the interview to follow the stream of thought of the participant, thus the order of questions was not set. At the start of the interview factual questions were asked such as ‘what is your definition of an outlier or a sleep-out?’ in the case of the staff interviews and ‘can you tell me a little bit about why you have been in hospital?’ in the case of the patient interviews. This helped to establish an information base and give the interviewees confidence. More sensitive questions, for example regarding errors or specific quality and safety issues, were asked further into the interviews once a rapport had been established and participants felt comfortable with the process. Where necessary, responses were fed back to participants to check comprehension. Similarly, where appropriate, interviewees were probed for further details or asked to provide clarification in order to gain concrete material which was amenable to analysis. In particular, interviewees were asked to give real life examples of situations that they had experienced to support



their statements. As each interview was drawing to a close the participant was asked whether they had anything else they would like to say. This question (in varying forms) was repeated until participants had no further detail to add. LG tried to remain neutral and un-critical throughout each interview.

The interviews with staff lasted between twenty and sixty minutes with the majority of interviews lasting approximately thirty to forty-five minutes. The interviews with patients lasted between twenty and eighty minutes with the majority of interviews lasting approximately thirty to forty-five minutes.

In the case of the staff interviews, once each interview had concluded, participants were told that they should speak to their line manager if they had any questions or concerns regarding any aspect of patient safety. At the end of the patient interviews each interviewee was instructed to speak to their doctor or nurse if they had any questions or concerns about any aspect of their care, or to access the NHS complaints procedure if they so wished. Information about the NHS complaints procedure was made available in paper form. After each interview LG made brief additional notes on the interview experience and a critical reflection on the interview process was begun.

### **5.8.3 Data handling and storage**

Basic demographic information was recorded for each participant. In the case of the staff interviews this information included the participant's gender, staff group and the type of ward they worked on. In the case of the patient interviews this information included the participant's age, gender and ethnicity (as volunteered by participants). Participants' contact details were recorded if they wished to be informed of the results of the research. Names, demographic information and contact details were recorded on the participant consent form (Appendices 5C and 5D). This information was not replicated or stored in any other location. At the point of consent participants were given an individual anonymous ID code to facilitate recognition of the appropriate audio recording and transcript. This ID code was written on each participant's consent form to allow LG to link the data with the

demographic information where necessary. Staff members' ID codes reflected their staff group and specialty, thus these codes were used as participant identifiers during the reporting of the results. Each patient interviewee was allocated an appropriate pseudonym which broadly reflected their age, gender and ethnicity to aid reporting of the results.

Audio recordings of interviews were transferred to a password protected computer in a locked room at the University of York. All paper based data were stored in a locked cabinet, in a locked room at the University while transcription and analysis took place. Data were anonymised on all documentation except the participant consent form. Consent forms were stored in a locked cabinet within a locked room, separately to the transcripts. A password protected computer within a locked room at the University was used to conduct transcription and analysis.

#### **5.8.4 Analytic strategy for interviews with staff and patients**

Data collection and analysis of the interviews with staff took place prior to conducting and analysing the interviews with patients. Thus the process of analysis was undertaken separately for the interviews with staff and the interviews with patients. However, the broad analytic strategy implemented was the same across both studies. A pragmatic HSR approach was adopted with useful elements from different methodological traditions incorporated. The data obtained from both interview studies were analysed using a thematic approach with use of the principles of constant comparison.

Constant comparison involves continually comparing each case with every other case in order to fully assess the similarities and differences between them and demands that each data item must be inspected and analysed (Silverman, 2000). This method is particularly useful when comparing the views of different stakeholders, for example it permitted the views of nurses, doctors and managers to be compared and contrasted in every possible combination across each profession and within each profession.

Thematic analysis was chosen as this permits an inductive process of drawing out important data-driven themes and a deductive process of relating the major themes

that emerge to the predefined objectives of the research (Fereday & Muir-Cochrane, 2006). This process, when coupled with an iterative and reflexive approach, produces a rigorous analysis which ultimately represents phenomena as described by the participants in the study (*ibid*). Other analytic methods often used in qualitative health research, for example grounded theory and Framework, are less flexible with regards the interchange between inductive and deductive approaches. Grounded theory involves an inductive process of generating theory from data whereas Framework seeks to answer policy relevant questions and is thus more deductive in stance (Green & Thorogood, 2004). The aims of the interview studies presented in this thesis were twofold: to generate theory about patient safety in outliers and to answer predefined research questions based on previous literature and gaps in this literature. Thematic analysis with use of the principles of constant comparison permitted each of these aims.

The initial stages of the analyses were begun as soon as a small number of interviews had been conducted and transcribed to allow for ongoing reflection and development of the topic guide. The process involved in conducting the analyses is detailed hereafter.

- *Transcription*

The interviews were transcribed verbatim as soon as possible after each interview by LG. This process enabled early familiarisation with the data and development of the topic guide for subsequent interviews. Following transcription, time was spent reading and re-reading each transcript and making notes in preparation for ongoing thematic analysis.

- *Coding and theme development*

Coding and theme development was undertaken by LG and overseen by JA, IW and JW (study supervisors) to ensure reliability. Such an approach is advocated by Barbour (2003, p1025-1026) who states “the most experienced qualitative researchers already employ a pragmatic version of double coding through supervision and team meetings / Such a session reproduces in microcosm the process

of qualitative research itself, maximizing the analytic potential of exceptions or potential alternative explanations”.

The process of coding and theme development was conducted using the computer software ATLAS-ti 5, a package which aids qualitative synthesis by facilitating coding and allowing the analyst to draw alike themes together into a single document. The package also allows the analyst to group similar data items or similar types of people into ‘families’. This allows for comparison of the themes that emerge across different participants as well as in each individual case in line with the principles of constant comparison.

The first step in each thematic analysis was to organise the material into initial themes and sub themes by systematically searching all of the transcripts for items that were notable, unusual or contradictory (Pope *et al.* 2006). Fereday and Muir-Cochrane (2006, p4) describe this process as “a form of pattern recognition within the data, where the emerging themes become the categories for analysis”. The constant comparative approach was used to “test out provisional hypotheses” (Silverman, 2000 p179) and indicate convergent and divergent cases and themes. Particular attention was paid to divergent cases and hypotheses and themes were revised accordingly.

A thematic map was then constructed which helped to provide an overall representation of the themes that had emerged and the possible relationships between them. This thematic map was revised several times during the process of coding and analysis. Additional maps were constructed to allow for comparisons of the views of different types of people; for example different staff groups or patients from different specialties or age bands.

An iterative process of coding the data and re-developing themes and sub-themes was then conducted. Coding can be described as a process of labelling sections of data to indicate that they are relevant to the themes identified. Put simply, a code is a label which identifies a characteristic or an idea within the text whereas a theme is an overarching concept. The purpose of coding is to “group and link items of data that can then be stored or arranged under a manageable number of thematic or conceptual headings” (Pope *et al.* 2006, p68). Data items were permitted to link to multiple

codes and themes which helped to demonstrate links between concepts. Sub-categories were added to each code to reflect variations in the data and indicate divergent cases. Coding was undertaken in a systematic way with transcripts revisited several times throughout the data collection period and analysis, ensuring that all data were scrutinised. The vast majority of the codes formulated were data driven and where appropriate in-vivo coding was utilised. However, a minority of codes were guided by the predefined research objectives, an approach advocated by Green & Thorogood (2004).

The purpose of constructing themes is to group alike codes and therefore alike data items together so that the underlying concepts can be ‘unpacked’ and then re-assimilated by the analyst in a manner that addresses the research objectives (Ritchie *et al.* 2003b). The themes identified in the analyses were therefore developed throughout the coding process. Consideration of the links between these themes aided the gradual construction of a hierarchy, whereby a number of sub-themes were placed under a more manageable number of key themes. Between them, the key themes encapsulated the main points of the topic under investigation. Theme development also involved the use of saliency analysis to pick out those concepts that were important to addressing the study objectives. Buetow (2010, p123) explains that traditionally, thematic analysis “ignores codes that do not recur but may nonetheless be important”. Buetow (2010) therefore suggests that thematic analysis may be enhanced by exploring codes that seem significant and important in addition to those that appear frequently. Codes of importance are defined as “ones that advance understanding or are useful in addressing real world problems, or both” (*ibid*). Thus a consideration of both the frequency and saliency of each code was made when categorising the data into themes and sub-themes. Once all data had been grouped according to the final key themes and sub-themes, each transcript was re-examined to ensure that “all manifestations of each theme [had] been accounted for and compared” (Pope *et al.* 2006, p 69).

- *Data synthesis and reporting*

In the first instance, the themes and sub-themes were reported and described. The order of reporting in both studies followed the logical line of questioning that was given in the predefined study objectives and in the topic guides. The analyses then

moved on to examine and illustrate the links between each of the different themes and sub-themes. Furthermore, the analyses explored the relationships between the themes and the different groups of people that were interviewed. This helped to further uncover whether certain types of people held a particular viewpoint (e.g. medical staff versus surgical staff, doctors versus nurses, medical patients versus surgical patients, older patients versus younger patients). Cases that did not accord with the majority were re-examined in particular detail in order to aid interpretation of the data and produce theory.

Throughout the reporting process direct quotations from participants are used to exemplify the concepts described and to add credibility to the conclusions that are drawn. Quotations were selected based on their ability to succinctly demonstrate each theme; however care was taken to ensure that quotations from a variety of participants were presented in the reports of the results. Following the reporting of the results, the key themes are discussed in relation to previous relevant research.

The results of the analyses of qualitative interviews with staff and patients are presented separately in Chapters 6 and 7 respectively. A short discussion and critique is given at the end of each of these chapters. Chapter 8 serves to integrate and discuss the findings presented in Chapters 4, 6 and 7.

### **5.9 Introduction to reflexivity**

Hansen (2006 p83) states “reflexive behaviours include reflecting about how your field role (or roles) might be impacting upon the data collected and about how your own opinions, viewpoints and subject position might be impacting on the research”. Willig (2001) describes two types of reflexivity: personal reflexivity and epistemological reflexivity. Personal reflexivity is concerned with considering the influence that the researcher has on the research process whereas epistemological reflexivity scrutinises the way in which the methods adopted have influenced the research process. Willig (2001 p10) states: “epistemological reflexivity encourages us to reflect upon the assumptions (about the world, about knowledge) that we have made in the course of the research, and it helps us to think about the implications of

such assumptions for the research and its findings”. A brief account of the author’s (LG’s) background is offered hereafter whilst more detailed accounts of personal and epistemological reflexivity are offered in the concluding sections of each of the qualitative results chapters (Chapters 6 and 7).

### **5.9.1 Researcher background**

LG is a female in her mid twenties. Prior to undertaking this Ph.D., LG had gained a Bachelor’s degree in Psychology and Cognitive Neuroscience and a Master’s degree in Health Services Research. LG conducted data collection and took the lead role in analysis (with support and input from all members of the research advisory group). The NHS Trust at which the research was carried out bore no influence on data collection or the analysis of results. LG had no experience of working within a clinical setting and had no prior connection to any of the research participants. LG did not have any personal connection to the research topic prior to commencing the Ph.D. research project. However, due to the nature of the topic under investigation, it is probable that the prior assumption that patient safety is compromised in patients who are allocated a bed on clinically inappropriate wards may have shaped the way in which the research objectives were constructed and the way in which the data were collected and analysed. This assumption was formed as a result of reading relevant literature, talking to a variety of people about the topic and taking into account anecdotal evidence. LG was aware of this assumption throughout the research process and tried as far as possible to remain neutral during data collection and analysis and remain fully open to the possibility that participants did not feel that the safety of outliers is compromised.

## **CHAPTER 6**

### **Results of interviews with NHS staff**

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#### **6.1 Introduction to the chapter**

This chapter will provide details of the staff participants who were interviewed and present the results from the thematic analysis that was undertaken. The chapter will then go on to summarise the results, offer a reflexive account of the research process and discuss the results in relation to previous research. The methods that were used to conduct and analyse this study are presented in Chapter 5 and the philosophical underpinnings are discussed in Chapter 2. Chapter 8 discusses the results of this study in conjunction with the results of the descriptive study of outliers and the interviews with outlying patients.

#### **6.2 Participants**

In total, 29 participants were interviewed between January 2010 and July 2010. This sample included 8 members of medical staff (registrars and consultants), 13 members of nursing staff (sisters, staff nurses and health care assistants) and 8 members of non-clinical staff (bed managers, general managers and patient service managers). Participants were recruited from a variety of wards at a single large NHS teaching hospital. The sample included members of staff from the following specialties: medicine, surgery, care of the elderly, orthopaedics, head and neck, plastics and gynaecology. In the interests of participant confidentiality and anonymity specific details of participants' job titles have not been given in conjunction with the specialty they work under. It was felt that to provide this information may make participants identifiable. The sample included 8 men and 21 women. The sampling objectives detailed in section 5.6.4 were met. The profession and specialty of each participant along with their ID code is summarised in Table 6.1.



Table 6.1 participant ID codes, profession and specialty

<b>Anonymous ID code</b>	<b>Profession</b>	<b>Specialty</b>
CS1	Doctor	Orthopaedics
CS2	Doctor	Surgery
CM1	Doctor	Medicine
CM2	Doctor	Care of the elderly
CM3	Doctor	Medicine
RM1	Doctor	Care of the elderly
RM2	Doctor	Medicine
RM3	Doctor	Medicine
NO1	Nurse	Orthopaedics
NO2	Nurse	Orthopaedics
NO3	Nurse	Orthopaedics
NP1	Nurse	Plastics
NP2	Nurse	Plastics
NP3	Nurse	Plastics
NG1	Nurse	Gynaecology
NG2	Nurse	Gynaecology
NG3	Nurse	Gynaecology
NG4	Nurse	Gynaecology
NG5	Nurse	Gynaecology
NH1	Nurse	Head and neck
NI1	Nurse	Infection control
BM1	Bed manager	Bed manager
BM2	Bed manager	Bed manager
ME1	Manager	Care of the elderly
MM1	Manager	Medicine
MG1	Manager	Gynaecology
MH1	Manager	Head and neck
MH2	Manager	Head and neck
M1	Manager	N/A

### **6.3 Framework for reporting the results**

As described in section 5.8.4, the thematic analysis allowed for an inductive process of drawing out important data-driven themes and a deductive process of relating the themes that emerged to the predefined objectives of the research. Thus the order of reporting of the results was permitted to follow the logical line of questioning that was given in the study objectives and topic guide as these questions had been based on previous literature and the gaps in this literature. The themes that emerged from the analysis were therefore broadly categorised as demonstrated in Table 6.2 and are reported in this order in the following sections. However, this framework for reporting is by no means rigid nor the themes discrete as multiple links were made between different themes, sub-themes and research questions. These are demonstrated throughout the chapter.

*Table 6.2 Themes derived during thematic analysis and their predominant link to the research questions*

<b><u>Questions to address</u></b>	<b><u>Key Themes</u></b>	<b><u>Sub-themes</u></b>
<b><u>Why do patients become outliers?</u></b>	<u>Bed pressures</u>	<ul style="list-style-type: none"> <li>- <i>Winter bed pressures</i></li> <li>- <i>Lack of beds</i></li> <li>- <i>Internal transfers</i></li> <li>- <i>Ward closures</i></li> <li>- <i>Repatriation</i></li> <li>- <i>Delayed discharge</i></li> </ul>
<b><u>What are the characteristics of outliers?</u></b>	<u>Which patients become outliers?</u>  <u>Challenging patients?</u>	<ul style="list-style-type: none"> <li>- <i>Defining an outlier</i></li> <li>- <i>Deciding which patient to sleep out: who makes the decision?</i></li> <li>- <i>Medically fit / approaching discharge</i></li> <li>- <i>Infection risk / side rooms for infection control</i></li> <li>- <i>Alcoholics, overdose, self harm</i></li> <li>- <i>Confusion and dementia</i></li> <li>- <i>Social issues</i></li> <li>- <i>Dependent patients</i></li> <li>- <i>“it’s not our patient”</i></li> </ul>

<p><b><u>What are the safety and quality issues faced by outliers?</u></b></p>	<p><u>Safety issues (harm)</u></p> <p><u>Quality issues</u></p>	<ul style="list-style-type: none"> <li>- Falls</li> <li>- Medication issues</li> <li>- Deterioration</li> <li>- Putting patients that ought to be on the ward at risk</li> <li>- “Second service”</li> <li>- Delays (review, investigations, treatment, discharge)</li> <li>- Patient experience</li> </ul>
<p><b><u>What are the causes of safety and quality issues faced by outliers?</u></b></p>	<p><u>Competing demands on staff time</u></p> <p><u>Communication</u></p> <p><u>Knowledge / specialist care</u></p> <p><u>Ward environment</u></p> <p><u>Patient factors</u></p>	<ul style="list-style-type: none"> <li>- Outliers versus other patients</li> <li>- Lack of staff</li> <li>- Communication between staff</li> <li>- Communication between staff and patient</li> <li>- Basic nursing care versus specialist nursing care</li> <li>- Junior doctors’ knowledge</li> <li>- Distance</li> <li>- Availability of equipment &amp; drugs</li> <li>- Consequences of changing environment</li> <li>- Side rooms for infection control</li> <li>- Low priority patients and the potential for disorientation</li> </ul>
<p><b><u>What would improve the safety and quality of care given to outliers?</u></b></p>	<p><u>What would make the care of outliers better?</u></p>	<ul style="list-style-type: none"> <li>- Enhanced communication</li> <li>- Effective discharge planning &amp; preventing unnecessary admissions</li> <li>- Thorough and timely review of outliers</li> <li>- Greater provision of single side wards in medicine</li> <li>- Culture change</li> </ul>

## **6.4 Results**

### **6.4.1 Why do patients become outliers?**

One of the objectives of this study was to clarify the reasons why patients might become outliers and the potential impact that this could have on patient safety. This section therefore reports the factors that necessitate the movement of patients to outlying wards as described by the 29 members of staff who took part in the study.

#### **6.4.1.1 Bed pressures**

Bed pressures arise when the demand for inpatient beds exceeds the supply that is available. During times of high bed occupancy within the hospital it becomes necessary to move patients from wards which are in particularly high demand (such as admissions units and medical wards) to wards which have a greater capacity at that time. This may result in patients being allocated a bed on a hospital ward outside of their own specialty or directorate, potentially jeopardising patient care.

*RM1: ...you're constantly needing to create capacity, and as admissions are not always predictable it can be very difficult to manage to do that effectively and we do feel sometimes that patient care is potentially compromised, and it is generally to create capacity within the bed base, within the admissions bed base.*

The interviewees articulated a number of factors which impact upon bed pressures in the Trust, all of which can contribute to the need to place patients on outlying wards. These inter-related factors became sub-themes of the 'bed pressures' theme during the analysis and are detailed in the sections that follow.

#### *- Winter bed pressures*

A number of interviewees suggested that the excess demand for medical and care of the elderly beds is often seasonal, with an increase in the number of acute medical and elderly patients during the winter months (CM1, CM2, CS2, BM2, MH1, MM1, NG3, NH1, NI1, NO3, NP1, and RM3).

*BM2: we do have peaks and troughs, obviously winter pressures, we do tend to get more elderly and medical sleep-outs, but I think that's about it.... you do get more in the winter due to the obviously your chest infections and more elderly admissions.*

Conversely, one of the bed managers suggested that bed pressures may no longer be seasonal and can peak at any time of year:

*BM1: ...at the moment it doesn't seem to be any different from winter and summer, so we're in summer now, in the height of it, and we've still as many on that page [on the sleep-out list]*

It is difficult to explain this divergent opinion as the interview with participant BM1 took place in the same month as the interviews with CS2, BM2, NI1, NP1 and RM3, thus it is not possible to suggest that this is an effect of the time of year in which the interview was carried out. One participant perhaps offers some explanation for this apparent difference in opinion by suggesting that bed pressures can peak unpredictably at any point during the year:

*MH1: Obviously the pressure is more in the winter months because we do have this, you know, busy period over the winter months, and that's well known about, but having said that it can be busy the rest of the year as well, everybody seems to focus on the winter months, but it can be busy other months.*

- *Lack of beds*

Some interviewees reported that a lack of beds to meet demand was a particular problem underpinning the need to move patients to outlying wards.

*RM3: If we had a better bed base for medicine then we wouldn't have this problem. Because we'd keep all the patients on medical wards.*

It does however appear to be accepted by staff that there is no capacity to increase the number of beds available and thus acknowledged that increasing the number of

beds is not a workable solution to the problem in the current climate. Staff therefore accept that outliers are “*part and parcel of modern day medicine*” (CS2).

*CM2: ...you'll never have sufficient bed base for occasional peak demands, so you're always going to have a degree of sleep-outs.*

*MG1: I think if we had more beds but I don't think that's a realistic option with the financial climate at the moment and looking at reducing waste and working effectively, I don't think it is an option or a good answer just to put in extra beds.*

- *Internal transfers*

One of the consequences of bed pressures is increased numbers of patient transfers to different wards within the hospital. When the demand for beds is at its peak, some patients may be transferred internally between outlying wards numerous times. This comes despite the recommendation made within the bed management policy at the study site which states “the aim is always to minimise the number of internal transfers a patient undertakes”. Furthermore, the system in use at the Trust was able to flag up patients that had already been transferred internally with the aim of preventing further movement. Nevertheless, participants reported that multiple internal transfers were a regular occurrence. A specific question about internal transfers and the potential consequences of these for patients was added into the topic guide from the sixth interview onwards. All of the interviewees questioned suggested that transferring patients between wards a number of times can be detrimental to patients’ hospital experience. It was also proposed that the point of transfer may predispose patients to safety issues as at this time information may be lost or not handed over in full to the receiving ward. Transfers are therefore a possible cause of safety and quality issues for outlying patients.

*CS2: I think any time when a patient is transferred is a potential chance for something to go wrong. So as a result, often patients who are transferred into other specialty beds, they then want then to get them out of their beds to get their own electives in so often they'll be slept out to a different place. I think also for a patient experience it's suboptimal...*

*MG1: Where possible we try not to sleep people out more than once but it does happen, you know, and obviously it leads to a bad patient experience or not as positive a patient experience and can lead to complaints. Not always, you know, some people understand, but it does frequently.*

*RM3: We've had patients move and then parts of their care not properly handed over. Each time you handover is a risk, you handover twice you have more risk of missing something. So patients are handed over and things that we've dealt with before are not handed over because they've been transferred. And that has led to incidents as well. We've had patients who have moved in between wards, at one point I think a patient was moved between wards and for some reason one of their drug charts got missing because they were moved, and the patient missed their insulin dose....*

The staff spoke of strategies put in place to ease the risk to patients associated with internal transfers. For example, the Trust's bed management policy states that a 'transfer checklist' should be completed each time a patient is transferred internally between wards. The purpose of this document is to provide a risk assessment for the patient being transferred and provide important information that is relevant to the patient and their care. However, five of the interviewees (CM3, M1, MG1, NG4, and NH1) suggested that this document was frequently unused or was only partially completed, or that potentially useful questions were omitted from the checklist, thus the risks associated with moving patients between wards may remain.

*M1: There is a transfer checklist in the bed management policy, some wards are good at using it, some wards would look at you blankly and say 'I don't know what that is about', but that does cover, because it covers infectious status, it covers valuables, it covers everything, and it's about having these systems in, making them robust, and using them.*

- *Ward closures*

Staff explained that some of the hospital's surgical wards shut either partially or entirely on evenings or over weekends when elective theatre lists stop running. Patients on these wards who need to stay in hospital must therefore be transferred to other wards during these periods and may thereafter be transferred back, potentially compromising patients' hospital experience. However, at times of particularly high occupancy, elective surgical wards that usually shut at off peak times may be left open and accept outliers in order to create capacity on other wards. However, come Monday morning that ward may need to bring elective patients in for surgery thus the outliers are moved once again. It was frequently suggested that this movement of patients to and from elective surgical wards may ultimately compromise patient care for both outliers and elective admissions.

*MM1: I mean there has been patients that have been slept out six and seven times which is awful, and the patient will get moved from the first ward, go to a ward that's perhaps a ward that closes at a weekend, they get moved to another ward, then the other ward will sometimes move them back to the ward that closes and it can happen like that, and it's, the patient, the patient gets quite upset that that happens, so it, I don't think it's happened as much as it used to happen because there is more controls around how many times people are allowed to sleep out because it's just not fair, the continuity and the quality for that patient is quite poor.*

- *Repatriation*

Most staff members who were questioned suggested that repatriation of outlying patients back to their specialty ward was unlikely. The exception to this was in instances in which patients had deteriorated during their time on an outlying ward. Thus if a patient has a real medical need for a bed on the specialty ward it was hoped that this need would be recognised and they would be repatriated. The problems created by deterioration of outlying patients are discussed in detail in section 6.4.3.1.

*CM2: What we're not good at is repatriating sleep-outs back to their parent specialty.*

*Interviewer: Right.*



*CM2: And the reason for that is purely bureaucratic, is that the people who manage it / the nursing staff, the bed managers, particularly out of hours, they have a big enough problem as it is trying to balance the admissions into where there's available space, what they don't factor in is that 'should Joe Bloggs now move back to a particular area because he's better off there', they're in a bed, you tick that box off, where else have you got space, and that needs to improve.*

*Interviewer: Uhum, would patients be repatriated if they deteriorated?*

*CM2: If they deteriorated, probably yes if you had beds free.*

*Interviewer: But if they remained stable?*

*CM2: But if they remained stable they would probably stay even though there's issues about arranging discharge, there's issues about speaking to family and all that kind of stuff which prolongs length of stay.*

- *Delayed discharge*

The interviewees often described the way in which the pressure to get patients in to inpatient beds is reciprocal with the pressure to discharge patients from hospital. Any factor which hinders discharge therefore contributes to the problem of over occupancy and an increase in the number of outliers.

*MM1: ...if there's any external pressures in the Trust, that we're having problems getting people out if they, if there's a problem with intermediate care that can have a problem that you might not be able to move people so, but still you've got people coming in, that's when you start having to move out of the proper, I would say the bed base of medicine into other specialties' bed bases.*

#### **6.4.2 What are the characteristics of outliers?**

The next objective of the research was to investigate the major characteristics of outlying patients as perceived by a range of staff members and identify whether any particular patient groups may be at increased risk when placed on an outlying ward. This section describes the defining features of outlying patients as articulated by the 29 members of staff who were interviewed. The two major themes that emerged

from the analysis that are relevant to this section of the results were ‘which patients become outliers?’ and ‘challenging patients?’ Although ‘challenging patients?’ could be categorised as a sub-theme under the main over-arching theme of ‘which patients become outliers?’, the saliency of the ‘challenging patients?’ theme within the data warranted it becoming a major theme of the analysis in its own right, thus requiring an in depth exploration.

#### 6.4.2.1 Which patients become outliers?

This theme incorporated data relating to staff members’ definitions of an outlier, their perceptions of which types of patients often become outliers and the manner in which patients are selected to move to outlying wards.

##### - *Definition of an outlier*

At the start of each interview all participants were asked to give their personal definition of a sleep-out or an outlier as it was known that different people use slightly different definitions for this term. Asking staff to provide their definition helped to clarify the statements participants made about patient safety in outliers.

The bed management policy in use at the study site stated that an outlier is “any patient who occupies a bed outside of the clinical directorate bed base”. Nine participants ascribed to this definition (CM2, CM3, M1, MH2, NG3, NO1, NO2, NO3 and RM3). This definition therefore serves to minimise the number of patients that could potentially be classed as outliers in comparison to definitions which suggest that an outlier is a patient outside of the specific specialty bed base. One consultant suggested that this definition was used as “*it makes our figures look better*” (CM2).

Conversely, fourteen of the interviewees did not use this definition and felt that patients could be classed as outliers if they remained under the correct directorate for their illness but were placed on a ward outside of their own specialty (CM1, CS1, CS2, BM1, BM2, ME1, MG1, MM1, MG1, NG4, NH1, NI1, NP1 and RM1).

Furthermore, participant RM2 revealed that an additional group of patients that are classified as outliers are those who are moved from the medical admissions unit to another ward before they have been seen by a senior doctor. This is not accounted for in the definition offered in the Trust's bed management policy.

RM2: *"in MAU they are slept out, they're sleep outs until they've been seen by the consultant and until it's been decided whether it's an appropriate ward or not then they're sleep-outs."*

Thus although the definition of an outlier given in the study site's bed management policy is rigid and well defined, in reality the judgement as to which patients are classified as outliers is much more subjective in nature. On participant acknowledged this subjectivity and stated that the definition of an outlier *"depends on the specialism involved"* (MH1).

- *Deciding which patients can sleep-out: who makes the decision?*

Some staff suggested that the decision as to which patients can be moved to an outlying ward must be made by a senior doctor. Therefore, the senior medical staff will identify those patients deemed 'suitable to sleep-out' should the need to create bed space on the ward arise. They will also indicate whether each patient is suitable to move to a ward outside of the directorate or whether they could move but to another ward within their own directorate. The purpose of this safeguard is to try and ensure that only those patients who are low risk of becoming ill or of experiencing a safety incident are moved to an outlying ward.

However, some of the interviewees said that the decision can involve nursing input, particularly when the patient is being slept-out from a specialist ward rather than an admissions unit. Furthermore, there were instances where it was reported that the decision as to who should sleep out is sometimes made by junior medical staff or by nursing staff. It was suggested this may be more likely to occur out of hours or at times of bed crises and can lead to inappropriate decisions.

NH1: *I think the decision would be made by the nursing staff but run by the medical staff to make sure that they're happy that patient X was suitable, but the decision really is usually more of a nursing decision.*

CS2: *...from the acutes there is said to be a system where every patient that comes into hospital, there is a red light system where depending on whether they're red, amber or green they can be slept out. A red means they can't be slept out, an amber means they can be slept out inside the directorate to other associated surgical wards, so we have other wards that are under the surgical directorate but aren't our outlying wards, and green would be they can go anywhere in the hospital, err, which sometimes works and sometimes doesn't work. And it's supposed to be the consultant that makes a decision but when there's a bed crisis on those decisions are sometimes made by either by junior members of medical staff or nursing staff.*

ME1: *During the day, if we need to sleep patients out the decisions are generally made by the senior people on the ward, so it would be the senior nurse on the ward who would consult with one of the doctors who would make that decision. We try and ask, if it's very busy and we know there are lots of problems, we try and ask that on a day shift, before they go home, they identify patients that are what we call 'fit to sleep out', so that decision is already made, but sometimes it'll be the middle of the night and this is often when the decisions, the what we'd call the bad decisions get made, and it'll be the bed manager who asks the ward to identify somebody to sleep-out. And then it might be a more junior nurse who makes that decision, and they might make that decision using the wrong criteria."*

- *Medically fit / approaching discharge*

The majority of participants from all broad staff groups reported that patients who are reasonably medically fit and approaching discharge would be identified and approved by medical staff as appropriate to move to an outlying ward when bed pressures enforce the need for outliers. Thus patients who are perceived to be at low risk of becoming ill or experiencing harm and do not require specialist intervention in their care are chosen to move to outlying wards.

*MH1: ...it's those that are the most fit really, because there are occasions when it would just not be from a patient safety point of view feasible to sleep certain patients out, so it's down to, you know, whether they would be able to cope with that move really, if they're fit enough to do that, and it's even better if you've got people that are building up to be discharged, and you know, they're ok to sort of move. It's never acceptable to move patients around the hospital, but you've got to think of their safety in this matter.*

However, it was frequently acknowledged that this strategy does not always work as planned and on occasion patients who are seriously unwell or who have complex care or discharge requirements are allocated a bed on an outlying ward.

*CS1: We try to sleep-out the patients that are younger and fitter, and less likely to have lots of problems, that's what we try to do, it doesn't always work. We sometimes end up with patients who are, who have quite serious injuries, this being an orthopaedic unit, we end up with patients with quite serious injuries who end up on other wards.*

*MH2: ...you should be sending your least ill patients or the ones that are ready for discharge say in the next day or two... but that doesn't always work, and we have had a lot of patients that have been quite ill patients or have been with us for quite some time.*

The interview data suggested two reasons to explain why on occasion complex patients are moved to outlying wards. Firstly, patients who are at higher risk of becoming ill or experiencing a safety incident than would normally be permissible may be slept out at times of extreme bed pressures to ensure that the most seriously ill or at risk patients are kept on the specialty wards.

*MG1: ...I think the problem occurs when the activity is such that they're having to sleep-out people that they wouldn't normally choose to sleep-out and that's where it sort of becomes more worrying really than other times because they're having to pick the well-est of their probably quite dependent patients who they wouldn't normally sleep-out...*

Secondly, due to bed pressures, patients may not be thoroughly assessed before the decision to move to an outlying ward is made, thus high risk patients occasionally slip through the net and move to outlying wards.

*RM2: The problem arises when people are unwell but it hasn't been recognised because they've only been reviewed by junior staff, and then they get slept out to other wards where that base ward is unfamiliar with that kind of problem, and then it's not recognised, and because the sleep-outs are reviewed later than the patients on the core ward, because the core ward patients are the first priority, then it becomes unrecognised for longer that the patients are very unwell.*

Although medical stability was often stated as being the most important factor in deciding which patients become outliers, some staff members pointed out the importance of considering the patient as a whole and not just the clinical factors in deciding upon suitability to move to an outlying ward. For example, while a patient may be medically stable, they may have complex discharge requirements or social care issues thus they may be better served on the specialty ward where staff are familiar with such needs.

*CM3: I think mostly when we're making a decision on a sleep-out it's not only illness, it's also whether it's if you like fair to ask such a ward to do this if it's a difficult patient, so it's not just the medical condition, it's also those issues.*

The social needs of some outlying patients as described by the interviewees are discussed further in section 6.4.2.1.

- *Infection risk / side rooms for infection control*

A number of participants demonstrated that a subset of patients who are more likely to become outliers are those who have an infection and therefore require treatment in a single side room for infection control purposes (CM2, CM3, CS1, BM2, ME1, MM1, NI1, NO2, NO3, NP1, RM1, RM2, RM3). The interview data suggested that due to having a limited number of single side rooms throughout the hospital,

particularly on the medical wards, side rooms are frequently fully occupied thus infectious patients often have to be moved to other specialties' wards where single side rooms are available.

*CM2: ...we sleep a number of patients out specifically because, you know, side rooms are at a premium, if somebody's on my ward even though I've got empty beds, and there's no need really to have a sleep-out, if they need a side ward and I haven't got one, they have to go into a side ward. So that must take priority.*

Staff members commonly suggested that being placed in a single side room on an outlying ward may produce a specific threat to patient safety. This will be discussed further in sections 6.4.3.1 and 6.4.4.4.

#### 6.4.2.2 Challenging patients?

Several interviewees raised the issue that on occasion patients may be moved to an outlying ward for the 'wrong reasons' and not according to their medical stability or clinical need, thus unburdening the sending ward and burdening the receiving ward. This notion was suggested by the majority of the nursing and non-clinical staff (ME1, MM1, MG1, MH2, NG1, NG2, NG3, NG4, NG5, NH1, NO1, NO2, NO3, NP1, NP2, and NP3), and was acknowledged by some members of medical staff (CM1, CM2, RM1 and RM2).

There were however two different points of view as to why patients that are perceived to be challenging are moved to outlying wards. Firstly, some staff members suggested that challenging patients are slept out intentionally by nursing staff to give the ward 'a break'. Thus once a senior member of medical staff has identified the patients on the ward that are suitable to move to an outlying ward should the need arise, nursing staff on that ward will pick the most difficult of these patients to move to the outlying ward.

*NP1: ...at times, on certain wards, I'm not saying this has never been done on ours, but I think on some wards people tend to send the most problematic patient off the ward if they are particularly demanding or, and they think 'oh I'll sleep them out' but try and give other excuses as to why they're going to sleep them out rather than the fact that they're a problem.*

*NO2: I think sometimes yes they, you know, a ward might have had enough, you know, and they need a break, the patients on that ward need a break, so they may just sleep 'em out, you know, if they say 'have you got anybody that needs [to be moved]', they say [to the challenging patient] 'oh you can sleep out to this ward'. They may then say 'right', you know, 'get that person gone' [hushed voice], yeah, yeah, I can understand, I mean it's only natural.*

*NP2: ...sometimes if we receive a sleep-out, somebody that they don't really want on their ward, they've probably had enough of so they sleep it out to us, somebody who's probably just confused and just I think irritating the nurses over there.*

The contrasting viewpoint offered was that challenging patients may be chosen to move to an outlying ward as they are often the most medically stable patients in comparison to other patients on the ward and therefore moving these people poses less of a safety risk.

*BMI: ...even though they're told by doctors that they, you know, they can sleep out, then obviously some points of it are the fact that they might be the worst person on the ward and then the other nurse on the ward thinks that they've been hand picked but they've not been hand picked, it's a case of they are suitable to sleep out.*

Therefore, the data suggested that the ward receiving a 'challenging' outlying patient would argue that the patient has been moved to the outlying ward for the 'wrong reasons' while the ward sending the outlier would argue that the patient was the most suitable one that they could have sent. This was summarised succinctly by the following participant:



*MG1: I think that there's definitely a perception from the ward staff that they get left with patients who are either more complex, more difficult on a personal level or difficult on a clinical level as in they come with loads of multiple issues that need resolving. Yeah. But I don't know, it's never been proven and I'm sure both the ward that receives the patient would argue that that is the case, the ward that sends the patient would argue that no that's not, I'm sure, yes.*

The analysis proceeded to explore the reasons why outlying patients are often perceived to be 'challenging' by nursing staff. These reasons included patients' specific illness or disorder, social issues, the complex care required, the perception that outliers are seen as extra work, and the perception that outliers do not belong on the ward. These factors formed the sub themes that emerged from the 'challenging patient?' theme.

- *Alcoholics, overdose, self harm*

Alcoholics (MH2, NO1, NO3, NP1 and NP2), overdose and self harm patients (BM1, MH1, MH2, MM1, NG1, NG2, NI1, NP1, RM2 and RM3) were mentioned as patient groups who are frequently placed on outlying wards. When questioned, participants said that these patients are chosen to move to outlying wards as they are often relatively stable and medically fit in comparison to other patients.

*NG1: They're the quickest discharges mainly....usually they have an IVI drip going with a particular drug in and once that's done and they've had repeat blood tests and they've been seen by the CPN nurses [community psychiatric nurses] they can be out within a few hours, that's if it all goes according to plan, so they are one of the easiest sleep-out patients to bring up...*

However, some of the nurses spoke of the uncertainty surrounding the care of alcoholic, overdose or self harm patients who are placed on outlying wards. This uncertainty appeared to be a factor which makes nursing challenging.

*NG1: ...we don't know if these ladies that have overdosed if they're going to do it again, or do we need to keep constant eye on them or do we leave them to get on*

*with what they're doing, or... so you know, we're just, because we're not used to those sorts of patients you don't always know exactly what sorts of things we should be doing with them so that's an unsafe thing as well.*

*MH2: ...in my previous experience if we slept out self harm patients, everybody tends to step back from self harm patients because they don't, they're frightened of them, they're frightened of what might happen or, and I guess that's around the nurses aren't psychiatrically trained, so do they fully understand that side of it?*

Furthermore, one doctor recounted an experience in which placing an overdose patient on an outlying ward had become a threat to that patient's safety because the nursing staff had not been aware of the potential severity of that patient's condition:

*RM2: ...the other day we had somebody who came in who had a paracetamol overdose, it was a very busy night and she was slept out, but she already had signs of liver problems when she was slept out to a gynaecology ward who weren't familiar with the treatment of paracetamol overdose, and the patient was very agitated, wanted to self discharge, and so she discharged without being seen by a doctor because none of the medical team were informed and the base ward didn't know what was going on and we've been unable to contact the patient since and she is at risk of developing liver failure because she's gone, because the nursing staff didn't realise the urgency of the situation.*

The potential risk created by nursing staff on outlying wards not having specialist knowledge of outliers' care is discussed in greater detail in section 6.4.4.3.

- *Confusion or dementia*

It was frequently suggested by interviewees from all of the broad staff groups that to move patients with confusion or dementia is wholly inappropriate as the change in ward environment often appears to exacerbate patients' confused state and is thus unkind to the patient and means that patients become more difficult to care for (CM1, CM2, CS1, BM1, BM2, ME1, MG1, MH1, MM1, NG1, NG2, NG3, NG4, NG5, NH1, NO1, NO2, NP2, NP3, RM1 and RM3).

*NG4: ...I really strongly believe that patients that are confused and disorientated normally or for whatever reason on the ward that they're on should never ever be slept out anywhere else, because it's not fair on the patient, it increases their agitation, disorientation, and then it makes it more difficult for the nursing staff, you know, on the ward that they've been transferred to, and that increases the safety aspect.*

Although staff state that they try to avoid moving confused patients for the reasons set out above, the movement of confused patients is at times inevitable due to bed pressures and due to the assessment of patients from a medical stability angle.

*ME1: ...we try never to move patients with dementia or confusion, but often they do get moved, the issue being specifically around their medical fitness.*

Confused patients pose a particular challenge to nursing staff because of their disruptive nature and hence because of the demands they place on nurses' time.

*NG4: ...we run our numbers on an ability to run an acute and an elective ward, so you know as I say on night time there's only two members of staff, and you have say a heavily dependent confused patient, and I remember one night working where I spent the majority of the night on a corridor with a very confused patient and that left one other qualified to do observations on four or five major post op patients and that is very, very difficult...*

However, there was a broad understanding amongst staff that these patients cannot help their confused state and frustration that the act of transferring confused patients between wards was likely to proliferate the problem, thus making the situation arduous for patients and staff alike.

*NG3: ...sending confused elderly patients when you've got patients who are post-op is very unsafe, I've nothing against the confused patient, they can't help their confused state of mind, but if you've got four ladies that have had major surgery, the*

*last thing they need is to be kept awake all night by a confused patient going round poking at them and shouting out.*

- *Social issues*

Social issues were frequently mentioned as being problematic for outlying patients and consequently for staff (CM1, CM2, CM3, CS2, BM1, BM2, M1, ME1, MG1, MH2, MM1, NG1, NG2, NG3, NG4, NG5, NH1, NI1, NO1, NO2, NO3, NP1, NP2, NP3, RM1 and RM2). Interviewees from all broad staff groups suggested that social issues have a major role in both creating outliers and in making outlying patients more difficult to care for and discharge. For example, it may be the case that a patient is medically stable but awaiting social services input or a place in intermediate care. Should bed pressures require, it is likely that this patient may be transferred to an outlying ward as from a medical stability angle they may be deemed the most suitable to move. The receiving (outlying) ward may therefore feel lumbered with a patient who may in fact require quite complex discharge planning and thus have a prolonged length of hospital stay. Such patients, who aside from their social issues could be discharged, are often labelled 'bed blockers' and gain a bad reputation amongst staff.

*MH2: if the patient's in because they're still trying to sort out the social circumstances then the theory behind that is they should be the group who require the least care because they're ready for discharge, they just haven't got the home circumstances sorted out. But again it depends on the nature of the condition why they were admitted, have they got any long term co-morbidities, as to whether that theory goes into practice in that they need less care.*

*NH1: ...something as grave as not having anywhere to go home to, so the patients have no fixed abode, and so social services have to be involved, and it can actually even be mental capacity issues involved in there, the patient may come from a background where there might be adult abuse going on, so you know, there are, there can be some quite complex issues around that sleep-out patient, and they in effect block, block my beds, and so on reflection, that patient was an inappropriate sleep-out.*

NP1: *...at the moment we've got a chap that's been in with us weeks, he had a plastic surgery flap done on his leg, because he's an asylum seeker we can't get him discharged so he has been chosen to sleep out because he's sat in a bed for no reason other than the fact that he's got nowhere to go to, medically wise he's fit, we're doing nothing for him that couldn't be met at home really...*

However, not all interviewees felt that social issues were a particular problem in outlying patients. Participant CS1 suggested that social reasons were “*not really*” a factor. Furthermore participant MH1 denied that social issues would ever be a factor in deciding whether to move a patient to an outlying ward stating “*I'm not aware that that's ever happened on my ward*”.

- *Dependent patients*

Some members of nursing staff suggested that outlying patients placed on their wards are frequently heavily dependent and often spoke of the difficulties that they face in meeting the nursing demands of these dependent outlying patients.

NG1: *it's the ones that can't do for themselves that struggle because there's just not enough staff and manpower to get behind helping them.*

NG3: *I had an incident a couple of weeks ago on nights where they wanted to send a lady who had multiple sclerosis. There's only two of us on here on a night, we're also an acute ward, she was totally bed-bound, I already had three that were totally bed-bound that were incontinent so I said 'look, I think there must be another bed somewhere more appropriate in the hospital, I can't do it plus look after the six majors who are on hourly obs plus the three that I've got', and they did actually find another medical bed for the lady. I'll happily take somebody who is more independent but surely she can go elsewhere.*

- *“It's not our patient”*

The data revealed a salient perception that members of nursing staff do not see outliers who are placed on their ward as being ‘their patient’ (CM2, BM1, BM2, M1, ME1, MH2, MM1 and NP1). This point was made particularly evident in the

interviews with members of management staff who had often dealt with complaints from patients. A number of the managers suggested that some members of nursing staff, in varying degrees of consciousness, have adopted the perception that outlying patients do not belong on the outlying ward and are ultimately not their responsibility. This is despite the fact that there is usually little or no input from any other nursing team and therefore the outlying patients are entirely dependent upon the nursing staff on the outlying ward for nursing care.

*BM2: You do tend to get the overall feeling that the nursing, the nurse on the wards where the sleep-outs are "it's not our patient", that's what the general feeling tends to be....*

*M1: there seems to be this preconception that sleep-out patients even though they may not need a lot of interventions from nurses that 'it's not our patient because it's not from within our directorate', which I find a little bit bizarre, but it seems to be a kind of sub-conscious.*

*ME1: what tends to happen is they're not seen as their patients and you'll hear [the nurses] say that, 'oh they're not our patient', but in fact they have to be because that patient is relying on that nurse to provide the care, whether it be the nursing care or whether it be to pass on medical care, then they rely on that, and that sometimes just doesn't happen.*

*MH2: I think there's a culture amongst a lot of nurses on a lot of wards that develops because 'these are not our patients', they don't see them as their patients, they see them as 'well we shouldn't have to look after these patients' and that's, that's a wrong culture and that's something that we have to change because they're on their ward and they're responsible for them.*

*MM1: I've been involved in this last winter answering four, five formal complaints by patients who've raised concerns that when they've gone to the wards they've felt that they haven't been listened to properly, they feel that the staff see them as extra work and they'll get remarks like 'well you're a sleep-out' and I don't know if that's a term that patients need to hear really, because it's a patient in our hospital and*

*everybody is like, got a right to be looked after and we shouldn't really make sort of boundaries that patients feel that they're not part of the teams.*

Furthermore, the perception that outliers are 'not our patient' became evident in some of the interviews with nurses.

*NP1: if my beds were full of things that needed to be on here and somebody else was admitted acutely then I would sleep out the sleep-out in that situation, so I'd never keep a sleep-out over my own patient...*

However, compassion was shown by many interviewees in recognising that being an outlier is not the fault of the patient and as two interviewees put it "they've got to go somewhere" (CM2 and NO2).

*NO2: Err, I suppose if there isn't any beds anywhere they've got to go somewhere haven't they, at the end of the day this is a hospital, you know, regardless of whether it's a set ward, orthopaedic, medical, whatever, you know they've got to go somewhere, you know, and I've always seen it as, you know, they need a hospital bed and if there's one here then we'll take them. It is hard at times but it's not their fault.*

*NP1: ...every patient's got a reason to be in hospital and every patient's got their own individual needs that we've got to meet, and as patients, a patient's a patient, erm, but obviously at times as I'm sure you can appreciate and you've heard lots of experiences that certain patients have different demands and depending on those different demands certain nurses don't want them on the ward etcetera, but I think a lot of the time like from a medical perspective in particular, I think they tend to look at again who may be going home the next day, who is the most stable to move, I think, you know, a lot of it focuses on safety doesn't it, who's the safest person to move, who doesn't need the intervention of the medical team etcetera...*

### **6.4.3 What are the safety and quality issues faced by outliers?**

The major objective of the research presented in this thesis was to begin to understand the safety and quality issues that may be faced by outliers, thus the protocol and topic guide were devised on this basis. Although safety and quality issues are highlighted throughout this results chapter, this section details the specific safety and quality issues that may be faced by outliers as reported by the 29 staff members that were interviewed. Potential causes of safety issues are explored further in section 6.4.4.

#### **6.4.3.1 Safety issues**

In the literature, safety issues refer to those incidents or problems which could have or did lead to the harm of a patient. All participants demonstrated understanding of this definition. Staff members talked about a number of different safety issues that they felt that outliers might be vulnerable to as a result of being placed on an outlying ward. Participants were frequently able to back up their statements with real life examples of problems that had arisen in outlying patients under their care. Only one participant (NO1) out of 29 felt that patient safety would not be compromised as a result of being placed on an outlying ward. However, participant NO1 did highlight a number of quality issues which she felt that outlying patients may face. For example, NO1 suggested that “the teeniest jobs”, such as getting an outlying patient’s doctor to come to the ward and prescribe pain relief, are often difficult.

Although the interviewees frequently suggested that the risk of safety issues may at times increase as a result of placement on an outlying ward, they often said that these safety issues could also occur in patients placed on the correct specialty ward and therefore were not exclusive to outlying patients. The key safety issues that were highlighted by the interviewees formed the sub-themes that are reported hereafter.



- Falls

Some staff members believed that outlying patients may be more likely to fall in hospital as a result of being moved between wards (CM1, ME1, MM1, NG1, NG4, NH1 and NI1). They felt that patients occasionally fail to adapt to a change in the physical environment when they are moved between wards and suggested that this was particularly likely in elderly patients, those with physical impairments and those with confusion. As demonstrated in sections 6.4.2.2 and 6.4.3.1, it was frequently stated that to move confused patients from one ward to another is likely to exacerbate patients' confused status, thus potentially placing such patients at greater risk of a fall.

*ME1: ...falls is one, older patients fall in hospital, they become used to a certain area, so if you put a patient on this ward for instance, they'll learn where the toilet is, they know how to negotiate their way to the toilet, then you move them to another ward, and if you put them somewhere else they don't know where the toilet is, they need to get up and go to the toilet in the night, they get confused, they trip over, the geography is different, there might be a step, or there might be a little ledge going into the toilet, so falls are a risk.*

*MM1: ...there's a risk with the elderly patients that have got significant dementia or Alzheimer's that it makes that even worse and they're more at risk of falling, and more significant risk then involved with all that because you sort of disorientate these patients when they come into hospital but to keep moving and moving them, it makes them even worse...*

Furthermore, one of the doctors suggested that inappropriate sedation of confused patients on outlying wards may be an additional factor which may make such patients more likely to fall.

*CM1: I think there's a knee jerk reaction on some wards just 'we've got to give them something to settle them', so there's a lot of inappropriate medication perhaps given, sedatives etcetera which just compounds the problem, makes people more*

*drowsy and more prone to falling, so falls is one of the big safety issues for those people.*

- *Medication issues*

Several of the interviewees described problems relating to both the prescription and administration of medication in outlying patients (participants CM1, CM2, CM3, CS1, M1, ME1, MG1, NG1, NG2, NG4, NG5, NH1, NI1, NO1, NO2, NO3, NP1, RM2, RM3).

Firstly, some of the nurses (NG1, NG2, NG4, NG5, NH1, NO1, NO3, NP1) felt that as outlying patients are often moved to an outlying ward prior to a thorough medical review and hence without a full prescription, there is often a delay in ensuring that patients are prescribed and thus receive the medication that they require. They frequently spoke of the difficulty of “*getting the doctor up here*” (NO3) to prescribe outlying patients’ medication, consequently resulting in delays or omission.

*NG1: ...quite often they come up with actually nothing prescribed, so that’s another thing and we can’t give them simple things like paracetamol if they’ve got a temperature because that’s not been prescribed, and to actually get a doctor to come and do that can take hours and hours, so over such a simple thing that, you know, you need, it can sometimes take all day to get that prescribed.*

Secondly, even where medication has been prescribed for outlying patients, the ward may not stock the required drugs meaning that they have to be ordered from the pharmacy. At best this may introduce a time delay in patients receiving the medication that they require, at worst this may result in medication being missed, therefore delaying patients’ management and putting them at increased risk of deterioration (CM1, CM2, NH1, NG1, NG4, NG5, MG1, NO2, RM3).

*NH1: ...one of the other issues about sleep-outs and patient safety is quite often the sending ward won’t send all the patient’s medication, and so as you can appreciate medication in my trolley might be totally different to the medication that’s in another ward’s trolley, and so they may send a patient over that’s on maybe, I don’t know,*

*twelve different drugs that I don't stock, they haven't sent them, I request them from the ward, they don't come / the patient doesn't get the medication ...*

Additionally, problems with the handover of medication were reported to occur when patients are transferred between outlying wards.

*RM3: ...we've had a patient reported allergic to penicillin, we had dealt with it and addressed the issue, the patient was not allergic to penicillin, but each time the patient moved wards it came up again because another nurse had probably not sufficiently looked at it, spotted a query and then brought it up as an allergy and not given that antibiotic for a patient that really needed the antibiotic, even though we had addressed the issue. If the patient had stayed on our ward, the nurses knew about him, he would have been given the antibiotic because the patient was not allergic to penicillin, but each time the patient moved it came up again...*

Although a number of the nurses who participated in this study acknowledged the safety issue inherent in the omission of medication, two of the doctors in the sample (RM3 and CM2) suggested that nurses do not see the omission of medication in outlying patients as a point of concern once it has been discovered that the required drug is not in stock on their ward.

*CM2: I think one of the big issues is sometimes drugs, because we may prescribe medical type drugs which aren't stock items on a surgical ward, the surgical ward then has to request them from pharmacy and there's no urgency to do that, so I can go and see someone on a ward round and have a course of treatment for them, say they've got an irregular heart rate to slow the heart rate down, I'll come back the next day and occasionally find that the drugs haven't been given, and when you ask why haven't they been given 'we don't stock them', therefore it's got perhaps to go to pharmacy, there's inherent delays, people haven't perhaps understood the importance of getting hold of those drugs and it means that somebody's management has been delayed 24 hours.*

However, another doctor conceded that omission of medication in outlying patients was likely to be influenced by a lack of communication to the nursing staff on the outlying ward of the importance of the medication.

*CM3: I think it's often a misunderstanding about what you should do about a drug that isn't perhaps easily available or isn't something that you've got in stock. Err, so a patient might be set off on some antibiotics, they're written up but actually the ward doesn't stock this antibiotic, they have to order it from pharmacy. And some wards would then be saying 'well that's o.k. because what we do is enter a code on a drug chart that says 'drug not available', and that's our job done'. Rather than saying 'oh dear, this patient is written up for this antibiotic, it needs the antibiotic, I must do something to make sure I've got that antibiotic'. But the problem with that is that I don't think medical staff are always blame free in that instance because often it's a communication issue. If you take it to the nurse in charge and say 'look, this patient must have this antibiotic by this time', then I think it's more likely to happen, and therefore we have to take some blame for that as well.*

Finally, a number of staff members raised the issue that nursing staff on outlying wards may be unfamiliar with the medication prescribed to outlying patients (CM1, ME1, MG1, NG1, NG2, NH1, NI1, NP1, RM2, RM3). It was suggested that this makes medication rounds difficult for nursing staff and could perhaps increase the likelihood of drug errors or omissions. Nurses' knowledge of the treatment of outlying patients is discussed further in section 6.4.4.3.

*ME1: Medicines are a risk, a lot of older people are on lots of medicines and the knowledge of the nurses on another ward may not be the same on medicines. If you send somebody, an elderly care patient who's got complex co-morbidities to a gynae ward, the nursing staff will not have the same level of understanding of those medicines, interactions etcetera as the nurses on the base ward.*

One nurse gave an interesting anecdote demonstrating the concerns raised by nurses on an outlying ward when administering an unfamiliar medication to an outlying patient:

*NH1: ...very occasionally we have to sleep out, and I always find it quite amusing that, you know, we'll perhaps sleep a patient out that needs eye drops instilling four times a day, and a ward may ring you and say 'will you come and put these eye drops in because we don't know how to do them', you know, and I think hang on a minute, we're taking patients that have had screwing of ankles and you know things like that and patients that have undergone abdominal surgery, not very often but, and yet you can't put an eye drop in? And my response to that is 'well, you know, if your grandma needed eye drops in would you refuse to do it?', you know, 'well no I wouldn't', 'well you know it's just the same, all you do is just lower the lid and drop the eye drop in', 'oh right', you know, so it's quite amusing really.*

This anecdote perhaps serves to demonstrate that nursing care does become specialised by virtue of familiarity with certain medications and procedures. When presented with an outlying patient whose treatment is unfamiliar, nursing staff may lack confidence in the administration of medication.

- *Deterioration*

The deterioration of outlying patients was highlighted as a specific point of concern by interviewees from each of the broad staff groups (CM1, CM2, CS2, BM1, BM2, ME1, MH2, MM1, NG2, NG3, NG5, NH1, NI1, NO2, NO3, NP1, RM1, RM2 and RM3). Staff members suggested a number of factors which may precipitate the deterioration of an outlying patient. For example, it was suggested that patients who are transferred to outlying wards from A&E or admissions units may not receive a thorough senior medical review thus their admission diagnosis may be incorrect.

*MM1: ...if bed pressures are really tight and there's a decision to sleep people out directly from the A&E department into a medical ward but it's not an acute admission ward, the patients might not get properly assessed for sometimes well into the 12 hour period and if there's been any issues around blood tests or X-rays that are slightly abnormal or more than slightly abnormal that haven't got picked up by the A&E team, that is a safety issue that the patient is at risk of further deterioration without proper pro-active treatment taking place...*

Furthermore, the doctors in the sample spoke of instances in which seriously ill patients had been inappropriately transferred to an outlying ward under the guise of 'looking well'. This was suggested to be of particular concern in young, seemingly fit patients. Often these patients were initially misdiagnosed.

*RM2: Well we try to avoid patients that we know are unstable being moved off, but I think it's probably the converse that's true that the patients that you wouldn't necessarily think are at risk are actually the biggest problem, because they're otherwise young and fairly fit so people don't realise that they're very unwell and they get slept out and they deteriorate. Especially kind of young septic patients for instance, often their observations aren't that bad because they kind of, they deteriorate very quickly once they stop having the ability to compensate physiologically.*

*RM3: I've had patients leave A&E and go to sleep-out wards / a very ill patient, and the ward didn't pick it up as a sick patient. The House Officer saw the patient and also didn't pick it up. By the time I saw the patient I was getting intensive care involved straight away...*

*RM1: ...I think they were admitted with a headache, I think they'd been seen on the afternoon consultant ward rounds and identified that it may well be a migrainous headache, and again that was handed over to the evening team. But again because of admissions pressures it was deemed necessary that people were needed to be identified to sleep out to outlying wards, and they were not inappropriately chosen to sleep out but I think [the patient was] slept out to an ENT ward and through the night became less and less conscious until the point that they were essentially comatose, and then the medical staff were called, by which time they'd sort of developed a huge intracerebral bleed and they ultimately died, and it did seem that there had been a bit of a time delay between this person deteriorating and action being put in place.*

Thus the first problem arises when the potential for deterioration is not recognised prior to transferring patients to outlying wards. The second problem relates to recognition of deterioration once patients have been placed on an outlying ward.

Some of the medical and management interviewees suggested that the 'warning signs' of illness may be more likely to be missed by the nursing staff when a patient is on an outlying ward.

*CM1: ...if they're on non-specialist wards they're being looked after by nurses who with the best will in the world don't really know a lot about specialties so don't really know what things to look out for in terms of deterioration.*

*BM2: ...renal patients for one thing, if people are not aware of how rapidly they can deteriorate and what to look for, they may be stable when they're slept out but if people are not aware of how quickly they can deteriorate and what to look for, which they may not be on sleep-out wards, which is no fault of the nurse on the sleep-out ward, but if they're not familiar with that condition...*

*ME1: I suppose for me the biggest issue is around very sick patients. If you move a patient who is reasonably stable but then becomes unwell in another area, whether it be an elderly patient in a downstream ward or another patient specialty in one of our wards, sometimes the warning signs of illness are missed because they're not in the right specialty*

An additional problem that arises when deterioration has been recognised by nursing staff is communicating that deterioration to the patient's doctor and thereafter gaining a timely medical review of the patient.

*Interviewer: So what do you think could be the scenario if a sleep-out patient deteriorated?*

*N11: A complete nightmare, to be fair, I think that if you're lucky and the unit that that patient has come from is not having a crisis at that moment in time, then within a short period of time you would probably get somebody up, but we've already said, the reason that they're with you is because there are no beds on the unit, so the chances are that they're going to be deployed doing admissions or critical care, and I think it's very difficult for them then, I think the medical staff are perhaps in a great quandary, looking 'I've got all this here, I need to, and I know this patient's ill'.*

*NG5: You would try and ring whoever's, whoever doctor they belong to or whichever SHO, it's always a problem, and you're always passed from pillar to post, you ring the ward that they've come from, they don't know who's on call more often than not and they just tell you to go through switchboard, so that's big problems trying to get whoever we need to come and review. We've had poorly patients that have deteriorated and it's taken a long time to get somebody to come and review them...*

Problems related to the deterioration of outlying patients may be exacerbated when patients require a single side room for infection control purposes. Due to excess demand for single side rooms, on occasion very sick high risk patients with infections will be moved to single side rooms on outlying wards. This may pose a particular risk as deterioration may go unnoticed due to a lack of direct contact between staff and patients.

*ME1: ...we've had a particular experience of a young cardiology patient again on one of our elderly care wards who became very unwell very quickly and that wasn't recognised, again she was in a side room because she had a query infection, and became unwell very quickly. It was picked up quite quickly but she really should have been on a cardiology ward...*

*Interviewer: What was the outcome of the patient that should have been on the cardiology ward?*

*ME1: She died. A young patient. Went to intensive care and died.*

Furthermore, it was suggested that the risks associated with putting infectious patients in side rooms may be heightened when patients are moved to outlying wards prior to senior review in an attempt to prevent the spread of infection.

*MM1: ... the patient was reported to have some level of D&V [diarrhoea and vomiting], so there was a decision made that the patient couldn't go into medical admissions because of the D&V. In actual fact, that wasn't the right decision because even though the risk to the patient, the risk to other patients was spreading the infection, the risk to the patient at that time, to isolate them, was quite high. So*



*they sent the patient up to a non acute admitting medical ward, it was at handover time, the nurses were changing shift, the doctors were changing shift, the patient was put into a side room on a medical ward but on a non-acute medical ward, and when the doctor arrived to clerk the patient in, the patient had deteriorated so badly that the patient had to go to intensive care because it had missed all that initial assessment that the patient would have got if they'd gone up to medical admissions...*

*- Putting other patients at risk*

Many of the interviewees suggested that the presence of outliers on hospital wards may put the patients who ought to be on those wards at increased risk of experiencing a safety issue (CM3, CS2, MG1, MM1, NG1, NG2, NG3, NG4, NG5, NH1, NI1, NO3, NP2, RM2 and RM3). For example, using the case of medical outliers on surgical wards, participants from all staff groups suggested that the time taken to provide nursing care to a very dependent medical outlier may distract nurses from providing nursing care for the surgical patients that ought to be on that surgical ward (CS2, MG1, MM1, NG1, NG3 and NH1).

*MM1: Well that's what sometimes they do say do the wards, that if they've got a lot of... not dependent as in really sick but dependent as in toileting and wandersome patients, it can distract the nursing team from looking after people that need regular observations after an operation or something, so it does have an impact, yeah.*

*NG1: ...on a night shift on here there's only two qualified members of staff on the night shift, we've got patients that have had major operations, sometimes that can be up to six people in one day, then if we've got elderly sleep-outs that need two nurses to mobilise them to the bathroom and things then there's nobody else left on the ward while we're in the bathroom with the patient so both the sleep-outs and our patients are both compromised at that time.*

Furthermore, it was suggested that problems with infection control may arise if an outlying patient's infectious status is not detected early after admission and they are placed on a ward with other patients rather than in a single side room, thus placing the patients that ought to be on the ward at risk of infection.

*MG1: We have had patients that have been sent to the ward and we've not been informed that they have had MRSA, and they've been put on to a main ward which for them or for the patients is less than ideal, it's inappropriate.*

Additionally, interviewees RM2 and CM3 spoke of instances in which outlying patients with soft tissue infections had been inappropriately placed on surgical wards hence putting surgical patients at risk.

*RM2: ...because we're busy in the middle of the night we often don't think. For instance a frequent occurrence is that cellulitis which is considered to be a non urgent thing and can easily be slept out and is frequently slept out to surgical wards where the spread of infection to a surgical site, the risk of surgical site infections is very real, so that frequently happens, and often people with MRSA for instance are moved around to other wards and it's not taken into consideration because the priority is to get them off the admissions ward.*

*CM3: ...we sometimes have to make sure that, that, our, especially from the infection control point of view that they're not sleeping out people with infections that could then spread into the more vulnerable patients on that ward. Again that should be taken into account but of course sometimes the admission diagnosis isn't quite correct or, not because there's been a mistake, but just because we don't know yet. An obvious example might be somebody say with a soft tissue infection where there's exudate and leakage and for the first 48 hours or so they may be shedding quite virulent bacteria, and you wouldn't want to put that patient in the middle of a surgical ward next to somebody with a surgical wound. So we're aware of that, occasionally you see that happening but it's not regular, but that would be the concern...*

However, not all of the interviewees felt that the presence of outliers may put other patients at risk. Of those who were questioned on this matter, there were two divergent cases. When asked whether the presence of outliers on a ward may affect the safety of those patients that ought to be on the ward, participant M1 simply said “no, I don't think so, not that, that's not my perception of it, no”. Furthermore,

participant MH2 suggested that because the majority of head and neck patients are short stay patients who do not require complex care, the presence of outliers on the ward would not affect the safety of the head and neck patients.

#### 6.4.3.2 Quality Issues

As discussed in Chapter 1, when applied to healthcare ‘quality’ is a construct that is difficult to define as it means different things to different people. Broadly speaking, (and allowing for the subjectivity hereafter implied), the assessment of the quality of healthcare looks at whether care meets the standard we would ‘normally expect’. Furthermore, in the western world we would normally expect healthcare to be of a ‘good’ standard. Members of staff in this study frequently alluded to the idea that the quality of care given to outlying patients may fall short of the standard that would be provided if the patients were treated on the correct specialty ward. Thus becoming an outlier compromises the quality of care received.

*CS2: I mean ever since I've been a doctor, a sleep-out is bad news. It's bad news for the patients, it's bad news for the doctors, it's bad news for the nursing staff, I think, because no one's got any familiarity with that patient, they don't know them, they don't know what the set up is, they're unlikely to know what happens on discharge, they're unlikely that the nurse will give them the information as to what it's supposed to feel like, you know, what's going to happen next because they've got no expertise in saying you know, the doctors don't see them as often, it's bad.*

Three main interlinked sub-themes were placed under the ‘quality issues’ theme. These were: second service, delays and patient experience.

##### - *Second service*

Staff members from all broad staff groups suggested that outliers appear to receive a ‘second service’ whereby they are prioritised beneath those patients who are being treated on the correct specialty ward (CM1, CM2, CS2, BM2, BM1, ME1, MH1, MM1, NG1, NG2, NI1, NO1, NO3, NP1 and RM2). Underlying this appears to be

the assumption that outliers are generally the most medically fit and stable patients, thus sicker patients are prioritised more highly.

*ME1: ...the problem is, they've got all their own patients to deal with in their own areas, so that patient is last on the list, so I suppose the theory being that if a patient is being slept-out, they're not high risk medical patients, so they don't need as acute an attention, so it'll be later in the day when they get seen...*

Furthermore, nursing and medical staff view the patients who are on the correct specialty ward as their priority. Thus the 'second service' received by outliers directly links to the 'medically fit / approaching discharge' theme and the 'it's not our patient' theme presented in sections 6.4.2.1 and 6.4.2.2 respectively. The major consequence of this 'second service' appears to be delays to all aspects of the health care process which may ultimately degrade the hospital experience of outlying patients.

*MM1: with the best will in the world, most patients when they're slept out, I don't mean neglect as in neglect, neglect, but they do tend to get, they get seconds, they're not the first, erm, sort of priority on that ward. The priority is like the theatre list, or, erm, whatever they're doing on that ward...*

*NO1: ...what generally happens with all sleep-outs not just with medical or surgical or anything else, you tend to look after your own area first, that's your priority, and then the outliers, which are the sleep-outs, get seen later on in the day.*

*CS2: I think there's a number of factors why people don't like sleep-outs, I think they don't get reviewed as often because people either forget about them or in the hospital it's a struggle to get round them in the morning and do the ward rounds, err, I think that would be the main reasons, err, so they'll either forget or they can't be bothered, so I think the chances of them getting seen and reviewed twice a day because most of our patients will get reviewed twice a day, is considerably smaller.*

*BM2: they'll do their own ward round first and they'll come as a second thought, "oh, that patient's not been reviewed, we'd best try and get in touch with the*

*consultant looking after that patient”, so they’re always sort of done later in the day, and things like social services referrals, getting in touch with family, I think they get a second service as it were.*

- *Delays (review, investigations, treatment, discharge)*

Delays were mentioned as being inherent in the care of outlying patients by all 29 participants. Delays in medical review were reported to be particularly problematic as they often cause a chain of subsequent delays in investigations and treatment. It was often suggested that the accumulation of each of these delays may result in an increased length of hospital stay for outlying patients. Because outliers are assumed to be medically stable, they are often not reviewed by the medical teams until late into the day, after ward rounds have been conducted on the specialty wards of each medical team. Furthermore, it was often noted that if additional medical input was requested for a patient on an outlying ward, this was frequently delayed. This was reportedly due to the sheer distance between an outlying patient and their doctor within the hospital and also the competing demands that are placed on staff time. These sub-themes are discussed further in section 6.4.4. The sequence of delays often encountered by outlying patients was summarised succinctly by the following participant:

*CMI: ...I think there’s delays in assessment first of all, if somebody’s admitted to the wrong ward they will be seen last on the ward round, because ward rounds always start on the home ward, and will finish on the outlying wards, so there’s delays in assessment. People get missed, so if they don’t appear on the Trust’s sleep-out list, it’s only when you get a phone call 12 hours or 24 hours later you know about them, so there’s delays getting to see them, when there’s delays getting to see them there’s delays in investigation, there’s delays in investigation / say take an example, when I’m on for elderly care, I’ll go round the elderly care admission ward at the weekend and then go and see the sleep-outs, and let’s say for example one of the sleep-outs needs a CT brain scan, you may have already requested 3 or 4 of those already on the admissions ward and the slots might be full, so they’re sort of last in the pecking order of getting tests. And at the weekend X-ray is only open ‘til 12, so you’re often faced with the problem that you see somebody at 1 o’clock at the end of the round*

*and radiology is shut so they can't get the test until the next day. So they're disadvantaged in terms of investigations. So if you're delayed in assessment you're delayed in investigations, if you're delayed in investigations you're delayed in diagnosis, and if you're delayed in diagnosis you're delayed in treatment, if you're delayed in treatment your length of stay goes up, so all these things factor into people being in hospital longer and everything is delayed.*

A particular concern raised by staff was that at times outlying patients may be 'forgotten' by nursing and medical staff and therefore not be seen by a doctor for days at a time (CM3, CS1, CS2, BM2, MG1, MH1, MH2, NG3, NG5, NO2, NO3, NP2, RM2 and RM3). Thus the delivery of medical review of outlying patients is often observed to fall below the standard of care that we would expect.

*RM2: I know of one instance where a patient, there was a formal complaint about this, had been post-taken and then wasn't seen again for three days because nobody knew the patient was there and nobody was actioning the investigative plan that had been started on day one and I only happened to be on that ward seeing another sleep-out when the nursing staff said 'oh you've got this other medical patient' and I said to her 'who?', and she had no reason to be in hospital for the preceding three days, she could have gone home on the same day, but there was a breakdown in communication between the nursing staff and the responsible medical team and so she just stayed in hospital unnecessarily, wasting the bed, putting her at risk of hospital acquired infection and of course from her point of view she put in a formal complaint because she realised that she'd been kept unnecessarily.*

- *Patient experience*

Participants were asked whether they had any insights into how patients may feel about being placed on an outlying ward. Most of the interviewees felt that placement on an outlying ward provides patients with a sub-optimal hospital experience (CM3, CS2, BM1, M1, ME1, MG1, MH1, MH2, MM1, NG1, NG2, NG3, NG4, NG5, NH1, NI1, NO2, NP1, NP2, NP3, RM1 and RM2). Thus 'patient experience' became a sub-theme under the quality issues theme.

*ME1: ...it's about quality as well isn't it, you know, the quality of patients' experience, it doesn't mean that you have to die in order to have a bad experience, you can be in hospital and feel that you're unsafe because you're not being cared for in the right area, and that's as important to that patient as the reality of having something happen to you.*

The hospital experience of outlying patients was thought to be degraded for a number of reasons. Firstly, because of delays as highlighted in the previous section. Some of the interviewees suggested that the anxiety caused by delayed medical review was particularly detrimental to the experience of outlying patients.

*MH1: I had a complaint, I'm going back a couple of years ago now where we had an orthopaedic sleep-out patient on the ward, and erm, basically she wasn't reviewed by that team on a regular basis, and she was very disgruntled about that, erm, the ward were attempting to try and get in touch with the doctor, and I don't think the doctor concerned was doing it for any other reason than that they were really busy, but obviously when we investigated the complaint and myself and the patient service manager within that area sat down with her in a meeting, you know, it did all come to the surface then, and she felt, you know, very cast aside because she wasn't being reviewed regularly by the team that she'd been admitted into, and she was very upset about that.*

Secondly, expanding on the information presented in section 6.4.1.1, the act of being transferred between different hospital wards impairs the continuity of care and removes patients from staff members or other patients who they have become familiar with. Furthermore, staff proposed that transferring patients in the middle of the night is particularly detrimental to patients' experience. It was also suggested that older patients generally find being moved to an outlying ward more unsettling than younger patients.

*CS2: I think also for a patient experience it's suboptimal, because you're not getting the familiarity around the ward space, the other patients in hospital sometimes form friendships with each other or alternatively the nursing staff...*

*N11: I think you get a bit fed up as a patient when “can you pack your bags again because we’re moving you to..”. But it’s difficult for them because I think patients need to build a relationship with the staff that they’re with and especially when you’re only here for a short time because the idea obviously is to get patients back out to their home, but there’s no time to build that relationship to, I think people, I think we lose out on people who would share a problem, would open up another side of something and because they’ve moved and moved and moved, they don’t feel they’ve got that relationship building with the next group of staff to do that sharing. So I think we need a bit of quality in those terms.*

*NG1: it does annoy them when they come at 3 o’clock and 4 o’clock in the morning, especially the elderly ladies because they don’t want to be and it’s confusing for them and the families aren’t happy about it, because I don’t think you should be moving people at 3 o’clock in the morning when they’re 90-odd...*

However, attention was given to divergent cases and some of the interviewees suggested that most patients would be accepting of placement on an outlying ward and that this would not negatively affect their hospital experience providing a good explanation of why the movement was necessary was given. Furthermore, some members of staff suggested that patients’ perceptions often changed once they had been moved, with a number of patients actually preferring outlying wards as surgical wards in particular tend to have ‘fitter’ patients on them and can be quieter in comparison to busy medical wards and admissions units.

*CM3: ...equally I’ve known patients who have actually rather liked the sleep-out wards! So it works both ways I suppose, sometimes they don’t want to be, you know, moany groany medical patients / because some of the surgical wards actually have a better sort of feel because there are some fitter patients who have just recovered from their operations and are just sort of brighter than some of the more chronic medical conditions. And sometimes of course the medical wards if we have got disruptive patients on them can be quite noisy, not easy.*

However, participant RM3 offered a different perspective, suggesting that outlying patients are often unaware that they are on a ward that would not normally treat their



illness. This participant suggested that being an outlier would only negatively impact the hospital experience of those patients who are admitted frequently and know the wards and the staff working on them, or those patients who are transferred between wards numerous times.

*RM3: ...most of them initially when they come in they, because they don't know what's a medical ward, they just know they're in hospital in a ward, so they don't really understand. For those that have been in hospital before and know the wards well / frequent admissions and have conditions that have taken them to specialist medical wards / then if they are slept out somewhere else then they will tend to complain a bit / But those that are moving between wards certainly yes, there is, we tend to find that they would raise the issue.*

#### **6.4.4 What are the potential causes of safety and quality issues faced by outliers?**

Participants were asked to outline the perceived causes of safety issues faced by outliers and to provide real life examples to illustrate these where possible. The five themes derived from the analysis are reported hereafter.

##### **6.4.4.1 Competing demands on staff time**

Interviewees from all staff groups frequently mentioned the difficulties that they face in trying to provide safe, high quality care for outlying patients while simultaneously providing this high standard of care for those patients who are on the correct specialty ward (CM1, CM2, CM3, CS1, CS2, BM1, M1, ME1, MG1, MH1, MH2, MM1, NG1, NG2, NG3, NG4, NG5, NH1, NI1, NO1, NO3, NP1, NP2, RM2 and RM3). The participants told how these competing demands on staff time can create delays in the nursing care, medical review, investigation, treatment and discharge of outlying patients thus degrading the quality of patient care and placing patients at risk of harm. Furthermore, as highlighted previously some staff members suggested that the demands made on their time as a result of having outliers can affect the safety of those patients who are on the correct specialty ward. The sub-themes placed under this theme were 'outliers versus other patients' and 'lack of staff'.

- *Outliers versus other patients*

The nursing staff from surgical wards highlighted the difficulties that they face in providing nursing care for acute medical or elderly outliers while simultaneously providing nursing care for elective surgical patients. They suggested that because of the competing demands created by providing nursing care for these two distinct groups of patients, patient safety may be compromised in one or both groups. The nursing staff on surgical wards also spoke of the pressure that having outliers on the ward creates when trying to get elective patients in for planned surgery. The management staff from medicine and care of the elderly also recognised the difficulties created by this pressure.

*ME1: ...it's particularly if you put a medical patient on a surgical ward and if they're busy with theatre, you know, we tend to forget in acute care what happens in the electives, we forget that on an elective ward their pressures are different to ours, so they may have ten patients going into theatre in a morning, and that's their priority, the medical sleep-out isn't their priority...*

*MM1: if they've got a lot of... not dependent as in really sick but dependent as in toileting and wandersome patients, it can distract the nursing team from looking after people that need regular observations after an operation or something...*

Members of medical staff also highlighted the difficulties they face in managing their time when they have patients on the correct specialty ward and patients on outlying wards who they are responsible for.

- *Lack of staff*

Participants suggested that a lack of nursing staff may be a factor that compromises the safety of outliers. This becomes a particular issue when heavily dependent patients are placed on outlying wards as nurses may become overwhelmed with the workload.

*MH2: The difficulty in terms of my area is because we don't have any major high dependency patients if you like, other than the cancer patients, if they get stroke*

*patients through or patients that have got a high nursing input that's required, then our staffing levels don't, don't match that input that's needed and if you've got a lot of those types of patient then we haven't got the staff to give them that care that they need and that's where some of the frustrations come in as well.*

*NG1: It's all down to the fact that there's not enough staff on here, and... for us again, especially on a night time there's only two members of staff and you can quite often... the ward can be left unattended because you know, particularly sleep-outs that require lots of care, that require both members of staff, and I don't always think that they understand that when they're sending people from other wards, most other wards have at least three members of staff if not more on a night shift.*

#### 6.4.4.2 Communication

Communication issues were frequently cited as being problematic in relation to providing safe, high quality care for outlying patients. These issues included difficulties in communication between different members of staff and different teams, particularly at handover and during medical review. Furthermore, difficulties in effective communication between staff and outlying patients were often described, potentially degrading the quality of patient care.

##### *- Communication between staff*

When a patient is allocated a bed on the appropriate specialty ward for their illness they have the benefit of being looked after by teams of nursing and medical staff who know each other and work together regularly. One staff member in particular (CM2) suggested that this proximity facilitates informal communication and may enhance working relationships and therefore patient care. Outlying patients are often not afforded this benefit as nursing staff on outlying wards may be unfamiliar with the medical teams caring for the outlying patients on the ward. Staff members suggested that there are numerous instances in which this lack of familiarity between medical and nursing staff may prove problematic.

*CM2: the major safety issue is that if there is a change in that person's condition, there isn't the staff around just to say to them "will you go and have a look at Mrs. Bloggs". It all has to be done by phone, by bleep, you're reliant upon somebody then making an effort to come up. You know, if it's on your ward and the patient is 5 yards away from you it is no effort to go and see them because it may be something very simple. If it's the other side of the hospital and you're busy, you've got to break off a ward round and go and spend half an hour trailing somewhere see somebody and trail back, I think that's a safety issue, so I think there's not necessarily a safety issue when there's the formal ward rounds going on, it's the vast majority of the time where the care in inverted commas is informal, there's an awful lot of work done by bumping into people and saying "oh yeah, did you notice Mrs. So and so has not had that drug" or "her blood pressure's low" or "she didn't look right today" and you go and have a look at her, so I think that's what they miss out on.*

Some participants recounted that in order to try and improve this situation the Trust had developed a strategy whereby each ward would be allocated specific medical consultants who would go and see all of the medical outliers on that ward rather than having a number of different consultants visiting a number of different outlying patients on the ward. This was proposed to save consultant time and allow the medical and nursing staff to build a greater familiarity with one another, thus enhancing communication and therefore patient care. However, it was suggested that problems with this system remain and nursing staff often do not know which consultant a medical outlier is under.

The handover of outlying patients was raised as a particular communication issue. Members of nursing staff felt that important information about outlying patients was often not conveyed during the handover, leaving the receiving ward ill prepared to take over patients' care.

*NG4: Another safety issue is the actual amount of information that's handed over depends on the experience of the nurse handing over, because not all information is given, and things are left out*

Furthermore, some staff members suggested that communication breakdown between nursing and medical staff had on occasion resulted in outlying patients being forgotten about.

- *Communication between staff and patient*

It was suggested that poor communication between staff and outlying patients may compromise the quality of care provided. For example, patients require a thorough explanation of why it is necessary to move to an outlying ward yet some interviewees claimed that this may not be given. Furthermore, it was suggested that when a patient is placed on a ward that is not specialised to treat their illness the patient may not receive the same level of information about their illness and care as they might on the correct specialty ward.

*M1: ...usually when you speak to patients it's the small things, it's not the things that nurses see as the priority, the patients' priorities are usually miles away, so it's about asking them what's the, what the issue is, what the reason is, and I think if it's explained correctly, you know, that 'you have been reviewed by the medical team and they are happy that you are well enough to be moved', that's the first reassurance because they are in hospital to get better, so that reassurance and reassurance from the nurses, and that 'all your care and treatment has been handed over and you will be still looked after, just in a different environment'. But I suspect we don't do it as well as we should do.*

*MH1: patients do get upset about it if it's not handled very sensitively, obviously you and I would be exactly the same, you know, you would feel that you were cast out from the ward and the fact that they're not reviewing you from that ward and the medical staff that you were admitted under, you would feel that, you know, they weren't taking you seriously, or acting on your complaint or you know, it makes patients I think very insecure.*

#### 6.4.4.3 Knowledge / specialist care

As outliers are patients who are placed on hospital wards that would not normally treat their illness, it was frequently suggested that outliers may be disadvantaged by a lack of specialist input from both medical and nursing staff.

- *Basic nursing care versus specialist nursing care*

The interviews revealed two main schools of thought on whether the safety of outliers may be compromised due to lack of specialist knowledge on the part of nursing staff on outlying wards. Some of the interviewees suggested that basic nursing care can be provided to any type of patient on any kind of hospital ward thus the delivery of basic nursing care would not be compromised for outlying patients (BM1, M1, MH1, MH2, NG2, NH1, NI1, NO1, NP1 and RM1).

*NO1: Most nursing care is basic nursing care so that's right across the board, whoever your patient is.*

*MH2: ...whilst you might have a medical patient on your ward, you could also get one of your own patients in with the same medical conditions and co-morbidity and therefore you should know how to, every nurse should know how to deal with the basic nursing care for every patient...*

However, some interviewees, including some of those listed above, suggested that on occasion nursing staff on outlying wards may not have the knowledge and expertise required to provide specialist care for outlying patients as nursing staff become familiar with and hence specialised in providing nursing care for the types of patients they most frequently see (CM1, CM2, CM3, CS1, CS2, BM2, M1, ME1, MG1, MH2, MM1, NG1, NG2, NG3, NG4, NG5, NI1, NO3, NP3, RM1, RM2 and RM3). This issue was highlighted with respect to nurses' knowledge of outlying patients' medication and the ability to recognise deterioration in section 6.4.3.1.

*CS1: ... lets say for example a specific orthopaedic condition like a fracture of the tibia / if they have an operation on that there are certain risks attached to that,*

*certain complications, that if they ended up on a plastic surgery ward or a gynaecology ward, the nurses on that ward might not be aware of those potential complications and would not know to look for those complications, so that's a significant clinical risk.*

*CM2: I think the major issue for me is that, other wards don't know how to, they tend to get a little old lady, so they tuck them up in bed, they leave them in bed, which means that they go off their feet, and they think they're being kind to them rather than trying to make them walk to the toilet, rather than trying to get them to feed themselves, it's easier, if you're not used to it, to take a commode to a patient or wheel them to the toilet rather than spend five minutes walking them there, but the rehab side of life, it's much better if you spend five minutes walking them there.*

*NG1: ...orthopaedic patients are particularly difficult because they come with pins in their legs and frames and obviously casts on, we don't know whether they should be weight bearing, non-weight bearing, we don't get a particularly detailed handover when it's over the telephone and what we have to do is sort of go then on our own experiences, which some of us have worked in orthopaedics and some of us haven't so we're kind of using each other's experiences to try and work out what we should do, we do ring the wards for advice but they can't always give us the advice because they sometimes don't know if it's not been decided by the time they come to us, so for that reason we can't always get people out of bed when they could be doing if they'd have been on the normal ward...*

As suggested by participant NG1, several members of nursing staff mentioned that if there was ever an aspect of patient care that they were unsure of that they would seek help from staff on the specialty ward.

*MH2: ...there is always a telephone to pick up and ring somebody that's appropriate to answer any of their particular queries or questions.*

Thus although nursing staff on any ward have the knowledge to provide basic nursing care for any patient and can ask for the advice of staff on the specialty ward, they may not have the expertise required to provide more specialised nursing care. It

was therefore suggested that outliers who require specialist rather than basic nursing care have been '*inappropriately slept-out*'. As was demonstrated in section 6.4.2.1, while patients with complex needs are not commonly moved to outlying wards, on occasion it does happen, potentially placing patients at risk. Furthermore, such patients may consequently be repatriated back to their specialty ward for ongoing care. As demonstrated in section 6.4.1.1, the act of transferring patients back and forth may impact negatively on patients' hospital experience.

- *Junior doctors' knowledge*

As highlighted in section 6.4.2.1, junior doctors sometimes make inappropriate decisions with regards which patients can move to outlying wards due to a lack of experience. Furthermore, as outliers are often assumed to be those patients who are relatively medically fit and approaching discharge, they are often reviewed by more junior members of medical staff. It was suggested that on occasion, junior doctors may not have developed the skills necessary to reach a correct diagnosis or recognise that an outlying patient, who they expect to be well, is deteriorating (CM1, RM2, RM3 and CS2).

*CS2: I think often because they're outlying wards they'll often send a more junior member of medical staff to see them so it won't be part of a complete ward round...*

*RM2: ...the level of experience of the junior doctors is much lower than it was say 10 or 15 years ago and so they don't have the experience to make sensible decisions and that's why they miss poorly patients and people are slept out inappropriately.*

*CM1: If you're on a non-specialist ward you can't expect nursing staff or even the non-specialist juniors on that ward to know why someone's deteriorating, they don't know what to look out for.*

*RM3: ...if the patient initially, the nurses don't realise that this patient is unwell, and the junior medical doctor doesn't realise the patient is unwell they may end up, by the time the registrar turns up, being a very sick patient. And I have examples of that. I've had patients leave A&E and go to sleep-out wards / a very ill patient, and*



*the ward didn't pick it up as a sick patient. The House Officer saw the patient and also didn't pick it up, by the time I saw the patient I was getting intensive care involved straight away because the patient was that unwell and the diagnosis, the junior doctor hadn't got the diagnosis right, and to be fair it was a complex patient, if I'd have known about how ill that patient was it wouldn't have happened.*

#### 6.4.4.4 Ward environment

Regardless of the expertise of the staff on the outlying ward, a number of interviewees felt that the ward environment may be detrimental to outlying patients' care. Stated reasons for this included the distance between medical staff and outliers, the equipment and medication available on outlying wards, the consequences of changing environments and the use of side rooms for infection control purposes.

##### *- Distance*

As previously mentioned, many of the interviewees from each of the staff groups acknowledged that the sheer distance between the outlying ward and the medical team whose care an outlying patient is under may compromise the medical input that outlying patients receive. Firstly, outlying patients miss out on the informal observations made when the doctor sees that the patient 'doesn't look right'. Secondly, when nursing staff on an outlying ward detect a potential problem with an outlying patient the physical distance between the patient and the patient's doctor becomes a barrier and creates a delay.

*RM3: ...when you're on a medical ward, MAU for example, just the fact that you physically can see a patient in front of you can give you a feel of whether that patient is sick or not.*

*CM1: ...it's so difficult to manage these people when you're not physically there. And just the layout of our hospital is such that, you know, our unit is on the top floor at one end of the hospital, and you might have patients about half a mile away down three floors, along a corridor and up another three floors. So you can't just pop back*

*and forth and check on people and catch relatives in the same way you can on your own ward.*

*RM2: ...there's often a delay in medical review because it's just the geography of the thing really, and sometimes that's not sort of because patients are really ill, sometimes it's for really stupid things like a cannula comes out and nobody, and it's felt it's not a priority because they're so busy to walk to the other side of the hospital to put a new one in, then patients miss antibiotic doses for instance, and sometimes that causes problems. In fact often that causes problems to do with antibiotic doses, so they can deteriorate and it's often for silly, silly things like just not having a cannula in because it's too far away for the junior doctors to go and put one in and come back.*

*- Availability of equipment and medication*

Participants alleged that the equipment needed to care for outlying patients from other specialties is often not routinely available on outlying wards. This may directly impact on care if for example it is not possible to mobilise patients, and in some circumstances patient safety may be compromised. Staff therefore have to arrange for the equipment they need to be sent to the ward or improvise using whatever is available. A further problem arises when nursing staff are unsure how to use a piece of equipment that they are unfamiliar with. These problems may result in outlying patients being transferred once more to a ward that has the equipment available and the expertise to use it, but as previously suggested additional transfers may impact negatively upon patients' hospital experience. Furthermore, a particularly pertinent safety issue, which was described in full in section 6.4.3.1, results when the medication required by outlying patients is not stocked on outlying wards.

*NG1: we can't always get people out of bed when they could be doing if they'd have been on the normal ward, we can't always mobilise people if they could be mobilised because we don't have the right equipment, we don't keep Zimmer frames and sticks and hoists and all that kind of stuff, so I personally send people back to wards because of, we've not got the equipment to look after them up here, so I've numerous*

*times sent people back because we've just not had the right equipment that they need, so they've had to go back again.*

*NG2: ...it is a risk in that not all of our beds are equipped with the cot sides and all the sort of things that really is required to nurse these patients...*

*NG5: ...on an orthopaedic ward they would have the monkey poles and everything else, the profiling beds and things, but we don't have them on here, we have to order them...*

*NO2: ...they haven't got the appropriate equipment, you know like drug charts and the things like that they need, or dressings, sometimes you know we're chasing round wards for dressings and we're chasing round wards for tablets for these patients...*

*MG1: sometimes you might get a patient coming in with a particular piece of equipment that you're not familiar with, I mean most of the equipment is pretty standard and most of the staff on the ward can use all things like the pumps and, because we use them, but it's if you get an unfamiliar piece of equipment, yeah.*

*- The consequences of changing environment*

The sub-theme presented in section 6.4.2.1 demonstrated that the act of moving confused patients between hospital wards may pose a particular threat to patient safety and compromise the quality of care. Furthermore, the change in physical environment may increase the risk of falling in patients with a disability or impairment.

*RMI: I mean to my mind the worst thing is delirium that results from ward change, changes of environment, and again it's usually older people, and people with cognitive impairment or dementia that you would feel would be higher risk, and it's those patients that do probably get slept out from the inpatient bed base to maybe a surgical ward. And usually, usually it fits with the fact that it's those patients that often have more complex social needs, so while they're medically well they still have complex social needs so it maybe that as they're stable they can be slept out and then*

*you sometimes fall into the problem that because their social needs are very complex, that complexity gets lost in the transfer and then people just have to start all over again, so that's always a bit frustrating as well.*

*N11: I think that from the perspective of patients who either have visual or hearing disabilities, to be moved from one area to another, it can be difficult because very often, the showing somebody round the area, the making sure they're familiar with it, the giving them support to start with is crucial for their independence throughout that period of stay, so when you start moving them, you know, we increase the danger to that individual because this is their second or third place they've been and they'd forgotten that this one had a step into the toilet or the floor inclined or just very simple things that don't normally seem a problem, but to an individual with an impairment can be.*

- *Side rooms*

As discussed in section 6.4.2.1, the use of side rooms on outlying wards for patients who are infectious may pose a specific risk to patients' safety. Nursing staff cannot easily see patients when they are in side rooms, and when this is coupled with the fact that nursing staff may be unfamiliar with the medical condition of outlying patients and therefore not know what to look out for in terms of deterioration, outlying patients may become very sick but this may go unrecognised for some time.

*RM2: without a shadow of a doubt, being placed in a side ward is a big problem, quite possibly that's the biggest risk we have with sleep-outs because patients quite often who are seriously septic or have inter abdominal pathologies will present with a bit of diarrhoea and vomiting and get labelled as gastroenteritis and get sent to side wards, often on surgical wards or gynae wards, far away from the core medical wards, and err it might be 12 maybe sometimes 16 hours after they're admitted that the consultant reviews them and it's appreciated just how sick they are, and in the last few months we've seen a young person who clearly had appendicitis who'd been labelled with having just gastroenteritis, she was very sick by the time I saw her about 14 hours later at the end of the ward round and she'd been slept out to an inappropriate ward who didn't spot the fact that she was that sick.*

*RMI: I think side rooms are a bit of a difficult area because I do understand that they are necessary for certain patients but at the same time you always have, you do always have this worry that people that you can't physically see it's more difficult to detect if they are deteriorating if they're in a side room / it's not necessarily the same as the fact that you've recorded someone's observations on an hourly basis, it's that you can walk up and down a ward and just eyeball people, and you can often, you can often see people that are beginning to deteriorate., That's a worry that I have.*

#### 6.4.4.5 Patient factors

As highlighted in sections 6.4.2 and 6.4.3, characteristics of outlying patients may increase vulnerability to safety issues.

- *Low priority patients and the potential for disorientation*

Sections 6.4.2.1 and 6.4.3.2 revealed that outliers receive a 'second service' because they are assumed to be the most medically fit and stable patients. They are therefore prioritised beneath those patients who are being treated on the correct specialty ward which potentially compromises the quality and safety of care. Additionally, participants spoke of instances in which seriously ill patients had been transferred to clinically inappropriate wards under the guise of 'looking well'. This was suggested to be of particular concern in young, seemingly fit patients who were often initially misdiagnosed. Sections 6.4.2.1 and 6.4.3.1 suggested that transferring patients who have confusion, dementia or a physical impairment is inappropriate as this may create further disorientation, pose a falls risk and compromise the quality of care.

### **6.4.5 What would improve the safety and quality of care given to outliers?**

The final objective of this study was to explore staff members' suggestions for strategies to improve the safety and quality of care given to outlying patients.

#### **6.4.5.1 What would make the care of outliers better?**

From the sixth interview onwards, as each interview was drawing to a close participants were asked what measures they thought could improve the safety of outlying patients. Many of the sub-themes reported here are a product of the saliency analysis that was undertaken. Thus while the suggestions raised may not have been stated frequently by a number of different interviewees, the points made were salient and important to addressing this research question.

##### *- Enhanced communication*

The problems inherent in contacting the correct medical team for an outlying patient were frequently cited thus the need for measures to overcome this was emphasised. Furthermore, some of the interviewees suggested that the quality and safety of care provided for outliers may be improved if staff were given more information about each individual outlying patient. It was suggested that proper use of the patient transfer sheet developed for use in the Trust and a thorough handover of each outlying patient would help with this.

*CM3: certainly we could probably do better with better ways of looking up bleep numbers, better ways of looking up staff.*

*NG4: ...another safety issue is the actual amount of information that's handed over depends on the experience of the nurse handing over, erm, because not all information is given, and things are left out, and I think there should be some kind of standardised sleep-out transfer list for the whole of the hospital that has all the relevant information so those that are less experienced, less qualified, less skilled, it can act as a prompt...*

Additionally, concerns regarding the awareness of the sleep-out policy currently in place were raised. Some of the interviewees suggested that while potentially effective procedures had been devised to promote good quality and safe care for outlying patients, these were not always being used effectively.

*CM3: I think it's round getting to know the systems that are in there rather than necessarily adding to the systems. The systems are there so it's whether people are fully aware of them.*

However, one participant stressed the need for revision of the sleep-out policy and formation of formal criteria to prevent the inappropriate movement of at risk patients to outlying wards.

*RM3: there aren't any formal criteria. And I must say I have voiced the need for it, erm, because there aren't any set criteria in [hospital] for sleep-outs so it's based on a, err, people tend to make their own rules.*

Another participant suggested that the wards which are frequently involved in caring for outlying patients should be involved in the future development and implementation of the sleep-out policy.

*NH1: We do have a nurse to nurse transfer sheet which has to be completed by the sending ward, so it's a checklist just to make sure we've covered all bases, and then the receiving ward has a nurse to nurse verbal handover sheet which she completes, but there are a lot of things that I think should be included on that, erm, that's not, and I think if somebody had have asked me, you know, I could have told them, but I think, you know, when you're a ward that takes an awful lot of sleep-outs, I think we should be involved in, well, have some sort of say and input into the sleep-out policy.*

- *Effective discharge planning and preventing unnecessary admissions*

It was frequently suggested that the delays inherent in the care of outlying patients lead to a prolonged length of hospital stay. This adds to over-occupancy problems thus increasing the number of outliers. It was therefore suggested that strategies for

effective discharge planning should be implemented. Furthermore, the number of outlying patients present in hospitals may be reduced by improving strategies to keep patients in their own homes and preventing them from being admitted to hospital.

*MM1: I think everybody should work to having a discharge plan for patients, and the patients should be aware so the patients know when they should be planning to go home, and we should be more proactive in the Trust around that, because that'd stop some of the social sleep-outs if you know, some of them are waiting for this to go in at home or that to happen, that'd improve things...*

*MG1: I think definitely teams working effectively and looking at ways to review the patients as quickly as possible so that you can facilitate discharges wherever possible and reduce delayed discharges, that's definitely something that we should do more work on. And also I think it's about as well where patients don't have to be in hospital, erm, then that, there's more work to do there, you know, preventing people from coming to hospital when they don't need to come and they don't need to be admitted because that still happens.*

- *Thorough and timely review of outliers at all points in the hospital journey*

As discussed in section 6.4.3.2, delays in the medical review of outliers were highlighted as a major point of concern, thus strategies to improve this were advocated. Furthermore, it was suggested that outliers should receive regular senior medical review.

*RM2: ...there should be a senior ward round on every ward, at least every medical ward every morning, and that there should be a ward based system so that it's the responsibility of the accepting ward to make sure those patients are reviewed as soon as the consultant or the senior or the registrar comes on in the morning, because right now they're all still the responsibility of the MAU until they're seen by the consultant and that's where delay comes in because we've got 24 beds on MAU to see first and then we go off to see our sleep-outs, so there's that kind of 12 to 14 hour delay that's built in. So it'd be better if we spread the workload across all the consultants and registrars really, but that obviously has quite a lot of implications*



*for clinics and the whole way that consultants work so they're reluctant to do it really, so that's what we should work towards.*

*NP1: I think that maybe they could do with coming and reviewing sleep-outs in the morning rather than leaving them 'til the last...*

An additional suggestion was for strategies to improve tracking of the location of patients to prevent patients being lost or forgotten.

*RM2: I do think a computer tracking system would be good, to bar code patients, that would help, it'd be like fed-ex! Put it on their wrist band and scan them in and out! They already do that with bloods so the technology is already there, that would help, then at least you'd know where they were because frequently we lose patients and we spend a long time looking for them because we don't know where they went.*

*MM1: something like an electronic, like we've got in A&E where we've an electronic board tracking patients, some electronic tracking system that tracks the patients and actually if they don't get reviewed by two o'clock in the afternoon it changes colour to escalate that that needs to be done.*

- *Greater provision of single side rooms in medicine*

Although it was widely accepted that to provide more beds is not a realistic solution, a salient point raised related to the lack of single side room accommodation for medical patients who require isolation for infection control reasons.

*N11: I think, I think we need to be slicker in the type of provision that we provide / economically we have to be viable, but sometimes I think we do that at the expense of the right accommodation for the individual, you know, because every area should have from an infection perspective a number of side wards / we should have a bigger number of single side wards, that would reduce the need to move people out because of their infection risk but it wouldn't alter the fact that when we've got high capacity times we sleep people out, but if we had enough accommodation, better planned accommodation for the number of patients we have coming in, I think it would help.*

- *Culture change*

The 'second service' and 'it's not our patient' sub-themes in particular led to the suggestion that steps should be taken to change the attitudes of staff members to outlying patients.

*MH2: that's where the culture comes in, they don't like it, you know, we get rid of our patients, you know, we discharge our patients, we empty our beds and then we get them filled up with sleep-outs. It's this culture thing, it's around 'these aren't our patients, why should we always get them, we're always full of sleep-outs', and that's what we've got to try and change, you know, because at the end of the day, if it was their relative waiting in A&E for a bed, how would they feel? And that's what we've got, we've got to try and change.*

*ME1: I think the organisational perspective is 'well it's a bad thing but it's something that has to happen because we can't do anything else.... I think that needs to change, there needs to be a much deeper look at why it happens and organisationally try and stop them. At the moment people try and stop it by being obstructive, so we have certain segments of our hospital who will, we know, keep patients in, just to prevent their area from being filled with sleep-outs, so we know that bits of the hospital will say 'oh we're not going to send them home, because if we send them home today we'll be full of sleep-outs overnight, then we won't be able to get our patients in in the morning'.*

## **6.5 Discussion**

This discussion section provides a summary of the results and places the results in the context of prior research. A reflexive account of the methods adopted and the strengths and limitations of this study is then presented. The results are also summarised briefly in Table 8.1. The results of this study are discussed further in Chapter 8 (the main discussion chapter of the thesis) in conjunction with the other findings gleaned in this thesis. In Chapter 8, the theoretical underpinnings presented in section 1.7 are applied in order to ground the results within the context of relevant theory and the existing literature. An overall consideration of the strengths and limitations of the work is presented and the implications of the findings are discussed.

### **6.5.1 Summary discussion of results**

A total of 29 staff members (nursing staff, medical staff and management staff) from different specialties (medicine, surgery, orthopaedics, ENT, plastics and gynaecology) were interviewed to ascertain their experiences and perceptions of patient safety in outliers. Five main research questions were addressed: why do patients become outliers? What are the characteristics of outliers? What are the safety and quality issues faced by outliers? What are the causes of the safety and quality issues faced by outliers? And what would improve the safety and quality of care given to outliers? Eleven key themes were derived during analysis which help to answer these research questions. These were summarised in Table 6.2.

Staff interviewees explained that the need to place patients on outlying wards is caused by the bed pressures that arise when the demand for inpatient beds outstrips the available supply. This phenomenon is well documented in a number of policy relevant documents (Audit Commission 2003, DoH 1999, National Audit Office 2000). Staff suggested that bed pressures are often heightened over the winter period but can occur at any time. Similarly Fullerton & Crawford (1999) demonstrate that hospital occupancy and therefore the number of outliers peaks during winter months. Some participants in the study suggested that the medical bed base in particular was overstretched due to excess demand for medical beds. A number of other published

studies also suggest that outliers most frequently come from the medical specialties (Alameda & Suárez, 2009, Ashdown *et al.* 2003, Gilligan & Walters 2008, Wolstenholme *et al.* 2004).

Bed pressures often result in patients being transferred between wards numerous times in an attempt to manage the available bed base. The staff interviewees thought that multiple ward transfers were detrimental to patients' hospital experience and heightened the potential for quality or safety issues to arise. The transfer checklist in use at the study site was cited by interviewees as being a potentially useful document that could help to ameliorate quality and safety issues but it was reported that this checklist was not fully utilised.

Bed pressures are also influenced by the working pattern of each hospital ward. Some of the surgical wards at the study site shut overnight or on weekends meaning that patients had to relocate to other wards and then potentially move back. Staff interviewees suggested that moving outlying patients to different outlying wards numerous times was common, yet it would be unlikely that a patient would be repatriated back to the correct specialty ward unless there was a real clinical need. One of the potential consequences of multiple ward transfers is the increased risk of spread of infection (West 2010).

Staff interviewees also described the way in which admission pressures are reciprocal with the pressure to discharge patients from hospital with delayed discharges contributing to the problem of over occupancy and therefore an increase in the number of outliers. This problem is well documented in the existing literature (Black & Pearson 2002, Rae *et al.* 2007, Gilligan & Walters 2008).

In the present study, staff members' perceptions of the types of patients that become outliers were explored. At the beginning of each interview each participant's personal definition of an outlier was elicited and this revealed a discrepancy in the definitions in use with some people stating that outliers were patients from another directorate and others suggesting that outliers were patients from another specialty.

Participants were also asked about the decision making process undertaken when deciding which patients are suitable to move to outlying wards. In line with the bed management policy in use at the site (see section 2.3.1) it was suggested that senior doctors usually undertake this decision and they select the fittest patients who are at low risk of harm (additionally taking into account the patient's social circumstances). However, contrary to this policy, it was suggested that on occasion junior members of medical staff and nursing staff may decide which patients are suitable to move to outlying wards and on occasion this results in inappropriate and potentially unsafe movement of patients. Staff were able to recall instances in which complex or seriously unwell patients had been allocated beds on outlying wards for this reason. It was suggested that this may be a particular problem when patients are not fully assessed by a senior member of medical staff prior to being moved to an outlying ward.

The staff interviewees suggested that a subset of patients who are more likely to become outliers are those patients with infections who require isolation due to the limited supply of single side rooms in the hospital. However, the placement of infectious patients in side rooms on outlying wards was raised as a specific safety concern as staff felt that this had the potential to precipitate unrecognised deterioration. In support of this a report by Santry (2010) suggests that nurses hold concerns about the safety of patients placed in side rooms due to the reduced visibility.

There was a perception amongst staff that some patients are moved to outlying wards for the 'wrong reasons', leaving receiving wards feeling burdened by 'challenging' patients. The counter-argument some staff members provided was that these challenging patients are more medically stable and therefore more suitable to reside on an outlying ward. The types of features that participants suggested make outlying patients 'challenging' included alcoholism, substance abuse or self harm, confusion or dementia, high dependency upon the nursing staff and social issues. Interestingly, the descriptive study (section 4.3.2.3) revealed that 35 out of 433 outliers had a primary diagnosis of mental or behavioural disorder due to use of alcohol, poisoning, overdose or self harm, supporting the suggestion that the placement of these types of patients on outlying wards is a relatively common occurrence. These characteristics

are frequently cited as making patients ‘unpopular’ with healthcare staff (Conway 2000, Kelly & May 1982, Macdonald 2003). Social issues were raised as a key problem by the interviewees in the present study as they often underpin delayed discharge and thus contribute to the problem of over occupancy, as highlighted by Black & Pearson (2002). Additionally, the data revealed a perception held by doctors, managers and nurses that nursing staff who care for outlying patients believe outliers are “not our patient”. This perception potentially compromises the quality of care provided as outlying patients are dependent on the nursing staff on the outlying ward for nursing care.

All but one of the staff interviewees felt that patient safety may be compromised as a result of placement on outlying wards. The nurse who did not believe that the safety of outliers was compromised nonetheless raised a number of associated quality issues.

Staff members described particular patient safety issues faced by outliers and gave concrete examples of real life safety issues that they had encountered. Firstly, it was suggested that the movement of confused or impaired patients between hospital wards may create disorientation and pose a particular falls risk. The existing literature clearly supports this and demonstrates that confused and impaired patients are at increased risk of falling (Morse 1997, Walker 2004).

Secondly, it was suggested that delays or omission of medication is common for outlying patients due to problems with getting medications prescribed by medical staff and thereafter locating and administering the actual medication. It was also suggested that nursing staff on outlying wards may be less familiar with outlying patients’ medication.

Thirdly, the potential for unrecognised deterioration of outlying patients was raised as a specific concern due to the lack of medical input and lack of specialist knowledge of nurses working on outlying wards. The studies by Mohan *et al.* (2005), Lloyd *et al.* (2005) and Elsayed *et al.* (2005) (described in section 1.8) support the suggestion that a lack of specialist knowledge on the part of nursing staff who care for outlying patients may compromise the delivery of nursing care. A

number of interviewees in the present study felt that once deterioration of an outlying patient had been recognised, problems may be encountered in trying to locate the correct doctor. Some staff members were able to recount instances in which outlying patients had deteriorated and died.

Finally, it was suggested that the presence of outliers on the ward may put those patients who ought to be on the ward at increased risk of experiencing a safety issue as outliers may distract nursing teams and may spread infections. Examples were given describing patients with MRSA and soft tissue infections who had been moved to outlying wards. In addition, the presence of outliers can prevent patients from being admitted for elective surgery, thus delaying elective patients' management. Ashdown *et al.* (2003 p46) report: "The occupation of surgical beds by medical patients or 'bed-blocking' is recognised as a problem which affects elective surgical throughput". They suggest the phenomenon "appears to be a low priority for the government, unlike waiting lists, and attracts little media attention" and go on to cite a paper which suggests this phenomenon "costs the NHS in England £750 million per year" (Ashdown *et al.* 2003 p47). Furthermore, The Emergency Services Action Team report (DoH 1999) agrees that the presence of medical outliers compromises the through-put of elective work. The wider impact of placing patients on clinically inappropriate wards is discussed further in section 8.3.4.

Quality issues were also felt to be rife for outlying patients, with staff suggesting outliers receive a 'second service' as they are prioritised beneath other patients due to their assumed medical stability. Because of this, delays were cited as being inherent in the care of outlying patients, with delays in medical review often causing a subsequent chain of delays in investigations, treatment, and length of hospital stay. The studies by Rae *et al.* (2007) and Gilligan & Walters (2008) (Detailed in section 1.8) also reached this conclusion.

The analysis revealed five main factors which the staff interviewees perceived contribute to the safety issues faced by outliers. These factors are introduced here and discussed in further depth in Chapter 8, section 8.3.3. Firstly, staff face competing demands on their time created by having both outliers and patients on the correct specialty ward to care for. In support of this finding, Creamer *et al.* (2010)

suggested that having patients on inappropriate wards creates excess demand on physicians' time.

Secondly, the staff interviewees revealed that communication issues are numerous and problematic in the care of outliers. Nurses often described the difficulty they face in trying to contact the correct doctor when an outlying patient requires medical review. Furthermore, outlying patients are not afforded the benefit of informal communication which takes place when groups of medical and nursing staff know each other and work together regularly. The handover of outlying patients was said to be a specific communication issue as wards often felt that not all information was handed over leaving the receiving ward ill prepared to take over outlying patients' care. The World Health Organisation succinctly summarise the cause of these issues as follows: "while specialization of health-care practitioners can improve medical treatment, specialization of care also means more people and units are involved in the patient's care, which can complicate communication" (WHO 2007 p2).

Thirdly, it was suggested that the safety of outlying patients might be compromised due to a lack of knowledge or expertise on outlying wards. However, there were two viewpoints in the staff interviews as to whether the knowledge of nursing staff is compromised on outlying wards. Some staff members felt that nurses are trained to deliver basic nursing care to any patient (and for example surgical patients often have medical conditions which nurses are used to caring for) so the safety of outliers would not be compromised. However, other members of staff suggested that nurses become specialised by virtue of working in a specific environment and may at times be unsure of the nursing care required by unfamiliar outlying patients. As previously suggested, the studies by Mohan *et al.* (2005), Lloyd *et al.* (2005) and Elsayed *et al.* (2005) support this premise. Nurses on outlying wards may not have the same level of understanding of medicines, interactions etcetera as nurses on the base ward and may be less able to recognise deterioration. Additionally, outliers are often seen by junior doctors at the end of ward rounds and junior staff may at times lack the experience necessary to reach a correct diagnosis or recognise that an outlying patient who they expect to be well is deteriorating. It was also suggested that junior doctors occasionally make inappropriate decisions about which patients are suitable to transfer to outlying wards.



Fourthly, some staff members proposed that the ward environment could create problems for outliers. It was suggested that the distance between the specialty ward and the outlying wards is often prohibitive in ensuring that outlying patients gain timely medical review. Again, this is supported by the findings of Creamer *et al.* (2010). Time delays in medical review increase with the number of outlying wards that medical staff are required to visit. The Emergency Services Action Team report (DoH, 1999 p11) describes this burden and states: “at its worst, one Trust reported consultants with patients on thirteen separate wards”. The potential for unrecognised deterioration of outlying patients due to their placement in side rooms was raised as a particular issue. The lack of equipment on outlying wards was also highlighted as a problem, for example, lack of Zimmer frames, hoists, profiling beds, drug charts and dressings. The frequent unavailability of medication on outlying wards was emphasised as a specific problem by staff which often results in omission of medication. Again, these issues are created as a result of the division of healthcare into different specialty areas which have the resources to care for certain patient groups.

Finally, staff suggested that the characteristics of outlying patients could increase their vulnerability to safety issues. As stated previously, the perception that outlying patients are the most medically fit decreases their prioritisation and the movement of confused or impaired patients to outlying wards could increase the risk of falling.

The staff who participated in this study were asked what they thought could be done to improve the safety of outlying patients. It was felt that ways to facilitate communication between the medical teams and nursing staff on outlying wards was required. While it was often conceded that outliers could not be eliminated entirely, it was felt that strategies to reduce their prevalence should be adopted where possible, for example implementing more effective discharge planning, preventing unnecessary admissions, and adopting technological solutions to facilitate the tracking of patients. Staff often emphasised the need for thorough and timely review of outlying patients at all points during patients’ hospital stay. The provision of a greater number of single side wards in medicine for infection control purposes was also suggested, and it was proposed that outlying patients could be placed on as few

wards as possible to reduce the time burden placed on medical staff. Finally, it was suggested that culture change was necessary to stop outliers from being viewed as outsiders on the ward and also to prevent outliers from receiving a second service.

Attention was paid throughout the analysis to the views of the different staff groups (nurses, doctors and managers from different specialties) in order to demonstrate whether particular groups of people held different viewpoints. The views of these different groups were remarkably consistent and where divergent cases arose these have been reported.

When considering the results of this interview study with NHS staff, reference to the bed management policy in use at the study site (summarised in Chapter 2, section 2.3.1) suggests that this policy was not always well known or adhered to. For example, staff described instances in which junior members of staff had selected patients to move to outlying wards and on occasion these patients had not received senior medical review prior to transfer. Lack of daily medical review was reported to be a common occurrence for outlying patients. Furthermore, it was suggested that patients' infectious status was not always taken into account prior to transfer and that the transfer checklist which is supposed to aid transfer was not always used. Additionally, participants spoke of instances in which outlying patients had been moved between wards numerous times despite the policy aim to minimise the number of transfers.

Overall, this study demonstrates that NHS staff hold concerns for the safety of patients who are placed on outlying wards. It was suggested that falls, medication errors or omission and the late recognition of deterioration were specific safety issues that may be faced by outlying patients. Underlying these issues are a host of contributory factors, including the competing demands on staff time, communication problems, the knowledge and specialist expertise of staff, the potentially unsuitable ward environment and the characteristics of outlying patients (specifically their assumed low priority and the potential for disorientation).

### **6.5.2 Reflexivity and critique of the methods**

As described in section 5.9, good quality qualitative research demands a reflexive account of the researcher's assumptions, the decisions that were taken and the impact that these may have had on the research findings (Carter & Henderson 2005).

The researcher's background was summarised in section 5.1. As suggested in section 5.9.1, the researcher's assumption that safety may be compromised for outlying patients will have shaped the way that the data were collected and analysed. LG was aware of this and tried to remain open to the possibility that participants did not share this view. Effort was taken to try to ensure that the questions asked during each interview were not leading. It is notable that one member of staff openly stated that she did not feel that the safety of outliers was compromised. Attention was given to this negative case during analysis and reporting. Further considering the influence that the interviewer may have had on data collection, the interviewer (LG) did not have a clinical background. It is possible that participants may have responded in a different way or at least used different language if the interviewer had a clinical background.

Potential sources of researcher bias were reduced by involving all members of the research advisory group in the analysis and reporting of the results. As described in Chapter 5, Barbour (2003, p1025-1026) advocates employing "a pragmatic version of double coding through supervision and team meetings / Such a session reproduces in microcosm the process of qualitative research itself, maximizing the analytic potential of exceptions or potential alternative explanations".

The research methods adopted undoubtedly shaped the data that were collected and analysed and the conclusions that were drawn. This study forms part of a pragmatic HSR project (described in section 2.1) and as such the methodology was permitted to be flexible in accordance with this approach. For example, participants were sampled purposively in order to ascertain the views of a range of staff groups from different specialties whom it was thought would be able to inform the topic under investigation (Ritchie *et al.* 2003a). It is recognised that the sampling strategy omitted certain groups of NHS staff who may have produced useful insights into the

topic. For example, this study did not capture the views of allied health professionals and social workers who would potentially have been able to shed further light on the phenomenon. Moreover, this study was conducted at a single NHS Foundation Trust. The results obtained may therefore lack generalisability to staff members working at other Trusts. However, as the phenomenon of outlying patients is NHS wide (NAO 2000) and as a number of the findings obtained in the present study are supported by the prior literature, it can be suggested that the concerns outlined by the staff who took part in this study may be applicable to secondary care more generally. This remains to be tested empirically in future research.

Furthermore, it is possible that some senior staff members (for example, ward Sisters) may have acted as gatekeepers, therefore actively encouraging certain staff members to take part in the study and not others (for example, those who they felt had greater experience or knowledge or those who were more likely to offer a positive account of the ward). It is possible that this may have affected the results and the conclusions that were drawn; however, steps were taken to clearly explain the purposes of the research and the breadth of the inclusion criteria and to reassure staff members that the data provided would be treated confidentially. It is notable that the data demonstrate that staff interviewees were prepared to be open and admit to potential areas of weakness in their clinical practice.

This study was exploratory in nature and qualitative interviews were the optimal way to generate hypotheses in this under-researched area. However, both the practice of bed allocation and the process of healthcare delivery are complex and it is therefore impossible to study and report upon all aspects of the phenomenon. Further research is now required to fully ascertain the safety risk posed by placing patients on clinically inappropriate wards. Recommendations for future research and for policy and practice are presented in Chapter 8, section 8.5.

## **6.6 Chapter conclusion**

NHS staff report that placement of patients on clinically inappropriate wards is a specific patient safety concern. This practice often creates competing demands on staff members' time and consequently results in delays, poses a number of communication barriers, compromises input from knowledgeable staff, may provide an unsuitable ward environment, and can be inappropriate for individual patients' needs. Some of the specific patient safety issues faced by outlying patients include: falls as a result of changing environment, medication errors or omission and unrecognised deterioration or lack of medical response to deterioration. Furthermore, the bed management policy (described in section 2.3.1), which should help to protect outlying patients, was not always well known or adhered to. A journal article reporting this study has been accepted for publication in *BMJ Quality and Safety* (Goulding *et al.* 2012). Please refer to Appendix 6A.

## **CHAPTER 7**

### **Results of interviews with patients**

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#### **7.1 Introduction to the chapter**

This chapter will provide details of the outlying patients who were interviewed and present the results from the thematic analysis that was undertaken. The chapter will then go on to summarise the results, offer a reflexive account of the research process and discuss the results in relation to previous research. The methods that were used to conduct and analyse this study are presented in Chapter 5 and the philosophical considerations are detailed in Chapter 2. Chapter 8 discusses the results of this study in conjunction with the results of the descriptive study of outliers and the interviews with NHS staff.

#### **7.2 Participants**

In total, nineteen participants were interviewed between January 2011 and April 2011. All interviews were conducted in participants' homes within ten days of discharge from hospital. Six participants had been inpatients regularly (three or more separate times) during the preceding year. All participants had spent time on at least one outlying ward during their recent hospital stay. Seven of these participants had also spent time on the correct specialty ward for their illness during their recent hospital stay. A further ten participants had previous experience of staying on the correct specialty ward for their illness that they could remember and talk about. A number of these people had also spent time in admissions units or pre-surgical wards during their recent hospital stay. One participant did not have experience of the correct specialty ward for her illness but provided an interesting insight into being an outlier thus she was recruited and her data were retained in the analysis. The fact that she had not spent time on the correct specialty ward was borne in mind during analysis and interpretation. An additional participant seemed unable to remember

which wards she had stayed on during her hospitalisation. This participant was able to comprehend and respond to interview questions but gave very brief, often one-word answers. Again her data were included in the analysis as it was felt that there was no need to exclude her providing the fact that she was unable to comment on the correct specialty ward was considered. Only one participant said she had not realised that she was not on the correct specialty ward for her illness prior to being approached about the study while on an outlying ward in hospital. This detail is summarised in Table 7.1. The participants recruited met the purposive sampling objectives detailed in Chapter 5, section 5.7.4, as male and female participants from a broad range of ages and specialties were recruited.

All participants have been allocated a pseudonym designed to broadly reflect their gender, age and ethnicity. Fifteen females and four males took part in the study. Participants spanned a range of ages (from 28 to 86 years) and were admitted to hospital for a wide variety of reasons. Table 7.1 summarises the characteristics of participants, indicates the specialty of each participant and details the specialties of the outlying ward(s) they had stayed on during their recent hospital stay.

*Table 7.1 Participant characteristics: Pseudonym, age group, specialty of patient and specialty of outlying ward(s)*

<b>Pseudonym</b>	<b>Age group</b>	<b>Specialty of patient</b>	<b>Outlying ward specialty</b>	<b>Additional information</b>
Clare	30-39	Medical	Orthopaedic	Current experience of specialty ward
Enid	80-89	Care of the elderly	Gynaecology	Prior experience of specialty ward
Paul	60-69	Medical	ENT	Current experience of specialty ward
Eileen	60-69	Medical	Orthopaedic	Regular attendee, current experience of specialty ward
Iris	80-89	Orthopaedic & care of the elderly	ENT and Orthopaedic	Current experience of specialty ward
Edward	80-89	Care of the elderly	Orthopaedic	Prior experience of specialty ward
Amy	20-29	ENT and pain management	Plastics	Regular attendee, prior experience of specialty ward
Kash	20-29	Medical	Plastics	Regular attendee, prior experience of specialty ward
Gary	40-49	Surgical	Orthopaedic	Current experience of specialty ward
Elsie	70-79	Care of the elderly	Gynaecology, ENT and plastics	Regular attendee, prior experience of specialty ward
Helen	60-69	Medical	Orthopaedic	Brief, one-word answers, unable to remember wards
Carol	50-59	Medical	Orthopaedic and plastics	Regular attendee, prior experience of specialty ward
Rachel	40-49	Medical	Gynaecology	Prior experience of specialty ward
Isobel	40-49	Orthopaedic	Gynaecology	No experience of specialty ward
Lynn	50-59	Urology	Plastics	Regular attendee, prior experience of specialty ward
Hazel	70-79	Medical	ENT	Had not realised she was an outlier, prior experience of specialty ward
Alma	80-89	Care of the elderly	Plastics	Prior experience of specialty ward
Ivy	80-89	Vascular	Orthopaedic	Current experience of specialty ward
Sandra	60-69	Orthopaedic	Gynaecology	Current experience of specialty ward



### 7.3 Framework for reporting the results

The framework for reporting the results shows the key themes and associated sub-themes that were derived during the analysis. Below these themes are loosely mapped on to the research questions that were devised at the start of the project in order to demonstrate how the analysis addresses these questions (Table 7.2). The results section is presented as a series of the five key themes along with their corresponding sub-themes. As with the interviews with staff, the themes are not discrete and links were made between different themes, sub-themes and research questions. These are demonstrated throughout the chapter. This overlap necessitates some repetition of concepts.

Table 7.2 Themes derived during thematic analysis

<u>Questions to address</u>	<u>Key themes</u>	<u>Sub-themes</u>
<b>What are patients' overall feelings about being an outlier?</b>	<b><u>Patient feelings</u></b>	<ul style="list-style-type: none"> <li>- <i>Divide in overall opinion</i></li> <li>- <i>Understand the need for prioritisation of a finite resource</i></li> <li>- <i>Belonging</i></li> <li>- <i>The outlying ward as a location for unpopular patients?</i></li> <li>- <i>Bed pressures create inappropriate transfers</i></li> </ul>
<b>Did patients perceive any differences in the nursing or medical care provided on specialty and outlying wards?</b>	<b><u>Staff availability</u></b>	<ul style="list-style-type: none"> <li>- <i>Nurses' input</i></li> <li>- <i>Doctors' input</i></li> <li>- <i>Feeling forgotten</i></li> </ul>
<b>Did patients observe quality issues on specialty and outlying wards?</b>	<b><u>Staff knowledge</u></b>	<ul style="list-style-type: none"> <li>- <i>Knowledge compromised?</i></li> <li>- <i>Patients feel 'in safe hands'</i></li> </ul>
<b>Did outlying patients face any patient safety issues during their hospital stay?</b>	<b><u>Communication</u></b>	<ul style="list-style-type: none"> <li>- <i>Lack of explanation</i></li> <li>- <i>Discharge arrangements poorly communicated</i></li> <li>- <i>Good communication beneficial</i></li> </ul>
	<b><u>Physical environment</u></b>	<ul style="list-style-type: none"> <li>- <i>Resources available</i></li> <li>- <i>Physical location</i></li> </ul>

## **7.4 Results**

### **7.4.1 Patient feelings**

Participants were asked what their overall feeling was about being on an outlying ward and were asked to compare and contrast the outlying ward(s) with the correct specialty ward. Within the sample of interviewees opinion was divided.

- *Divide in overall opinion about being on an outlying ward*

The majority of interviewees stated that overall they did not mind being on an outlying ward (Clare, Enid, Paul, Eileen, Edward, Gary, Helen, Rachel, Isobel, Lynn, Hazel, Alma, Ivy and Sandra). While they might have preferred to be on the correct specialty ward, they accepted that this hadn't been possible due to demand for beds (discussed further in the 'understand the need for prioritisation of a finite resource' sub-theme). Furthermore, Enid, Paul, Eileen, Edward and Hazel felt that being on the outlying ward was not especially different to being on the correct specialty ward. This was evidenced when Hazel was approached and asked to take part in the study as she had not realised she was on an outlying ward.

Interviewer: *So did you mind being sent to an ENT ward?*

Paul: *Oh no, it didn't bother me, you know, because you're still being looked after, it weren't as if just because you weren't their department, you know, they were ignoring you, you still had the care there.*

Interviewer: *How does it make you feel being moved about between wards?*

Eileen: *...I'm not a fussy type, I'm just, as long as they're making me right that's the main thing.*

Isobel had been told by staff that the orthopaedic surgery ward that she should have been on was "full of noise" so she felt that she had been better off staying on the gynaecology ward for the peace and quiet. So despite not having experienced the correct specialty ward, her perceptions of it were shaped by the views of others.

However, Iris, Amy, Kash and Elsie expressed either that they didn't like being on an outlying ward or that they would much prefer to be on the correct specialty ward. Underlying this appeared to be a desire for continuity in their care and 'belonging' to the ward they were placed on.

Some of the interviewees suggested that some outlying wards were better than others and that it would depend on the individual ward as to whether they minded being placed on that ward. This response was notable in the participants who had attended hospital regularly in the preceding years. For example, Amy reported that the gynaecology and orthopaedic surgery wards were 'nice' because she liked the staff, plus the gynaecology ward had duvets and the orthopaedic ward had profiling beds which made her more comfortable. She suggested small things like this 'make a big difference'. However, Amy had loathed the care of the elderly ward stating 'oh I wouldn't go back there, I wouldn't let them put me back there ... compared to a lot of the wards they were really bad'. She was bemused that the ward had let her make her own way to an outpatient appointment at another site, technically discharging her with her cannula in, and had given away her bed to another patient so she couldn't return. She suggested that the ward was too busy, she felt sorry for the elderly patients and there was 'little care' from the staff. Similarly, Kash suggested the ENT ward was 'good', the plastics ward 'brilliant' but found the urology ward 'horrible' and stated 'they didn't take much care, that's the worst ward ever, I don't want to go back there on that ward'. Participants' perceptions of different outlying wards appeared to be influenced by a number of factors including the resources available (discussed further in section 7.4.5), the sense of belonging on the ward (discussed in a later sub-theme in this section) and perceptions of the nursing staff working on each ward (discussed in section 7.4.2). Input from nursing staff appeared to be particularly important in determining their overall opinion of the ward.

- *Understand the need for prioritisation of a finite resource*

The majority of interviewees reported that they understood that there must be a reason for them to move to a different ward and assumed that there were not enough beds and that the bed was needed for another patient who was sicker than they were (Clare, Enid, Paul, Iris, Amy, Kash, Gary, Elsie, Carol, Rachel, Isobel, Hazel, Alma,

Ivy and Sandra). Thus participants generally believed that it would benefit others if they moved and this appeared to help them accept their own placement on an outlying ward.

*Alma: ...they wanted the bed so that's all there is to it, I had to move, yeah. You know there's no explanation for it, they must have wanted the bed ... presumably they wanted the bed for whoever were coming in, yeah.*

*Ivy: ...I think I understood that they needed the bed for someone else later...*

*Gary: ...at the end of the day a bed's a bed isn't it? They've got to, you know, what can they do? They can't just shove you in a side ward or a closet cupboard, you know, if there's a bed there I suppose until everything gets moved about it's not the problem of the nurses is it or doctors who, it's management I suppose isn't it?*

*Rachel: ...if I went in again and I couldn't go onto the ward that I should have been, I'd just take it that there's no beds there and I couldn't go on...*

*Amy: ...when I've been moved from there they'll say they've got someone more critical in which is why they have to move me which is kind of fair enough I guess...*

*Sandra: You've got to understand haven't you that if there's a ward that's got beds that are nearly empty and a ward that's full, you're taking up a place for somebody who might be seriously ill to come in on that ward you're in...*

Isobel suggested that it would be best to have a bed on the correct specialty ward but that she would rather have a bed on any hospital ward rather than no bed at all. Furthermore, Edward suggested that moving patients to outlying wards may benefit 'the system' and 'the staff' which he felt was more important than the potential benefit of remaining on the correct specialty ward to him as an individual.

*Interviewer: How did you feel about having to move because the ward was closing?*

*Edward: Well when you're a small individual, and you're being dealt with by the biggest employer in the country, you just accept that everything is for the benefit of*

*the system. It could be that it allows them to have more of the staff a weekend off. Now providing the people that they're moving are not critically ill, I can't see it makes a great deal of difference.*

- *Belonging*

Despite the broad understanding among participants that moving to an outlying ward was due to a shortage of beds and would likely benefit others, some participants suggested that being on an outlying ward made them feel as though they were an 'outsider' and believed they were prioritised beneath the other patients on the ward.

*Iris: ...it was for ear, nose and throat, and they seemed to deal with them first, and they all just left, they didn't tell you anything at all, and I was the only one, the others were all in with ear, nose and throat complaints, so I wasn't very pleased about that.*

*Kash: It's horrible, it's not good, because they don't look after you as much as they look after the other patients on that ward, because you're like an outsider and that's how it feels. All the other patients, they do look after them more, and the care on [plastics], I'm not blaming them, it's not their fault, because it doesn't deal with asthmatics.*

Furthermore, Amy revealed that she had frequently been placed on outlying wards when admitted because of her pain condition as there was no specialty area for pain management people at the study site thus she didn't belong on any ward.

*Amy: ...there's no pain ward, so when I go in there's nowhere for me to be, which is why I often get sent from ward to ward and slept out because they've got nowhere to put me because I don't fit ... whereas at [a different hospital], it's got a small ward, it's only six beds but it's got a ward, the doctors are there and I think that would make the world of difference because I just get shipped around and because I'm not under a speciality there I'm the perfect person to sleep out constantly, so that is a big problem for pain people.*

Furthermore, some participants reported that a particularly negative consequence of being moved between wards was that they were removed from friends they had made on the ward (Iris, Carol, Lynn, Ivy and Sandra). This included loss of friendships with both staff and patients, and hence loss of the sense of belonging on the ward.

*Ivy: I just dislike change, and I wasn't very well, and the thought of having to unpack and re-pack was all distressing, yes, and making new friends and, it was all, and they were so brusque about it you know, that I felt quite distressed. ... Well it was really a question of leaving friends I'd made and having to get to know other people, but I was so disorientated that it was very, well it was a distressing experience.*

*Lynn: I do feel more comfortable when I'm on [specialty ward] because there are members of staff who have been there, they must have been there for some time ... so I can talk to them, and we have the same point of reference when I say 'oh you remember' you know, another member of staff or member of my family or something, and they tend to remember that we have had that conversation, and so that's all, sort of builds up ... it gives me a feeling of belonging I suppose, that I am in the right place.*

There was also a perception among participants of belonging to a condition and therefore segregation between people with different conditions. For example, Clare and Sandra suggested that it was an unusual experience being on a ward with other patients who had very different conditions.

*Clare: I did sort of say to the other people, you know, they'd hear the cough and say 'oh you've got a terrible cold', because they assumed I was in because of the baby, and I was like, 'no well I've got pneumonia', and I left it at that, I didn't sort of say anything else because I didn't want people to, well be alarmed really, you know, they were in for skin conditions and just completely different stuff...*

*Sandra: ...it were weird because it were a gynaecological ward and there's me with a pot on!*

Kash in particular did not like being on a ward where other patients had a different type of illness. While on a plastics ward he had felt bad and ‘suffered’ as another patient asked him to turn his oxygen machine off at night time as it was noisy. He felt that if he’d been on the respiratory ward “*it wouldn’t happen like that, because everyone would have the same medicines and the same nebulisers, you wouldn’t affect each other*’. Additionally, Kash was wary of the patients on a urology ward because their needs were different to his.

*Kash: I felt really uncomfortable there, I was the only patient that had got asthma, the rest of them was all like with the [catheter] bags and everything you see, and it was really difficult for me in there and that experience was really difficult because I felt uncomfortable to be honest, because I had asthma and I wasn’t like, how can I explain to you, you’re in a ward where the other patients all suffer with the same illness and it gets difficult because you see all these other people and they’re like suffering from, you know, that part of that illness...*

Similarly, Gary was perfectly satisfied with being an outlier on an orthopaedic surgery ward but was apprehensive about what it would be like being placed on wards where he perceived the other patients would be seriously unwell.

*Interviewer: ...you said there are some wards you wouldn’t want to go to, which would those be and why?*

*Gary: Probably you know, if I’d been shoved up on the cancer ward or summat like that ... it’s just certain wards, it’s just fear of you know, I suppose it’s, oh I can’t explain it, it’s going on them wards and seeing people who are really poorly, you know, and it’s you know, me with less illness but I don’t know, hmm.*

- *The outlying ward as a location for unpopular patients?*

One participant, Amy, described the way in which movement to a care of the elderly ward during a previous hospitalisation had been used as a threat: “*...the doctor said to me ‘well if you’re staying you’ll probably end up being on a ward with lots of old people anyway and that won’t be nice will it?’ ...it felt like it was him going ‘well I*

*told you so, so I'm going to do it', that kind of thing really, I don't know, punishment...". Amy further recounted a time when she was told that the head doctor on the correct specialty ward had refused to take her back onto the ward: "...I was told that she reckoned, the head doctor there, that she'd done all she could for me which is why she wouldn't take me back, but during a very heated argument with the consultant on the [outlying] ward I was in, at one point when I was in a lot of pain and we had a screaming match, and he said that she didn't want me back because I was causing her problems, because of the pain I was in I was getting, shouting at her and things, which I don't think I was but anyhow...". Thus Amy believed that she was not allowed to return to the most appropriate ward for her needs due to her unpopularity with the staff on the ward. She also felt that her unpopularity was caused by staff members believing she was 'drug seeking' and not understanding that she was in extreme pain.*

*- Bed pressures create inappropriate transfers*

A key aspect of being placed on an outlying ward is the transfer to that ward from either A&E, admissions units, specialty wards or other outlying wards. It was evident that while some participants did not mind being placed on an outlying ward they had encountered issues surrounding the transfer.

Enid, Paul, Eileen, Iris, Amy, Kash, Elsie, Hazel, Alma and Ivy reported that they had been moved to outlying wards late at night or very early in the morning. Iris, Amy, Kash, Elsie, Alma and Ivy suggested that this transfer had impacted negatively on their hospital experience by preventing rest or sleep.

*Ivy: ...when I first went in I was put on a certain ward, and then about 4 o'clock in the morning I think it was they just said 'oh we're moving you to another ward, we need this bed', or something, and I found that very distressing ... It didn't seem to matter to them what time it was, whether you'd just nodded off or anything.*

*Alma: ...what I can't understand is why did they have to move at 1 o'clock in the morning? ... I mean people might be fast asleep, it's not very nice. Yes, she just says to me 'you're going up to [ward number]', 1 o'clock in the morning! Yeah. I*



*couldn't get over it, I thought what an odd time to move people ... there's summat wrong with the organisation there you know, bad organisation...*

Participants also highlighted a dislike of being moved between wards numerous times (Iris, Amy, Kash, Elsie, Carol and Ivy). Often outlying patients are moved from outlying ward to outlying ward because wards shut over weekends or need to create bed space so that other patients may be admitted. Some participants found this unsettling and suggested they would have preferred to stay on as few wards as possible.

*Amy: ...it's just really frustrating when you get moved there and then moved back and then moved somewhere else and then moved back, especially when you've been in quite a while like I have sometimes...*

*Elsie: I mean you get settled in a ward and then they come to you and say 'you have to move', it's happened a lot recently, and I don't agree with it. Well they must do [agree with it] mustn't they? It must be their policy mustn't it? But I mean from ward to ward, the different wards, plastic surgery, I've even been up in the cancer ward as well! So I mean I can't understand why they don't just keep you in one ward.*

Iris was particularly annoyed as she had been moved between wards five times during a hospital stay that lasted less than a week. She had raised this issue with one of the nursing sisters who had told her: *'well you shouldn't have been moved to five wards, that's ridiculous', she said 'I don't agree with that either'.*

#### **7.4.2 Staff availability**

All participants were asked about the input they received from nurses, allied health professionals and doctors whilst they were in hospital and were asked to compare and contrast the input they received from these different staff groups on specialty and outlying wards. They were also asked whether they were happy with the input they received.

- *Nurses' input*

The majority of participants were happy overall with the nursing input they had received across all of the wards they had stayed on; specialty and outlying wards alike (Clare, Enid, Paul, Eileen, Edward, Gary, Helen, Carol, Rachel, Isobel, Hazel, Alma and Sandra). None of the participants expressly suggested that the nursing input had been consistently better on the correct specialty ward as opposed to outlying wards. However, some participants believed that the input from nursing staff was better on some outlying wards than on others (Iris, Amy, Kash and Elsie).

Interviewer: *And did you find that the nursing staff helped you promptly when you needed them to, when you called them for help?*

Elsie: *Some did yes and some didn't.*

Interviewer: *Were there any differences between the wards in that?*

Elsie: *There were differences between the wards, yes. Sometimes when you rang the bell they took a long time to come to you, yes.*

Interviewer: *Which wards was that where they took a long time?*

Elsie: *[plastics] and [ENT], yes it was, yeah. They just seemed as though they hadn't time you see for us, us kind of people ... I suppose there were people more poorly than what I were, I understand that, but you don't ring for nothing for a nurse do you really?*

Additionally, Clare, Iris, Amy, Gary, Elsie, Rachel, Lynn, Alma, Ivy and Sandra noticed that members of nursing staff on both specialty and outlying wards were very busy and often rushed. It was suggested that this often created delays and compromised the quality and potentially the safety of nursing care.

Iris: *...they were too busy to be bothered, you know, they left you about 30 buzzes before they came to take you for a wee, and I was supposed to have somebody with me every time and I went on my own because I got fed up of waiting...*

Alma: *...they're overworked then aren't they, yeah. And when you're overworked then you can make mistakes, you know what I mean? They could do with more nursing staff on ... I'm just guessing, if anybody's over worked, their brain's*

*overtired isn't it? So it's quite possible, I'm not saying that they did, it's quite possible to make a mistake, yeah. Because you're at your lowest ebb when you're overworked aren't you?*

Amy described an instance in which she was an outlier on a surgical ward and a nurse had stopped the morning medication round to help prepare patients for surgery as they were 'really, really busy' and running late. Amy said she had been in a lot of pain when the medication round was resumed two hours later and the nurse had given her painkillers without prescription.

*Amy: I was in a terrible state, and she looked at me as if she'd never looked at me that day and went 'oh my god!' and got me some painkillers, [slight laugh], she gave me IV morphine, err IV tramadol, and then went 'ooh I really should have got that written up'!*

To summarise, participants suggested that there was not a great deal of difference in nursing care on an outlying ward in comparison to the correct specialty ward, but that nursing care on any ward may suffer when staff are rushed. However, it may be inferred that outliers exacerbate busyness of staff due to the different requirements of outliers and other patients. Participants raised quality issues relating to a lack of timely response to call bells, lack of assistance with going to the toilet, inadequate pain relief and poor food, although participants did not appear to feel that these issues were as a direct result of their placement on an outlying ward.

- *Doctors' input*

Participants were also asked to describe the input they received from doctors on both outlying and specialty wards. Some participants perceived no differences in the input they received from the doctors on specialty and outlying wards and were consistently happy with the medical care they received (Enid, Paul, Eileen, Edward, Gary, Helen, Hazel and Sandra).

Paul: *...I'd seen the same people and the same on [ENT]; still the same doctor and entourage sort of thing and you know so it weren't as if I was seeing different people each time.*

However, other interviewees suggested that the input they had received from the medical teams was not as good on outlying wards as it was on the clinically appropriate ward for their illness (Clare, Iris, Amy, Kash, Elsie and Carol). Some interviewees spoke of a lack of consistency of care as they did not see the same doctor regularly and a lack of knowledge about them and their condition when reviewed by doctors on outlying wards.

Elsie: *...one doctor, when I was moved from [plastics] to [ENT], she said she were taking over, she took a blood sample, I never saw her no more! And then another doctor came! ... you see there were different doctors coming in but they weren't medical doctors! They were all different, seeing to other patients you see. I think that's why they should keep you on one ward instead of moving you, then you'd feel a lot better wouldn't you?*

Clare: *...when I did see a junior doctor on the orthopaedic ward he came in and said 'so, you're 28 weeks pregnant', and I was like [laugh] 'I'm full term with my second child! If I look 28 weeks pregnant to you I'm quite worried!' And then he started to ask questions, it was clear that he just couldn't be bothered to read my notes ... [he] went off and came back ten minutes later and was like 'you'll probably be discharged in the morning'. It turns out he was right but I had no confidence in what he said to me at all, I was like 'you are not making that decision as far as I'm concerned'.*

Clare reiterated her concerns about the input from the junior doctor on the outlying ward saying *"It was just the fact that he had not taken his time to read the notes before coming to speak to me or even have them with him to scan them whilst I was talking, so there was no sense that he cared actually"* and made clear that she did not attribute this to his junior position. Conversely, Clare described the input from all of the doctors, including the juniors, while she was on the correct specialty ward as *'excellent'*. While Clare's experience may be attributed to a *'bad doctor'* who

happened to be on the outlying ward rather than to the outlying ward per se, Clare had to personally request to see a doctor whilst on the outlying ward as by 3 o'clock in the afternoon the medical review she was expecting hadn't taken place. Thus Clare suggested her medical input had been relatively poor on the outlying ward in comparison to the correct specialty ward.

Amy, who had attended hospital regularly for a number of reasons, suggested that the input from the medical teams is far better on the appropriate specialty ward and is often compromised when a patient is on an outlying ward due to a lack of proximity to medical staff.

*Amy: When you're on the [specialty] ward, you know that the doctors are there, if you want to speak to them they're there, if you get worse, if you get ill, the nurses can easily get them because they're usually hanging around somewhere during the day, and they can prescribe straight away and also they can come and see you easily and you know, they'll notice maybe things that the nurses wouldn't know, and you just feel a bit more reassured I think. When you're not on the [specialty] ward, I think the doctor would see you on that ward if you really, really felt like you had to, but generally they don't want to step on the toes of the other doctors or they don't know enough about that area, and so you're just left to wait and you don't know how long it's going to be, if they're going to come, and you don't get told 'oh they're not coming', you have to ask the nurse again and she'll just say 'oh they must have gone home now', and you're just left, you just have little input and you can't ask to speak to them, your husband, you can't say 'I want to ask the doctor something', you've got nobody there.*

Additionally, Amy and Elsie stated that they had experienced delays in receiving medication on outlying wards due to the difficulty of getting a medical doctor to visit the ward and prescribe.

*Amy: ...because I was in the wrong ward they couldn't get my meds written up, so I was in a lot of pain for a long time...*

Elsie: *...they couldn't prescribe them for me until I saw the doctor, he had to prescribe them, well I mean the doctor didn't always come every day, so you had to wait 'til he came...*

In sum, the input from medical staff was often reported to be compromised on outlying wards in comparison to specialty wards, resulting in a lack of continuity of care.

- *Feeling forgotten on outlying wards*

Clare, Iris, Amy, Kash, Elsie, Carol, Rachel, Isobel, Alma and Ivy expressed that they had received less input or felt that they had been forgotten by the medical staff while placed on outlying wards and often suggested that no explanation was given for the lack of medical review. Some participants had been left on outlying wards without medical review for days at a time, often over weekends. This may have resulted in a longer length of hospital stay than was necessary for some patients. For example, Rachel recounted that her blood test results indicated that she could have been discharged on Saturday but because she was not seen by a doctor until late Saturday evening she had to wait until Sunday to return home. Other participants had similar experiences.

Interviewer: *Did you notice if there was any difference in the input that you received from the doctors when you were on the different wards?*

Iris: *I didn't see some on the wards, I didn't see anybody on [orthopaedic assessment], and I didn't see anybody on [ENT].*

Interviewer: *And how did it make you feel when the doctor didn't come to see you?*

Iris: *Very annoyed, I was very annoyed about it.*

Interviewer: *Uhum. Did you ask anybody 'why hasn't the doctor been?'*

Iris: *Yeah I did and you know I just got negative replies, so.*

Alma: *I didn't see a doctor at all, I didn't see a doctor at all, I saw them on the ward but nobody come to look at my case, you know what I mean, I saw doctors on the ward but nobody came to my bed so mustn't have been interested.*

Clare: *...I was fully expecting that as part of the rounds in the morning I'd see a doctor, and then for that not to happen, so that was quite a big thing really...*

Amy: *...most of them [doctors] go round about 9 o'clock, but you could be there, I mean I've been there two days and no one's come and you ask the nurses and they say 'oh I don't know, we'll have to try and find out' and it sounds bad but most of the nurses, they just don't come back to you, and that's the really frustrating part of it, but otherwise if they do come it can be the afternoon, it could be midday to afternoon, and you're just waiting and until they come they can't do anything else for you or you can't have any tests or whatever and you don't know if you're just sitting here for no good reason so that's, it is really annoying and really frustrating, which is why it was quite nice that when I was on the last one, on [plastics], that they did actually come only a little bit after the other doctors because they must have finished their rounds and come upstairs, and it does make a lot of difference actually, you don't feel forgotten like you do in other wards.*

Elsie: *...when I were in this time I didn't see anybody while the Monday from Friday!*

Interviewer: *Did you get to see the doctor regularly?*

Isobel: *[exhale] First few days I did, he came every day, and then he came on the Thursday and I never saw him again then 'til the Monday when I was being discharged and he apologised! ... he says 'I'm sorry I haven't been to see you since Thursday', I think I'd been forgotten about or something being where I was! [slight laugh]*

Additionally, Sandra, an orthopaedic patient, explained that the nurses on the outlying ward arranged for her to be repatriated to the correct specialty ward as she needed regular physiotherapy but the physiotherapists had often failed to visit her on the outlying ward.

Sandra: *She said 'we're going to try and get you back down onto the orthopaedic ward' ... 'I'm ringing them up because they're just going to forget about you' ... she said 'we've got a bed down on [orthopaedic surgery] because if we don't get you*

*back down there they forget, if they don't see you or they're busy they don't want to come up here'...*

### **7.4.3 Staff members' knowledge**

Participants were asked whether nursing staff seemed knowledgeable about their condition and the care they required on specialty and outlying wards as the staff interviews had suggested that the knowledge of nursing staff on outlying wards may be compromised. Again there was a divide in opinion.

#### *- Knowledge compromised?*

Enid, Paul, Eileen, Helen, Rachel and Alma suggested that the nurses on outlying wards were knowledgeable about them and their condition. Furthermore, Sandra, an orthopaedic patient, explained that one of the nurses on the outlying ward who had previously been an orthopaedic nurse had taken a major role in her nursing care because of her prior experience. Thus she was afforded the benefit of receiving nursing input from somebody who had specialist knowledge of orthopaedic patients despite being allocated a bed on a gynaecology ward.

*Sandra: ...one of the nurses on [gynaecology] had been an orthopaedic nurse ... so she were like, 'don't have that leg like that, you want a cushion under the leg and you want it under here' and you know, so she sort of took me under hand ... so basically I suppose they're looking after the ones they're used to...*

However, some participants suggested that the knowledge of nursing staff on outlying was at times compromised in comparison to the knowledge of nurses on the correct specialty ward. For example it was suggested that the nursing staff on outlying wards had been less familiar with patients' conditions.

*Hazel: ...they didn't know much about that kind of illness. I suppose if it were a different ward, if it were for nose and throats and what have you they wouldn't know nothing about losing your body fluids.*



Amy: *...it's just the lack of knowledge about what, you know, what your condition is, what's going on, you have to explain everything again to the nurses because I don't think it gets handed over like it should do...*

Furthermore, examples were recounted in which nursing staff on outlying wards had been unfamiliar with the nursing care required or had made minor mistakes in delivering nursing care.

Gary: *...there were just a couple of questions I asked the nurses and they weren't right sure, you know, surgical stockings, I just asked if I had to take them off or sleep in them and she said she didn't really know ... she admitted, she says 'I don't really know about these things'...*

Elsie: *...if they move you to these other wards they don't know! They don't know about your medical background! I mean some nurses didn't even know about a nebuliser or even the oxygen!*

*Interviewer: Did the nurses seem knowledgeable about your medication?*

Iris: *Well most of them did, one of them didn't give me my blood pressure tablet one morning and I told nurse and she said 'well she should have given you it', she said 'she hasn't ticked it, she hasn't given you it', so she couldn't give me it then because it was too late. I take them on a morning you know, so.*

Enid: *...they had trouble finding somebody that could put the right bandages on, because they'd gone through the training and there was just one in one of the wards that knew what she was doing with a bandage, but she was always busy. ... the only thing they did wrong, my leg was weeping and they put cotton wool onto that. So when I came home it wouldn't come off, it stuck.*

Isobel: *I hadn't been told that I wasn't to have a shower, but apparently [daughter: she [nurse] put you in it and had to get you out didn't she? Because someone had told her you're not allowed!] I'm not allowed to get the wound wet in case I get infection in the bone, so oh seriously I could have stayed there all day [in the*

*shower] but I got, yeah, they got me out, changed the thing [dressing] and that were it. But there were no harm done!*

Furthermore, Lynn and Isobel suggested that nursing staff who work on wards where patients are often independently mobile may at times lack understanding of impaired mobility or forget that immobile outlying patients may have additional needs.

*Lynn: I find that that the nurses on [specialty ward] are more knowledgeable as I've said about me and my situation and needing to be moved and things like that. And I don't think on other wards they do realise that that's the situation. I don't know whether they're informed about it or not, because I mean it must be very strange, you've suddenly got somebody on the ward and you've got to keep moving their legs around on the bed, you know, it's not normal...*

*Isobel: I could have gone mad sometimes, just stupid things, they didn't realise, you know like my buzzer back there [out of reach] and at the time I was really immobile, and then they'd push my table and then my drink was down there [out of reach] and I'd start laughing ... they didn't do it on purpose, they just didn't think. They didn't realise I couldn't actually turn round in the bed and grab stuff.*

Participants often understood that because they were on a ward that wasn't clinically appropriate for their illness the nursing staff may occasionally be unfamiliar with their requirements and were accepting of this. However, Isobel suggested that time should be taken to think about the specific needs of individual outlying patients to avoid preventable lapses in the quality of care.

*Isobel: ...I think if you've got a patient from a different ward on your ward then I think it should be looked at exactly what they need, because obviously it's different to the other patients ... that's what's needed, to look at what they would need if they were on their own ward.*

However, comments relating to a lack of expertise about patients' conditions and the care they required were not always directed at outlying wards or at nursing staff. For example, Eileen was discharged from A&E reportedly with an ear infection. She was

telephoned by the consultant the next day to say that they had they had got the diagnosis wrong; she'd had a transient ischaemic attack (TIA) and shouldn't have been discharged. The consultant arranged an outpatient appointment but she was admitted with a further TIA before this time.

- *Patients feel 'in safe hands'*

All participants were asked whether they felt as though they had been in safe hands whilst in hospital and across all the different hospital wards they had stayed on. The answer to this question was overwhelmingly 'yes'. Alma elaborated on this: "...you put your faith in them don't you, you know what I mean? And you're just hoping that they don't make a cock up of it...".

Only Clare and Iris specifically suggested that they were unsure whether or not they had been in safe hands as a result of being placed on an outlying ward.

Interviewer: *Did you feel as if you were in safe hands on all the different wards?*

Clare: *absolutely categorically on A&E [and specialty wards] for all aspects of the care including the pregnancy ... on [orthopaedic surgery] their absolute focus was around 'oh my god, if you go into labour what do we do?' ... but I didn't get the feeling that they knew necessarily whether if my actual medical condition deteriorated really quickly what they would have done, bar get me in the lift down to A&E again I guess, yeah, I wasn't sure about that...*

Iris: *Yes I did on most wards, felt I was in safe hands, it was just that nobody come to see me on [ENT] you see because it wasn't my ward.*

#### **7.4.4 Communication**

Communication was anticipated to be an important theme during the planning stages of the study (based on the analysis of the staff interviews) thus a number of the questions in the topic guide were designed to gain participants' perspectives of communication in relation to being placed on an outlying ward.

- *Lack of explanation of the need to move to an outlying ward and implications for ongoing care*

Participants often felt that the reason for being moved to an outlying ward was ill explained by staff members and consequently they were left to make assumptions about the reason for the move for themselves. Many participants expressed that they would have benefitted from a full explanation of the reason that they were being moved and greater detail about the ward they were being moved to and the plans for their ongoing care prior to the transfer (Clare, Enid, Iris, Amy, Kash, Elsie, Rachel and Ivy).

Interviewer: *Did anybody take the time to come and explain to you why they were moving you and where you were going?*

Iris: *No, no, they just said 'we're moving you, we need the bed', that's all they said.*

Amy: *...well they only said why I wasn't in [ENT], they just said they were full in [ENT] that's why I was in [plastics]. Now I was in there three days so whether no one actually went home in that time I don't know or whether they just forget about you and don't move you back down I don't know, so, it's hard to know on that one.*

Interviewer: *So when they move you how do they explain it to you, what do they say?*

Kash: *They don't! They just move you! Because you don't find out exactly, they just come and say 'we're going to move you to another ward', that's it. They don't say why they're going to move you, nothing at all.*

Interviewer: *Would you like it if they did explain it to you?*

Kash: *Definitely, yeah, they should tell you why you should be moved, but they don't, they definitely don't tell you.*

Rachel: *...they just said I was going to [ward number], they didn't tell me what ward it was, and it wasn't 'til I got there and I saw outside what ward it was that I knew where I was going really.*

Interviewer: *Would you have preferred it if they'd explained to you where you were going and why? Did anyone say why you were being moved there rather than a respiratory ward?*

Rachel: *No, no they didn't, no, I think it was just where they had a bed actually, that was the impression I got, so I didn't question it. I knew there were so many beds and so many patients and you know, so no, I didn't question it. But yeah, it would have been nice to have been told I suppose...*

Participants also suggested that there was a lack of information given about the implications for their ongoing care and what to expect during their hospital stay when placed on outlying wards.

Iris: *...they never told you anything, they didn't tell you what was happening or anything, which is wrong really because people want to know don't they?*

Clare: *...I didn't know where I was going for [outlying ward] and that it would be such a big change I guess, I wasn't prepared for that at all...*

In particular some participants became concerned on outlying wards when they were not reviewed by the medical team as they expected to be and suggested that their worries may have been allayed if somebody had explained the reason for this to them.

Amy: *...all the doctors will come round in the morning and then just skip you out, and no one tells you why you're not being seen or why you're not on the ward you should be on...*

Interviewer: *And did anyone say anything to explain to you why nobody had come from medicine?*

Rachel: *No, no. I mean the nurse on gynaecology said 'it's weekend and there's obviously not as many doctors', which I understand, you know, but if the doctor had have said on Friday 'it's going to be really quiet, could you stay until Monday', you know, or something to that effect I would have felt fine...*

Similarly, Amy suggested she was often uncertain whether she would be staying on an outlying ward for the remainder of her hospital stay or whether she would be repatriated to the correct specialty ward if a bed became available.

*Amy: ...it'd be nice for them to say 'we're waiting for a bed to come up for you' or 'we're leaving you here because you're stable and it's o.k. you're close' or just something so you know what's going on, that'd be nice.*

Additionally, Amy suggested that although she had experienced a two day delay in waiting to have a scan while she had been on the correct specialty ward, she was at least able to ask the nurses about what was happening and they understood the context of her questions. She felt that it was harder to get such information when on outlying wards.

*Amy: it does help to be on the right ward and to be able to ask those questions, but when you're not it just, the nurses on the ward you're on don't know what's going on, they're too busy to ring up and ask generally and so you just, you do feel very forgotten and unimportant.*

Similarly, Clare felt that the nursing staff on the correct specialty ward had been better placed to answer her questions than the staff on the outlying ward.

*Clare: What was interesting I guess, was when I moved back down from [orthopaedic surgery] to [acute medicine], it felt like I was talking to people who knew ... instantly I was just able to talk about the whole thing and just say 'oh but then this happened and then that, but I wasn't sure about this', and you know, she just completely understood the context in which I was talking about, whereas on [orthopaedic surgery] that contextual understanding just wasn't there.*

*- Discharge arrangements poorly communicated*

A particular communication failure raised by patients who were discharged from outlying wards was that they were unsure of their aftercare requirements and often had little idea who to contact to ask for advice following discharge (Iris, Gary, Elsie, Rachel, Isobel and Ivy).

Elsie: *...one of the nurses said 'well if you've any problem just ring ward 3' ... I never went into ward 3 this time! So I don't know. A right mix up with me it has been.*

Rachel: *... she came and took my notes and then she came back to me and said 'you can go home now if you want', and she didn't explain anything to me, she didn't give me any advice what I should be doing or anything, she just said 'I've signed all your paperwork, if you'd like to go now you can' ... she didn't go through anything, any aftercare or anything, you know, if I needed anything, I've just sort of come home and whatever!*

Gary: *...they never even told me about my stitches, I don't even know if they're dissolvable, I don't know if they're clips, you know, or they've been glued, you know, so I really need to ring the ward up and ask them what the procedure is for the scar...*

Isobel was also unsure about her stitches and whether they needed removing and was frustrated as she had to make numerous telephone calls to try and resolve the matter.

Isobel: *...that's my main bugbear now, is that because I was on the wrong ward they haven't done the right follow up ... obviously gynaecology is completely different to broken bones, somebody should take over the discharge I think from that ward, rather than them on that ward because it's been left in a bit of a mess to be honest with you.*

Furthermore, Paul's take home medication was incorrectly sent to an admissions unit as opposed to the outlying ward he was being discharged from so he left hospital without his medication and had to return the following morning to pick it up once it had been tracked down.

- *Good communication on outlying ward beneficial*

A number of participants suggested that good communication from members of staff about matters relating to being an outlier had a beneficial impact on their hospital

stay. For example, Iris, who was angry at having been transferred between wards five times in less than one week, appreciated the ward Sister on the last ward she stayed on talking to her and sharing her concerns.

Interviewer: *Can you tell me any more about what the Sister said or was that it, just that she didn't agree with it?*

Iris: *She didn't agree with that, and she was very good, she came and had a talk with me and explained why I'd been moved, but she said she didn't agree with it, but she, because she can't do anything can she?*

Interviewer: *And how did you feel when the Sister came and said that to you, did that help at all?*

Iris: *Well it helped me, yes it did, it calmed me down a bit, you know, very good. Yes. I think they should come and explain to you but they don't a lot of times.*

Furthermore, Enid appreciated a member of nursing staff taking the time to talk to her following some confusion over whether she was going to be transferred late at night to another outlying ward.

Enid: *...one night at half past twelve they were going to move me to [orthopaedic surgery], but that was the joints and I had open wounds and they had, so I couldn't go, it would have caused problems, hygienic problems.*

Interviewer: *Did somebody take the time to explain that to you then?*

Enid: *Yes, yes. She came and told me ... she was a lovely lady, and she came and sat on the bed and told me.*

Additionally, Clare felt reassured by the nursing staff on the outlying ward telling her what her observations were and talking to her about her care.

Clare: *...as you go through the day it didn't feel that bad [being on outlying ward] because the nurse was coming to check my obs and was telling me what they were, and you know, 'they're fine' and 'do this', 'do that', 'are you o.k.?', 'can I get you anything else?', so I felt well taken care of in that sense...*



In sum, it was evident that those participants who had a good relationship with the nursing staff on outlying wards were happy with the nursing care they received.

Rachel: *They were nice, they were polite, they worked hard, they did everything they could, you know, to help me, they were really helpful, and initially obviously I didn't know it was a gynaecology ward, you know, you think 'ooh, where am I going?', you know, but no, they were, they were lovely.*

Isobel: *...they were really nice to say they didn't know really what they were doing, they tried their very best to make me comfortable, make sure I didn't do without anything, just treated me like everybody else basically on the ward, you know, they never missed me out or, they were real nice...*

#### **7.4.5 Physical environment on outlying ward**

The importance of the physical environment for outlying patients highlighted a number of potential quality issues.

##### *- Resources available*

Some participants suggested that outlying wards did not always have all of the necessary equipment or medication readily available for their care. For example, Kash suggested that the respiratory ward was better placed to care for him as they had the correct equipment to monitor his asthma.

Kash: *she goes 'peak flow' ... she goes 'we don't have stuff like that here because it's to do with plastics' ... They had the nebuliser, but the thing you blow to check your peak, they didn't have that, so I didn't have that at all all night. ... On [respiratory ward] they're normally checking it every half hour and know how to check but there they didn't check at all.*

Furthermore, Clare had been on a drip while she was on the correct specialty ward and had been instructed to take extra supplies with her when she was moved to the outlying ward in case she required it and the ward couldn't source it.

Clare: *...I went up there [to orthopaedic surgery ward] and they were like 'oh, we don't think you're on a drip', and they looked round and there weren't any hooks available, you're like 'err, if I actually needed it, could you do that for me?' you know, and that was then a concern...*

Clare, Iris, Amy, Elsie and Rachel raised issues relating to the availability and consequently timely administration of medication on outlying wards. For example, Clare and Rachel noticed the staff on outlying wards saying that they would have to order medication from the pharmacy as they were not stock items on the ward.

Clare: *...there was a lot of comment that they [outlying ward] didn't have available to them all of the medication that they needed...*

Rachel: *...sometimes if I needed medication, if the doctors had come down and prescribed something for me, and they didn't have the medication they had to send out for that because 'oh, we're not sure if we've got that', like a nebuliser, they only had one on the ward and there was a couple of ladies that needed it...*

Furthermore, delays in the prescription, ordering and delivery of necessary medication could result in omission. Elsie suggested that she had missed medication while on outlying wards for these reasons.

Elsie: *... [they said] 'we'll have to order it', and I said 'you have to order?' and I've waited a couple of days for the medicine, you know, what I should have had.*

Interviewer: *Right so you didn't have it at all?*

Elsie: *No I had to wait! I said 'can I have this please and can I have that?', 'oh no, no you can't'. I said 'why's that?' She said 'we have to order it but we have to get the doctor's consent to sign it for you first', I said 'oh, alright then'. So there were one or two occasions that I didn't have the medication that I should have had...*

- *Physical location*

Some participants indicated that the physical location of the outlying ward had been unsuitable. For example, Clare suggested that the outlying ward had been an inappropriate location for her as she was potentially infectious when she was placed in a bay with surgical patients.

*Clare: Yeah they just said 'you haven't got swine flu, we can move you, yeah, we'll find you somewhere else, you can go out onto the main ward'. It turned out actually not to be true because I did still have influenza B, which is why then they had a bit of a panic! I was on this post surgery ward with influenza B and then it was extremely quick once they realised that, they moved me back down to [acute medicine] and back into an isolated room.*

Furthermore, Paul, Amy, Carol and Sandra suggested that outlying wards were often some distance away from the correct specialty ward meaning that staff had further to come to visit them. This could lead to outliers feeling 'isolated' and, as suggested in section 7.4.1, reduce their sense of belonging.

*Paul: ...It was just that they [doctors] had further to come because I wasn't on their ward sort of thing...*

*Carol: like [plastics], I think it's a bit far away, and I felt a bit isolated, especially with it being a surgical ward as well, and even some of the staff says 'well really you shouldn't be on here' I went 'yeah I know that but it's just one of those things'.*

Similarly, Amy suggested that if she had to be on an outlying ward it was better to be on an outlying ward that was near to the correct specialty ward as the medical staff would visit sooner in the day and she was more likely to receive help from the physiotherapists. Likewise, Sandra was repatriated to the orthopaedic surgery ward when the physiotherapists had neglected to visit her because it was '*quite a long way from [gynaecology] to [orthopaedic surgery]*'.

## **7.5 Discussion**

This section provides a summary of the results presented in this chapter and places the results in the context of previous research. A reflexive account of the methods adopted and the strengths and limitations of this study is then given. A fuller discussion is provided in the main discussion chapter (Chapter 8) which integrates the results of this study with the remainder of the research presented in this thesis and with existing theory and literature. The key findings from this study are summarised within Table 8.1.

### **7.5.1 Summary discussion of results**

A total of 19 people were interviewed to ascertain their perceptions and experiences of staying on an outlying ward (with specific reference to the quality and safety of care received) and where possible to compare their experiences of outlying wards with those of the correct specialty ward. The interviewees had a variety of diagnoses and stayed on a variety of outlying wards. Some of the participants had been frequent attendees at hospital.

Four main research questions were addressed: What are patients' overall feelings about being placed on an outlying ward? Did patients perceive any differences in the nursing or medical care provided on specialty and outlying wards? Did patients observe quality issues on outlying wards? Did patients face any patient safety issues during their hospital stay?

The data were organised into five key themes which help to answer the above research questions. These were: patient feelings, staff availability, staff members' knowledge, communication and the physical environment on the outlying ward. These key themes are summarised and the findings placed in the context of the existing literature hereafter.

Participants were asked what their overall feeling was about being on an outlying ward and were asked to compare their experiences of outlying and specialty wards. Opinion was divided with the majority of participants stating they did not mind

being on an outlying ward. Interviewees appeared to understand that beds were a finite resource and therefore prioritisation of beds was necessary. They believed it would benefit others if they moved to an outlying ward. Such empathy and altruistic behaviour which favours the good of the group rather than the good of the individual has been described in the health psychology literature (Post, 2007). However, a minority of interviewees suggested that they would prefer to be on the correct specialty ward. Underlying this was a desire for continuity of their care and a sense of 'belonging' to the ward. Some participants suggested that they had felt like outsiders on outlying wards because other people had different conditions. Some participants also suggested that they did not like being removed from the friends that they had made on their initial ward. In support of this finding, the nurses in the study conducted by Mohan *et al.* (2005) (described in section 1.8) felt that outlying cancer patients preferred to be treated alongside other cancer patients rather than an entirely different patient group. These findings reflect the human tendency to construct social groups and to categorise oneself and others as being part of a group or outside of a group. In Chapter 8, Social Identity Theory (Tajfel, 1974, Tajfel & Turner, 1979, cited in Hogg & Vaughan 2005) is used to theorise about outlying patients' sense of belonging to a specific condition and therefore to a specific ward. This literature is also used in part to discuss some of the reasons why outlying patients may be 'unpopular' with the staff who care for them – in this study one participant felt that she had been unpopular with the hospital staff and had been moved to an outlying ward as 'punishment'.

Some participants reported particular quality issues surrounding their transfer to an outlying ward. Participants did not like being moved between wards very late at night or very early in the morning and did not like being moved between wards numerous times, suggesting they would have preferred to have been moved as few times as possible.

The majority of participants were happy with the nursing care they received while in hospital across both specialty and outlying wards and none of the participants expressly felt that their nursing care was worse on outlying wards. It was suggested that nursing staff on all wards (not just outlying wards) were very busy and rushed, often creating delays. In the study conducted by Mohan *et al.* (2005) (see section 1.8

for details) nurses who were required to care for outlying cancer patients reported not being able to spend enough time with cancer patients and their families as they were too busy.

Similarly, some participants perceived no difference in the input they received from the medical teams while on outlying and specialty wards. However, other interviewees suggested that the input from the medical teams was compromised on outlying wards. Some participants did not see the same doctor regularly and felt that the doctors lacked knowledge of them and their condition. Participants often reported receiving medical review much later in the day whilst on outlying wards. Due to the difficulties in getting doctors to visit outlying wards, two participants had experienced delays in receiving medication. Because of the reduced input from the medical staff, some participants reported feeling ‘forgotten’. Some participants were left on outlying wards for days at a time without medical review, often over weekends. The study conducted by Lepage *et al.* (2009) (see section 1.8) helps to confirm that outlying patients are subject to a lack of input from specialist doctors.

The lack of medical review potentially prolongs patients’ length of hospital stay and this was reflected in the experiences of participants in the present study. Indeed, Alameda & Suárez (2009) discovered that outlying patients with heart failure had a significantly longer hospital stay than patients with heart failure who were treated on the correct specialty ward and it is suggested that a lack of input from medical staff contributed to this. The Emergency Services Action Team Report (DoH, 1998) also supports this finding:

*“The problems of medical outliers continues to cause difficulties in relation to patient care and results in discharge delays in many hospitals. This arises as a result of no bed being available in the "home" ward of the on-take consultant. Situations can arise where the post-take ward rounds are not completed until late afternoon because consultants have to travel across the hospital to see their patients. Invariably, this is too late to allow the patient to be discharged that afternoon even though clinically it may be appropriate to do so”*

(DoH 1998, Annex 5, Section 1.3.2)

The findings of the present study suggested that the lack of staff input was not confined to medical staff. One participant in the study had to be repatriated to the correct specialty ward when the physiotherapists failed to visit her. Overall, the lack of continuity of care created by being transferred to a different clinical setting was raised as a specific quality issue by some of the participants in this study. This has the potential to threaten safety. As the World Health Organisation explain “a patient can potentially be treated by a number of health-care practitioners and specialists in multiple settings / additionally, patients will often move between areas of diagnosis, treatment and care on a regular basis and may encounter three shifts of staff each day – introducing a safety risk to the patient at each interval” WHO (2007, p1). Placing patients on clinically inappropriate wards exacerbates this issue by further increasing the number of healthcare practitioners and settings that patients are exposed to.

There was a divide in opinion as to whether nursing staff had seemed knowledgeable about patients’ conditions and the care required. Some participants were perfectly happy whereas others were able to recall instances in which the knowledge of nurses on outlying wards appeared compromised. The findings of the studies conducted by Mohan *et al.* (2005), Lloyd *et al.* (2005) and Elsayed *et al.* (2005) (described in section 1.8) suggest that the knowledge of nursing staff on outlying wards may be suboptimal as nurses become specialised by virtue of working on specific wards and hence become unfamiliar with the care required by patients from other specialties. However, all participants were asked whether they felt as if they had been in ‘safe hands’ while in hospital and the overwhelming answer to this question was yes. Only two participants were unsure whether they had been in safe hands while on an outlying ward.

Participants in the present study raised a number of communication issues resulting from placement on an outlying ward. Poor communication and its potential contribution to harm is a frequent theme within the patient safety literature while good communication is associated with increased levels of patient satisfaction (Beyer *et al.* 2007). Levinson *et al.* (1997) (cited in Beyer *et al.* 2007 p16) discovered that “15% of all [adverse] events were related directly to problems of communication with carers or patients and within the team, and that in more than 50% [of adverse events] communication was a contributing factor”. In the study by

Lepage *et al.* (2009) poor communication between wards was raised as a key safety concern for outlying patients. In addition to this problem, the present study also raised the lack of explanation of the need to move to an outlying ward and the implications for ongoing care as a specific communication failure. Moreover, some participants reported that the correct specialty ward had been better placed to answer their questions. A further communication failure surrounded discharge arrangements with patients who were discharged from outlying wards being unsure of their aftercare requirements. The World Health Organisation (WHO, 2007 p2) suggests that “hospital discharge is a critical stage where communicating information to patients and families becomes vital”. They recommend that “health-care organizations implement systems which ensure – at the time of hospital discharge – that the patient and the next health-care provider are given key information regarding discharge diagnoses, treatment plans, medications and test results” (*ibid*), yet the results of this study propose that this information giving may be compromised when patients are discharged from outlying wards. However, some examples of good communication by staff on outlying wards were offered and participants suggested these had impacted positively on their hospital stay.

Some participants reported that outlying wards did not have all the necessary resources available. Issues relating to the unavailability of medication were highlighted. This is because the division of healthcare into specialties means equipment is localised in specific areas (Wright *et al.* 1980). In addition, some participants felt the location of the outlying ward was unsuitable leading them to feel ‘isolated’ from the medical teams.

In sum, the patients that were interviewed provided in depth accounts of their experiences of being cared for on outlying wards in comparison to correct specialty wards and were able to highlight instances in which they felt the quality and potentially safety of their care had been compromised as a result of being allocated a bed on an outlying ward. A number of the issues raised overlap with the staff concerns detailed in Chapter 6 and these findings are assimilated and discussed further in Chapter 8. The results of the present study therefore suggest that patients themselves may be in a good position to comment on and inform quality of care and



patient safety. This concurs with a number of studies that have investigated patient involvement in patient safety (for example, Entwistle *et al.* 2010, Vincent & Coulter, 2002, Davis *et al.* 2011).

### **7.5.2 Reflexivity and critique of the methods**

Section 5.9 described the importance of adopting a reflexive approach during qualitative research as qualitative research studies always bear the stamp of the researcher (Donovan & Sanders, 2005). An account of the researcher's background was provided in section 5.9.1. It was particularly important to deliberate the researcher's assumption that safety may be compromised for outlying patients and the impact that this assumption may have had on data collection and analysis. Despite this assumption, all but two of the nineteen patients that were interviewed suggested that they had felt 'in safe hands' during their hospital stay. This contrasts with the overall perspective of NHS staff (Chapter 6). This finding may suggest that the patients were not 'led' into thinking that their safety was compromised by the interviewer. However, it is important to consider patients' understanding of the concept of being 'in safe hands' as a number of the participants who reported being in safe hands also described instances in which staff were unfamiliar with their condition or needs or their care had potentially been compromised. The patients themselves may not have recognised these practices as potentially 'unsafe', perhaps due to unfamiliarity with the concept of 'patient safety'. On the other hand, the researcher may have been biased towards believing they were potentially unsafe.

As with the interviews with NHS staff, the impact of the methodology upon the interpretation of the results has been considered. Nineteen people who had spent time on outlying wards were interviewed. Recruitment was ceased when LG and the research advisory group felt confident that the iterative analysis of participants' accounts and subsequent reporting would offer a plausible representation of reality (Donovan & Sanders, 2005). However, caveats remain.

Firstly, the patients who took part in the study may not have been representative of outlying patients in the Trust as a whole. The study exclusion criteria necessarily

disqualified certain types of people from taking part in the study; for example, those with confusion or dementia, those who were unable to understand and converse in English and those who were critically ill. The literature suggests that these types of patients are often at increased risk of patient safety issues. Therefore, this interview study may have captured the views of a group of relatively well patients who were at relatively low risk of error or harm. Having said this, a number of the participants were regular attendees at hospital and a number had co-morbid illnesses, thus not all were straightforward cases.

Additionally, participants were recruited from five different wards in the Trust. It was felt that this would be a large enough number to prevent bias arising as a result of selecting too few wards. Furthermore, it was ensured that a ward with only a moderate number of outliers (as determined during the descriptive study, chapter 4) was included as it was assumed that wards with more experience in caring for outlying patients could potentially provide better care. However, it remains possible that patients on wards other than the five that were selected for recruitment may have had broadly different experiences.

Moreover, the nursing staff working on the wards which helped to facilitate recruitment to this project acted as ‘gatekeepers’ to potential participants. Although the staff were informed of the study inclusion and exclusion criteria, they may have inadvertently screened out potentially eligible participants. For example, one member of staff suggested to LG “you won’t want to talk to him, he’s very grumpy”.

While the purposive sample of participants was diverse in terms of age, gender, specialty and outlying wards stayed on, the sample arguably under-represents people from ethnic minority backgrounds. This is notable as the study site is in an ethnically diverse community. As those people who declined to take part in the study were not asked to give reasons for their disinclination, it is not known why so few people from non-white backgrounds agreed to participate.

The main limitations of this study are the same as those applicable to the descriptive study and the interview study with NHS staff. Firstly, the safety of outlying patients

is a complex and multifaceted phenomenon which no research project could unpick in its entirety. Secondly, there is a potential lack of generalisability of the findings to other outlying patients in other NHS Trusts. Donovan & Sanders (2005 p527) suggest that “in the strictest sense, the findings of qualitative research are generalisable only to the small sample investigated. However, if the findings have clear plausibility, then they are likely to be generalisable more widely”. Plausibility is of course a matter of judgement, however steps were taken to aid the reader in making this judgement by offering a transparent account of the methods, providing evidence to support knowledge claims and to drawing on parallels with existing literature.

Given the rich findings produced, it is suggested that the use of semi-structured interviews was a useful method for ascertaining the quality and safety issues faced by outlying patients. In support of this, Taylor *et al.* (2008 p224) used interviews with patients and subsequent case-note review to demonstrate that “patient-reported service quality deficiencies were associated with adverse events and medical errors”. Weingart *et al.* (2005) also used this methodology and concluded that not only are hospital patients able to identify adverse events, but they may be able to do so more comprehensively than case-note review alone.

This study was exploratory in nature, as no previous published empirical study has sought patients’ views of the quality and safety of care provided on outlying wards. Therefore, this study was a useful way to capture the patient perspective and generate hypotheses in this under researched area. Further research is now required to more fully ascertain the safety risk posed by placing patients on clinically inappropriate wards. Recommendations for future research, policy and practice that have arisen as a result of the research presented in this thesis are presented in section 8.5.

## **7.6 Chapter conclusion**

Qualitative interviews with NHS patients who had spent time on outlying wards were a good way to explore the patient perspective of quality and safety issues as their point of view has thus far been neglected in the literature. Where possible patients would prefer to be treated on the correct specialty ward but it is generally appreciated that this may not be possible and accepted that placement on an outlying ward is for the 'greater good'. When patients are placed on outlying wards they may lack a sense of belonging which may in turn affect their perception of the quality of care provided. Some interviewees commented on potential failings in communication, staff availability, nurses' knowledge and the physical environment, each of which may contribute to unsafe care. These factors are discussed further in Chapter 8. In accordance with previous research, this study serves to suggest that patients are able to highlight potential contributory factors for adverse events.

## **CHAPTER 8**

### **Discussion**

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#### **8.1 Introduction to the chapter**

This chapter will provide an integrated discussion of the results obtained from the descriptive study of outliers, the interviews with NHS staff and the interviews with patients who had been on outlying wards during their hospital stay (Chapters 4, 6 and 7 respectively). Summaries of the findings of the three primary research studies are presented in sections 4.4.1, 6.5.1 and 7.5.1. Additionally, the key findings are presented in brief in Table 8.1. The discussion of results is structured so as to consider factors that affect the prevalence of outliers, to explore characteristics of outlying patients and to assess the quality and safety issues outliers may face and the factors that may contribute to these. The potential contributory factors are presented in accordance with the structure of the YCFF (see section 1.7 and Figure 1.2). This results in a discussion of the potential for placement on outlying wards to constitute a latent condition and therefore represent a classic system error. Existing literature is used throughout the discussion to contextualise the results. Thereafter, the overall strengths and weaknesses of the research presented in this thesis are considered and implications for policy, practice and future research in this area are given. This discussion aims to satisfy the research objectives posed in section 1.10.

Table 8.1 Key findings

Chapter	Study	Key findings
4	Descriptive study of outliers and other inpatients	<p>Medical and elderly outliers increase over the winter months.</p> <p>Outliers are transferred between wards a statistically significantly greater number of times than other inpatients. Outliers often spend little or no time on the correct specialty ward.</p> <p>Multivariate analyses demonstrated no statistically significant differences in age, gender, or mortality of outliers and other inpatients. Outliers stayed in hospital statistically significantly longer than other inpatients adjusting for age, gender and specialty. Outliers were statistically significantly more likely to come from medicine than from any other specialty.</p>
6	Results of qualitative interview study with NHS staff	<p>Bed pressures are influenced by season, beds available, transfers between wards, ward closures, length of stay and delayed discharge.</p> <p>Staff volunteered different definitions of the term ‘outlier’. Senior medical staff decide which patients move to outlying wards although junior staff or nursing staff may cover this role. Outliers should be the most medically fit patients although this is not consistently the case. The movement of patients between wards may pose an infection risk.</p> <p>Outliers are often perceived to be ‘challenging’ or ‘unpopular’. There is a perception that outlying patients do not belong to the outlying ward.</p> <p>Outliers may be vulnerable to falls as a result of changing environment. Medication issues are problematic as outlying wards may not stock required medication. Deterioration may go unnoticed on outlying wards. Outliers receive a ‘second service’ and often experience numerous delays. Contributory factors that may underpin safety issues include: competing demands on staff time, communication issues, lack of knowledge or specialist expertise on outlying wards, an unsuitable ward environment for outlying patients, and characteristics of patients (their perceived medical fitness and the potential for disorientation).</p>
7	Results of qualitative interview study with outlying patients	<p>There is a divide in patients’ feelings about being placed on an outlying ward. Patients understand the need to prioritise a finite resource according to illness severity. However, some patients felt they didn’t ‘belong’ to the outlying ward. One patient felt she had been moved because she was unpopular. Patients often did not know why they were being moved or where they were going. Patients disliked being moved at night or early morning and disliked being removed from friends they had made.</p> <p>Input from nursing staff was consistent on outlying and specialty wards; all nurses were busy. Input from medical staff was sometimes compromised on outlying wards and delays in medical review and discharge were experienced. Patients could ‘feel forgotten’. The knowledge of nursing staff on outlying wards may be compromised. However, the majority of patients did feel ‘in safe hands’.</p> <p>Communication issues were problematic as the reason for the ward transfer, ongoing care plans and discharge arrangements were not adequately explained.</p> <p>Equipment and medication was not always available on outlying wards and patients could feel isolated from the medical teams.</p>

## **8.2 The multiple methods approach**

Different research methods were used for the three primary research studies presented in this thesis with the broad aims of exploring the epidemiology of outliers and the quality and safety issues that may be faced by outliers. Although the studies carried out each had their own objectives, the findings of the three studies and the existing literature are integrated in this discussion chapter in order to address the overall thesis aim of exploring the quality and safety of care provided for hospital inpatients who reside on clinically inappropriate wards. Health services researchers often refer to the assimilation of findings gained using different methods as triangulation. Mays & Pope (2000, p51) state “triangulation compares the results from either two or more different methods of data collection / the researcher looks for patterns of convergence to develop or corroborate an overall interpretation”. Furthermore, Hansen (2006, p54) suggests that triangulation can involve “combining different sampling strategies, methods, analysis approaches, and/or qualitative and quantitative research approaches in the same research project”. Triangulation is not used to assert validity as in line with the subtle realist position it is not possible to be absolutely certain of knowledge claims. Rather, the strengths of integrating the results in this way lie in “ensuring comprehensiveness and encouraging a more reflexive analysis of the data” (Mays & Pope 2000, p51). Triangulation of research findings with reference to previous literature therefore helps to uphold “plausibility” or “trustworthiness” of the findings and ultimately serves to “enhance understanding of phenomena” (Donovan & Sanders, 2005 p526).

## **8.3 Discussion of results**

The following sections of the discussion will use the results presented in this thesis in conjunction with the existing literature to consider: the factors that affect the prevalence of outliers, the types of patients who often become outliers, the contributory factors which underpin safety issues faced by outliers and the wider implications that outliers have on organisations.

### **8.3.1 What factors affect the prevalence of outliers?**

The literature review (Chapter 1), the descriptive study (Chapter 4) and the interviews with staff (Chapter 6) and patients (Chapter 7) demonstrated that outliers arise in healthcare systems when the demand for inpatient beds exceeds the available supply. There are potentially a great number of factors which may affect this complex demand / supply relationship. The key factors, as evidenced in the results chapters of this thesis and prior theory and research, are described hereafter.

#### **8.3.1.1 Winter peak**

The peak in demand for hospital beds over the winter period is well documented (Fullerton and Crawford, 1999). There are an increased number of accidents due to adverse weather (DoH, 2004) and an increased number of people are admitted with respiratory conditions and heart problems during spells of colder weather (Donaldson & Keatinge, 1997). In particular, this leads to an increase in the number of elderly admissions over the winter months (DoH, 2004). This pattern was reflected in the descriptive study (Chapter 4) which demonstrated an increase in the number of medical and elderly outliers between November and February. Furthermore, ‘winter bed pressures’ were mentioned as being problematic by staff interviewees (Chapter 6).

#### **8.3.1.2 The decision to admit**

It has been theorised that the decision making process for admitting a new patient varies according to ‘Roemer’s law’ which suggests that patients will always fill available hospital beds as clinicians’ threshold for deciding whether or not to admit a new patient is dependent upon the number of beds available (Roemer, 1961). Roemer (1961, p37) states “the level at which need [for beds] is recognized is heavily influenced by the supply of beds available for its satisfaction”. However, Roemer’s law was formed in reference to an American health insured population. The outlier phenomenon appears to go one step further than this. It has been suggested that outliers from the medical specialties will always fill the available bed base and then ‘spill over’ into other specialties bed bases, because admitting



physicians know that this is an option they may utilise (Audit Commission, 2003). Therefore, the threshold for the decision to admit appears to vary according to the total number of beds available rather than the number of beds available in the correct specialty. According to this premise, increasing the overall number of beds available would not reduce the prevalence of outliers. Hypothetically, whether the bed base was doubled or halved, medical patients would always fill the available bed base and then an additional group of medical patients would become outliers on clinically inappropriate wards.

### 8.3.1.3 Length of stay and delayed discharge

The descriptive study (Chapter 4), the interviews with staff (Chapter 6) and the interviews with patients (Chapter 7) all suggested that the length of stay of patients on outlying wards may be prolonged. Considering the results of the three studies in conjunction with the literature on length of hospital stay offers potential explanations to suggest why patients on outlying wards may stay in hospital for longer than patients who reside on the correct specialty ward.

The length of stay of hospital inpatients greatly affects the relationship between the supply and demand of inpatient beds. As stated in Chapter 4, clinical, psychological, social and organisational factors frequently work in conjunction to determine patients' length of stay. Illness severity certainly has an important role in determining length of stay as it is inevitable that sicker people will stay in hospital for longer. Furthermore, psychological factors are involved, for example, in clinicians' decision making process when deciding whether a patient is ready to be discharged. Similarly, social factors often influence length of stay, for example, patients may be well enough to be discharged from hospital but not well enough to care for themselves independently. Such patients may have a prolonged stay in hospital waiting for social care arrangements to be made to allow discharge. Overall, the longer people stay in hospital, the less capacity there is to admit new patients and so extended lengths of stay contribute to over occupancy and increased need to place patients on clinically inappropriate wards.

Patients who are placed on outlying wards are usually too sick to be discharged (perhaps requiring additional observation or nursing intervention) yet are anecdotally relatively well in comparison to other patients. So the prolonged length of stay of outlying patients could be attributed to the need for additional nursing or medical input and hence clinical factors. As the decision to move a patient to an outlying ward is reported to be based on an assessment of illness severity (see Chapter 6 section 6.4.2.1), if illness severity alone determined length of stay, outlying patients should have a relatively short length of hospital stay. The finding that outlying patients had a significantly longer hospital stay than other inpatients (Chapter 4, section 4.3.5.1) implies that either outlying patients are more ill than is generally reported or that other non-clinical issues are involved in increasing outlying patients' length of stay.

The results of the staff interviews suggested that delayed discharges are often particularly problematic for patients who are placed on outlying wards and thus create prolonged lengths of hospital stay. The staff and patient interviewees stated that a key issue for outliers which compounds delayed discharge is insufficient medical review. Patients on outlying wards are often disadvantaged in terms of receiving timely and thorough medical review as medical teams are often too busy and too far away from their outlying patients. If patients are not seen by the medical team, they will be disadvantaged in terms of investigations and treatment and they will not be discharged. In addition to potentially increasing the prevalence of outliers, delayed discharge has the potential to compromise quality of care. Glasby *et al.* (2006, p53) conducted a literature review of 21 studies that examined delayed discharge and suggest "both research and anecdotal evidence suggest that hospital discharge is often a problematic area of practice, characterized by poor patient experiences, inadequate communication, cost shunting and insufficient inter-agency collaboration". The interviews with staff implied that social factors were particularly important in both creating outliers and in prolonging outlying patients' length of hospital stay. For example, the phenomenon of 'bed blocking' is often described in the literature as patients may be well enough to be discharged from hospital but not well enough to return home without additional support and therefore remain in their hospital bed while this support is arranged. Glasby *et al.* (2006 p52) explain that this problem arises as "the UK system is based on historical division between people

who are *sick* (who receive health care free at the point of delivery from the National Health Service (NHS)) and those who are *frail/disabled* (who are deemed to have social care needs, met by local authority social services departments and subject to means-testing and user charges)”. This makes transfer between hospital care and social care problematic and directly impacts hospital occupancy (*ibid*).

#### 8.3.1.4 Summary of factors that affect the prevalence of outliers

The outlying phenomenon is multifaceted and complex, involving some function of the number of beds available, the number of acute and elective patients, the decision to admit, the length of inpatient stay and facilitation of discharge. As Lepage *et al.* (2009, p445) acknowledge “the practice of outlying patients in inappropriate wards includes many dimensions”. To try and reduce the number of patients placed on clinically inappropriate wards, bed managers must intervene. However, such intervention is in itself complicated, particularly due to “the current climate of ever-increasing demand for emergency beds and reducing acute capacity” (Boaden *et al.* 1999, p234). The Audit Commission (2003) suggest there is ‘little scope’ for ongoing improvement of bed management in the NHS. These complexities mean that placement of patients on clinically inappropriate wards is forecast to remain a common occurrence within NHS hospitals in the future.

### **8.3.2 Who are outliers?**

The descriptive study (Chapter 4) investigated the characteristics of outliers at the study site in terms of age, gender and specialty. The interview studies with staff (Chapter 6) and patients (Chapter 7) also sought to determine more about the characteristics of outlying patients.

#### 8.3.2.1 Issues with definition

Throughout the thesis it has been apparent that there are issues of definition surrounding patients who occupy beds on clinically inappropriate hospital wards. As discussed in section 1.5, some people reserve the term ‘outlier’ for those patients who are allocated a bed on a ward under a different directorate (for example, medical

patients on surgical wards) whereas other individuals will use the term for patients who are placed on any ward outside of the correct specialty ward. The facilities available and the presence of co-morbid illness complicate matters. In Chapters 6 and 7 it was demonstrated that patients who do not neatly fit under one specialty may find themselves being placed on outlying wards. As an example of this, one of the patient interviewees stated “*I’m the perfect person for them to sleep-out*” because there was no dedicated unit at the study site that catered for pain management.

#### 8.3.2.2 Medical and care of the elderly predominance

The descriptive study and interviews with staff showed that outlying patients predominantly come from the medical specialties and care of the elderly and are therefore often acute emergency admissions. Fewer outlying patients were reported to come from the surgical specialties. Medical and elderly outliers are therefore often placed on surgical wards when the medical bed base is full. This is a reflection of the fact that ENT, plastics and gynaecology have a large proportion of planned surgical day-cases thus beds become available on these specialties’ wards overnight when the sleep-out lists are compiled.

#### 8.3.2.3 Medically fit patients

The interviews with NHS staff clearly suggested that an assessment of patients’ clinical condition is of great importance when determining which patients are suitable to move to outlying wards with the fittest patients selected. A number of the patients that were interviewed also understood this premise and stated that they believed the beds on the correct specialty ward were needed for patients that were sicker than they were. Therefore, if it is assumed that outliers as a group are fitter than other inpatients, it is particularly interesting to note that the descriptive study (Chapter 4, section 4.3.5.1) demonstrated that outliers had a statistically significantly longer length of hospital stay than other inpatients, adjusting for age, gender, and specialty. It would be reasonable to expect that outlying patients would have a shorter length of stay if they were indeed fitter. Potential reasons to explain why outlying patients might have a prolonged length of stay were discussed in section 4.4.3.2 and 8.3.1.3. Similarly, there was no statistically significant difference in the

mortality of outliers compared to other inpatients (Chapter 4, section 4.3.5.2). Again, if patients who are placed on outlying wards are fitter, it would be reasonable to expect their mortality to be less than that of the other inpatients. It is therefore clear that any future assessment of the characteristics of outliers should involve a valid estimation of illness severity in order to determine whether outliers really are more medically fit than patients who are treated on the correct specialty ward.

#### 8.3.2.4 Unpopular patients?

The interviews with staff raised the suggestion that outlying patients are often less favoured by members of staff and a number of potential reasons for this were cited including outlying patients' specific conditions, the care they require, and factors related to their personality or social care needs. Additionally, there was a perception in the staff interview study that some members of nursing staff do not see outliers as being "their patient" despite the fact that outliers are dependent upon those staff members for their care. Similarly, the interviews with patients who had been outliers during their hospital stay demonstrated that some people felt as if they had been "outsiders" on outlying wards. Additionally, one participant believed that she was allocated a bed on an outlying ward due to her unpopularity with the staff on the correct specialty ward.

The staff interviewees gave specific examples of types of patients who may prove 'challenging' or 'unpopular' when moved to outlying wards. Such patients include: alcoholics, people who have taken overdoses, people who have self harmed, people with confusion or dementia, people with social issues and people who are heavily dependent on nursing care. Interestingly, the descriptive study demonstrated that 35 out of the 433 outliers had a primary diagnosis of mental or behavioural disorder due to use of alcohol, poisoning, overdose or self harm (section 4.3.2.3). The types of problematic outlying patients mentioned by staff are frequently cited as being 'unpopular' in the literature, irrespective of placement on the correct specialty ward or an outlying ward (Conway 2000, Kelly & May 1982, Macdonald 2003). However, it could be suggested that the negative perceptions of such patients are compounded when they are placed on outlying wards as staff may focus on the fact that these

‘challenging’ patients should not really be on the ward, which may add to the perceived burden.

Considering the results of the interview studies with staff and patients in conjunction with the existing literature offers further reasons to suggest why outliers may be perceived to be challenging or unpopular by nursing staff. For example, seminal work into ‘the unpopular patient’ by Stockwell (1972, p8) investigated “interpersonal relationships between nurses and patients in general hospital wards”. Stockwell’s findings suggested that the personality traits of individual patients were of great consequence in determining their popularity amongst nursing staff. In addition, factors such as physical defects, foreign nationality and extended lengths of hospital stay often rendered patients unpopular with staff. Furthermore, Orlando (1961) (cited in Conway, 2000) suggested that patients who remain in hospital for longer than staff think is necessary or who alter the routine or workload of staff are often perceived to be difficult. Some of these factors may be relevant in explaining negative perceptions of outlying patients.

The perception held by both staff and patients that outliers ‘do not belong’ on outlying wards is important and under-researched. It may be suggested that the segregation of medicine and surgery into specialist departments and wards creates a group mentality; hence people who do not have the clinical characteristics to allow them to fit within the group are viewed as outsiders. This premise may be expanded upon using theory developed in the social psychology literature, in particular social identity theory (Tajfel, 1974, Tajfel & Turner, 1979, cited in Hogg & Vaughan 2005). Hogg (2003, p56) states “groups exist by virtue of there being outgroups. For a collection of people to be a group there must, logically, be other people who are not in the group”. Social psychologists suggest that this form of social categorisation occurs naturally, creating groups of people who have similar attributes. This process of categorisation “accentuates perceived difference between categories and similarities within categories” and occurs “in order to render the social world a meaningful and predictable place in which we can act efficaciously” (Hogg 2003 p59).

Taking the example of a hospital ward, those patients who ought to be on the ward and therefore have a broadly similar illness type are categorised as part of an 'in-group' by both staff and patients on the ward. Conversely, outlying patients on the ward have a different type of illness and therefore should not really be on the ward so they are categorised as an 'out-group' by staff and patients. This form of social categorisation has potentially important consequences for people's sense of 'belonging' and for the quality of care received by outliers. Haslam *et al.* (2009 p6) state "if individuals belong to a group that is seen in some way as inferior to the others (e.g. because it is disadvantaged or stigmatised), then negative intergroup comparison is likely to pose a threat to well-being".

However, Johnson & Webb (1995) suggest that trying to predict whether individual patients will be popular or unpopular based on stereotypical labels (for example the patient's illness type or outlying status) is futile as the phenomenon is complex and dependent on social judgement - the popularity an individual outlying patient is determined by different social processes to the popularity of outlying patients as a whole.

#### 8.3.2.5 Summary of the characteristics of outlying patients

Outliers often come from the medical and care of the elderly specialties where admissions are less predictable although this is not consistently the case. Outliers span a range of ages and specialties and can be emergency or elective admissions. Outliers are assumed to be relatively medically fit which should in theory be a protective factor for adverse events. However, high risk patients (e.g. acutely unwell, heavily dependent or complex patients) are sometimes placed on outlying wards. Furthermore, outliers can be perceived to be unpopular or challenging by members of nursing staff which may compromise the quality of care provided. In order to establish meaningful audits of the prevalence of outliers and to keep track of the location of patients, the term 'outlier' needs to be clearly defined and known by members of staff.

### **8.3.3 What are the contributory factors underlying safety issues faced by outliers?**

As described in section 1.7, Reason's Swiss cheese model of accident causation (Reason, 2000) suggests that patient safety issues are often underpinned by underlying (latent) conditions in the environment, which are created as a result of decisions made regarding policy, strategy, planning, design and maintenance (Vincent, 2006). At the outset of this research it was proposed that placement on an outlying ward might constitute a latent condition that could underpin active failures or adverse events. However, presence of a latent condition alone is usually not enough to directly cause an adverse event. There are often a number of contributory factors, which when combined with the latent condition and a lack of suitable defences, can lead to an adverse event. The Yorkshire Contributory Factors Framework (YCF) (please refer to Figure 1.2) is an evidence based tool that was adopted in Chapter 1 to explain the different types of contributory factors and latent conditions that exist in a hospital setting. This section of the discussion will use the structure of the YCF to explore the contributory factors that may create patient safety issues for outlying patients by integrating the results from the three primary research studies presented in this thesis and considering other relevant literature. Examples of how the contributory factors highlighted may lead to safety issues are given.

#### **8.3.3.1 Situational factors**

Situational factors comprise patient factors, individual (staff) factors, team factors and task characteristics. Each of these is discussed in turn below as they are all potentially important contributory factors for outlying patients.

##### *- Patient factors*

Lawton *et al.* (2012, p373) define patient factors as "those features of the patient that make caring for them more difficult and therefore more prone to error". The characteristics of outlying patients therefore have relevance to the risk of error with the severity of each individual patient's clinical condition having the greatest bearing on the risk of experiencing a safety issue (Taylor-Adams & Vincent, 2004b). As previously discussed, it is policy to select the most medically fit patients to move to



outlying wards. If outliers are indeed less ill, this is a hugely protective factor for adverse events as adverse events are strongly, positively correlated with illness severity (Brown *et al.* 2008c, Silber & Rosenbaum, 1997, Geraci *et al.* 1993, Walker & Wynne 1994). However, because of bed pressures or due to incorrect diagnoses, the interviews with staff revealed that seriously ill patients are occasionally moved to outlying wards under the guise of ‘looking well’. The inappropriate movement of seriously unwell patients to outlying wards is likely to contribute to error producing conditions. Furthermore, as detailed above (section 8.3.2.4), the findings from the interview studies with staff and patients led to the suggestion that some outlying patients are perceived to be ‘challenging’ or ‘unpopular’ by members of staff on the ward. This could potentially compromise the quality and safety of care provided. Finally, the interviews with staff raised the movement of confused or impaired patients to outlying wards as a specific concern which may pose a falls risk. Patient factors are likely to be important in contributing to safety issues in patients who are placed on outlying wards and, depending on individual circumstance, may act as either a protective factor or a risk factor for errors and adverse events.

- *Individual (staff) factors*

Taylor-Adams & Vincent (2004b, p5) define individual staff factors as “the knowledge, skills and experience of each member of staff, which will obviously affect their clinical practice”. The knowledge and specialist expertise of nursing staff on outlying wards was raised as a particular safety issue in both of the qualitative interview studies. NHS staff and patients suggested that nursing staff become specialised by virtue of working on specific wards and at times lack knowledge of the condition of an outlying patient or the nursing care required. The interviews with staff revealed that this is of particular concern when nursing staff fail to administer medication or other treatment correctly or fail to recognise the deterioration of an outlying patient. This finding is corroborated by three published studies (described in the literature review, section 1.8) which suggested that nursing staff become specialised by virtue of working on specific wards and may at times lack the expertise required to provide appropriate care for outlying patients with unfamiliar diagnoses (Mohan *et al.* 2005, Lloyd *et al.* 2005 and Elsayed *et al.* 2005). The

specialisation of the nursing profession and consequent reduction in the transferability of skills is summarised succinctly by West (2000):

*“The nursing profession, for example, has become increasingly specialised over time and is now recognised as encompassing a large number of groups, each of which is in possession of specialist expertise. Nurses who work in intensive care, psychiatry or in the community are no longer interchangeable – a ‘nurse’ is no longer just a ‘nurse’. At the same time the role of the nurse in the healthcare team has become more specialised. Whereas in the past, nurses were responsible for diverse aspects of patient care, their role now is more clearly defined.”*

(West 2000, p122)

- *Team factors*

Lawton *et al.* (2012, p373) define team factors as “any factor related to the working of different professionals within a group which they may be able to change to improve patient safety”. The importance of ‘the team’ for the delivery of high quality, safe patient care is well established (Firth-Cozens 2001). Bartunek (2011, p162) outlines the necessity for “positive working relationships among groups such as physicians, nurses and healthcare administrators whose collaboration is required for quality improvement initiatives to succeed” and suggests “rifts among these groups have negative impacts on quality”.

The results of the staff interview study in particular demonstrated that patients on outlying wards are not afforded the benefit of being treated by multidisciplinary teams of nurses, doctors and allied health professionals who know each other and work together regularly. Miller *et al.* (2008, p334) talk of the importance of “nurses engaging collaboratively with other professionals in order to provide high quality patient care” and it is easy to conclude that the quality and safety of care may be compromised when this does not happen. The social boundaries imposed when members of staff are segregated into specialist teams mean that members of one team may find it difficult to work collaboratively with members from a different team. This may be particularly problematic for the delivery of outlying patients’ care

as the nursing and medical staff involved are not only from different specialties but also from different professions. Miller *et al.* (2008, p334) suggest that “as most health professionals have been socialized into cultures with strong professional foci, interprofessional working relationships are often approached with some degree of anxiety”.

Furthermore, while outliers are visited on their outlying ward by the correct specialty medical team, they may be less likely to benefit from input from the rest of the multidisciplinary team. For example, one of the patient interviewees had to be repatriated back to the orthopaedic surgery ward when the physiotherapists failed to visit her on several occasions whilst she was an outlier.

- *Task characteristics*

Task characteristics are defined as “factors related to specific patient related tasks which may make individuals vulnerable to error” (Lawton *et al.* 2012, p373). As detailed previously, the staff and patient interview studies revealed instances in which members of nursing staff were unsure of the nursing tasks required by outlying patients. Examples of this include the administration of unfamiliar medication, wound care and techniques for mobilisation. Furthermore, the staff interviewees revealed that patients from different specialties have different templates for their case-notes which could make finding information difficult. This finding is supported by the study conducted by Lepage *et al.* (2009) (see section 1.8 for details) who also raised the lack of standardisation within patient notes as a potentially important contributory factor. The delivery of care for outlying patients may also be complicated by the fact that the clinical tasks being carried out may not normally be conducted in that area. West (2000 p122-123) suggests that ideally “the layout of each ward would be basically the same, procedures would be conducted in the same way across units, and there would be a minimal amount of variation in equipment throughout the organisation”. This would be beneficial as “standardisation and formalisation of tasks are ways of reducing the complexity of work in formal organisations” (West 2000 p122).

### 8.3.3.2 Local working conditions

Contributory factors which relate to the local working conditions comprise: the physical environment, equipment and supplies available, the staff workload, management of staff and staffing levels, supervision and leadership, and lines of responsibility.

#### - *Physical environment*

The physical environment refers to anything to do with tangible aspects of the ward or hospital that may improve or compromise safety. The physical environment may contribute to error producing conditions for outlying patients in a number of ways. The staff interviews suggested that change in the physical environment created when patients move to outlying wards can disorientate patients and pose a falls risk. This risk was suggested to be heightened in patients who are cognitively or physically impaired and this supposition is well supported by existing literature (e.g. Morse 1997, Walker 2004). Furthermore, when patients are on outlying wards, physicians conduct medical review in a potentially unfamiliar physical environment. This could make it difficult to locate case-notes, equipment, supplies or even members of nursing staff. Furthermore, outlying wards may often be a considerable distance from the ward that physicians are based on. This lack of physical proximity can result in excessive time spent walking between wards and introduce delays, a finding supported by the study conducted by Creamer *et al.* (2010) (see section 1.8 for study details). Additionally, some of the staff interviewees felt that the use of side rooms for infectious patients on outlying wards could pose a safety risk as patients are less visible. This may pose a particular threat to safety when nursing staff on outlying wards are unfamiliar with potential warning signs which signify deterioration. In support of this suggestion, Santry (2010) reports that 70% of 1200 nurses who were surveyed indicated that it is more difficult to observe patients who are in side rooms and almost half of this sample felt that placing patients in side rooms can compromise patient safety.

- *Equipment and supplies*

The interview studies with staff and patients both demonstrated that a lack of equipment on outlying wards (for example, Zimmer frames, hoists, profiling beds, drug charts and dressings) could be problematic and adversely affect patient care. The unavailability of medication on outlying wards was raised as a particularly important issue by both staff and patients and can result in delays or omission of medication. This safety relevant finding is not well evidenced in the prior literature thus future research would benefit from determining whether a lack of equipment and supplies is problematic for outlying patients at other sites.

- *Staff workload*

There was a perception in the staff interview study that outliers complicate the workload of both medical and nursing staff as they create competing demands on staff members' time. This finding is supported by the work of Creamer *et al.* (2010) (see section 1.8 for details). Because of the additional workload created by having patients on outlying wards, delays were cited as being inherent in the care of outlying patients. A number of the patient interviewees also spoke of delays in the healthcare process caused by the perceived busyness of staff. Delays are likely to prolong length of stay (as evidenced in the descriptive study of outliers, Chapter 4) and have the potential to compromise both the quality and safety of care.

- *Management of staff and staffing levels / Supervision and leadership / Lines of responsibility*

While staffing levels may be theoretically adequate for the total number of patients on each ward, problems may be encountered when nursing staff have to perform diverse tasks created by the presence of both outliers and correct specialty patients on the ward. Because of this diversity, some of the staff interviewees proposed that the level of qualified nursing staff on a ward is at times insufficient to ensure that optimum care is provided for both outlying patients and the patients that ought to be on the ward. Furthermore, there appear to be problems with 'ownership' of outlying patients with nursing staff not necessarily recognising outliers as 'their patient' and staff and patients occasionally being unsure which medical team an outlying patient is under. Henriksen & Dayton (2006, p1546) state that "in many clinical settings it is

the responsibility of several providers to care for a patient; however, in the absence of standardized procedures, individual roles and responsibilities are frequently assumed rather than spelled out". The lack of ownership and responsibility for outlying patients created by the involvement of staff from different specialties may therefore adversely affect patient care. Henriksen & Dayton (2006, p1546) suggest that "under conditions of diffused responsibility, components of care that should be attended to are frequently missed". The adverse consequences of diffused responsibility can be nullified by implementing strong leadership with clear guidance on each staff member's responsibilities, therefore making individual staff members accountable (*ibid*).

#### 8.3.3.3 Latent organisational factors

Latent organisational factors encapsulate: policies and procedures, scheduling and bed management, support from central functions and training and education.

##### - *Policies and procedures / scheduling and bed management*

An overview of aspects of the bed management policy in use at the study site that are relevant to outlying patients was presented in section 2.3.1 of this thesis. Results from all three primary studies demonstrated that this local policy is not always adhered to. For example, the staff interviewees conceded that the transfer checklist which is supposed to aid handover by summarising important information about patients who are moving between wards is not always used or not used to its full potential. Also, converse to the policy suggestion that senior medical staff oversee the movement of patients to outlying wards, the staff interviewees suggested that out of hours or at times of bed crises the task of allocating patients to beds on outlying wards may fall to junior members of medical staff or nursing staff who may make inappropriate decisions with regards which patients are suitable to move to an outlying ward. Additionally, both the staff and patient interview studies suggested that there were problems with the identification and medical review of outlying patients. The staff interviews (and indeed one of the patient interviewees) suggested that infection control status is not always verified and taken into account prior to transfer as was advocated in the bed management policy. The staff interviewees

spoke of instances in which patients with MRSA or soft tissue infections had been inappropriately moved to outlying wards and one of the patient interviewees had been placed on a surgical ward whilst she had *influenza* B. Finally, despite the policy aim to minimise the number of transfers made between wards, all three of the primary studies in this thesis revealed that outlying patients may be transferred between wards numerous times. The implications of this are potentially wide ranging. For example, internal transfers between wards are known to be associated with outbreaks in infection (West, 2010). Furthermore, continued movement between wards may compromise the quality and continuity of care, and may promote opportunity for error.

It is therefore evident that the local bed management policy in place in the Trust was not always implemented correctly. The purpose of the policy was to safeguard outlying patients yet there appeared to be a number of gaps in this defence. The formation of a robust policy and subsequent Trust wide adoption of the policy would however prove difficult due to the sheer complexity of bed management and patient care (Clarke *et al.* 2002). Furthermore, West (2000 p123) suggests that “rules, standard operating procedures, guidelines, protocols, and role specifications cannot cover all eventualities and, unless deliberate steps are taken to review and revise, they will soon become out of date”.

- *Support from central functions*

Lawton *et al.* (2012, p373) raise the importance of “availability and adequacy of central services in support of the functioning of wards / units”. The preceding sections have demonstrated the importance of the impact that staffing and bed management can have on both the prevalence of outliers and the care patients receive and these factors are in turn affected by the level of support from central functions.

- *Training and education*

The staff interview study in particular suggested that due to the specialisation of medicine, staff members on outlying wards may not receive all of the training and education necessary to provide optimal care for outlying patients. West (2000 p122) uses the term ‘structural secrecy’ to describe “the compartmentalisation of

knowledge and information that follows from the division of labour in complex organisations”. This means that “it is no longer possible for one person to hold all the specialist knowledge needed to treat patients” (West 2000 p122) thus high quality patient care is dependent on team work with input from individuals who have undertaken appropriate training and education.

#### 8.3.3.4 Latent external factors

Latent external factors comprise the design of equipment and supplies and the external policy context. The design of equipment and supplies is not immediately relevant to this discussion of contributory factors which specifically compromise the safety of outlying patients. However, the external policy context is important. While NHS Trusts are advised to place patients on wards that are suitably equipped and have staff with the appropriate clinical expertise (Audit Commission, 2003), the literature suggests that it is widely accepted that this will not always happen and outliers are assumed to be part and parcel of modern day medicine. Again, while Trusts are advised to audit the prevalence of outliers and track the progress of their hospital stay, there is no external policy which makes this necessary. This lack of external policy may indirectly compromise the quality and safety of care received by outlying patients in the NHS.

#### 8.3.3.5 Communications systems and safety culture

##### - *Communications systems*

Problems surrounding communication formed key themes in both qualitative interview studies and indeed communication issues are a common thread throughout the patient safety literature. The World Health Organisation suggests “gaps in communication can cause serious breakdowns in the continuity of care, inappropriate treatment, and potential harm to the patient” (WHO 2007, p1). Communication problems existed between staff members (e.g. between outlying patients’ nursing and medical teams) and between staff members and outlying patients themselves.



For example, both qualitative interview studies suggested that the handover of outlying patients may be inefficient; highlighting a key area for communication breakdown which may ultimately compromise quality and safety of care. In support of this supposition, the World Health Organisation's report on communication during patient handovers (WHO, 2007) reveals that communication failures are the leading root cause of adverse events.

Furthermore, the outlying patients who were interviewed were often unsure why they were being transferred to an outlying ward, where they were going, and what the implications for their ongoing care would be. Patients are now encouraged to help to play a role in ensuring their own safety while in hospital but this will inevitably be hindered if patients are not told what to expect (Vincent & Coulter, 2002). Apparent failures in communication extended beyond discharge as outlying patients were often not informed of their aftercare requirements. The 2010 NHS inpatient survey found that 65% of inpatients reported being given written instructions to follow post-discharge, 76% of respondents were happy that they knew who they could contact if they had any questions or concerns following discharge and 44% felt that a family member or someone close had been given the information they needed to help provide care post discharge (CQC inpatient survey 2010). It would be interesting to conduct research into the proportions of outlying patients who agree with these statements as the research presented in this thesis suggests such information giving may be especially compromised by virtue of staying on an outlying ward.

To summarise the importance of communication failures as a contributory factor that may be experienced by outlying patients, Elizabeth West suggests:

*“the compartmentalization of work increases the likelihood of adverse events by introducing the need for communication and monitoring. As the number of employees in an organisation grows, the number of communication channels increases at an even faster rate. Larger size and increased complexity create greater opportunities for mistakes to occur”.*

West (2006 p21)

The placement of patients on clinically inappropriate wards certainly increases communication channels, complexity, and therefore the opportunity for error.

- *Safety culture*

Safety culture is concerned with “organisational values, beliefs and practices surrounding management of safety and learning from error” (Lawton *et al.* 2012, p373). A positive safety culture is associated with:

*“a shared priority for the safety of patients, an open and non-punitive environment where staff feel safe to report incidents, where reporting of incidents and near misses is a norm; and a just culture where trust is well established and where there is a well established collective understanding of accountability for actions”*

(Charles *et al.* 2011 p58)

Furthermore, Nieva & Sorra (2003 pii17) suggest a positive safety culture embraces errors as “opportunities to improve the system and prevent harm”. There appears to be an NHS wide culture of accepting that during times of peak demand patients will need to be placed on clinically inappropriate wards, as evidenced in bed management policies formulated by acute Trusts across the UK (e.g. Tameside and Glossop Acute Services 2011, University Hospitals of Leicester NHS Trust 2011, Newcastle Upon Tyne Hospitals NHS Foundation Trust 2011, South Tees Hospitals NHS Trust 2011) and indeed at the study site. As the research presented in this thesis was conducted at a single Trust it is difficult to make inferences about the safety culture and its potential impact upon outlying patients. However, now that placement on an outlying ward has been identified and reported as a latent threat, it would be an interesting future study to ascertain the impact of the findings on policy and practice change as this would be directly influenced by the safety culture at the site.

8.3.3.6 Summary

Application of the YCFF to the research presented in this thesis and incorporation of existing literature relevant to the safety of outliers clearly suggests that placement on an outlying ward is associated with a number of contributory factors which may underpin adverse events. These are summarised overleaf in Table 8.2. Placement on an outlying ward therefore constitutes a latent condition in accordance with James Reason's Swiss cheese model of accident causation and represents a classic system error (Reason, 2000).

It can be suggested that outliers may be the price we pay for specialty medicine.

*“the division of labour that results from increased specialisation brings problems of coordination, communication and cooperation / the more specialised occupations become, the more room there is for error unless systems for coordination, communication and cooperation are functioning well. / the fewer people or departments involved in care the better because the process of transfer of care introduces a known source of danger”*

West (2000 p122)

Table 8.2 Summary table demonstrating how different contributory factors may adversely affect the safety of outliers

<b>Contributory factor</b>	<b>How the contributory factor may adversely affect the safety of outliers</b>
<b>Situational factors</b>	
Patient factors	<ul style="list-style-type: none"> <li>- Sometimes high risk patients (e.g. acutely unwell, heavily dependent or complex patients) may be inappropriately moved to outlying wards</li> <li>- Some outliers may be perceived to be challenging or unpopular by members of staff which may compromise care</li> <li>- The movement of confused or impaired patients to outlying wards may create further disorientation and pose a falls risk</li> </ul>
Individual (staff) factors	- Nurses become specialised by virtue of working in specific clinical areas and may lack knowledge of outlying patients' conditions / the care required
Team factors	- Outliers may lack input from a cohesive multidisciplinary team
Task characteristics	- Nursing staff on outlying wards may be unfamiliar with aspects of nursing care required by outliers
<b>Local working conditions</b>	
Physical environment	<ul style="list-style-type: none"> <li>- Changing a patient's physical environment (due to a ward transfer) may increase the likelihood of falling</li> <li>- Physicians may be unfamiliar with the layout of outlying wards</li> <li>- Physicians may spend excess time visiting outlying patients resulting in delays to patient care or lack of medical review</li> <li>- Infectious patients placed in side rooms on outlying wards may not receive regular observation</li> </ul>
Equipment /supplies	- There may be a lack of equipment and medication on outlying wards
Staff workload	- The presence of outliers creates competing demands on staff members' time and may result in delays or omissions of care
Management / staffing levels / leadership / lines of responsibility	<ul style="list-style-type: none"> <li>- The presence of outliers creates a diverse number of nursing tasks which put pressure on nursing time</li> <li>- There is a lack of 'ownership' for outlying patients and this diffused responsibility may compromise care</li> </ul>
<b>Latent / organisational factors</b>	
Policies & procedures / scheduling & bed management	- Bed management policies may not be adhered to. This may create problems surrounding: deciding which patients are suitable to move to outlying wards, taking account of infectious status, handover between wards, identifying and reviewing outliers and minimising the number of transfers between wards
Support from central functions	- The level of support from central functions directly impacts staffing and bed management which may in turn effect the prevalence of outliers
Training and education	- Staff become specialised by virtue of working in specific areas and may lack the ongoing training required to provide optimum care for outliers
<b>Latent external factors</b>	
External policy	- There is a lack of external policy detailing best practice for care of outliers
<b>Communications systems and safety culture</b>	
Communications systems	- Communication issues are problematic due to an increased number of communication channels when patients are on outlying wards. Information may be poorly communicated between members of staff or between staff and outlying patients. Outlying patients may not know what to expect during their inpatient stay or after discharge
Safety culture	- There appears to be an NHS wide culture of accepting that during times of peak demand patients will need to be placed on clinically inappropriate wards

### **8.3.4 Summary of the quality and safety issues faced by outliers**

In addition to outlining a number of potential contributory factors for adverse events, the work presented in this thesis has highlighted the specific quality and safety issues that outlying patients may be vulnerable to. Quality of care often appears to be degraded when patients reside on outlying wards as this group of patients habitually receive a ‘second service’. For example, lack of medical review, delayed investigation and treatment, multiple ward transfers, prolonged length of hospital stay, unavailability of medication and equipment, lack of information giving during hospitalisation and at discharge and lack of input from the multidisciplinary team are all important quality issues that have the potential to negatively impact patient safety and therefore cause avoidable harm. Specific adverse events (instances where harm is or could have been encountered) highlighted within this thesis comprise: the omission or incorrect administration of medicines, late recognition of deterioration or deterioration due to delayed intervention, falls due to change in the physical environment and spread of infection caused by movement between wards. These quality and safety issues are summarised in Table 8.3 with reference to where these issues are demonstrated within the thesis.

*Table 8.3 Summary of the key quality and safety issues faced by outliers*

<b>Issue</b>	<b>Applicable sections in this thesis</b>
<b>Quality issues</b>	
Low priority patients	6.4.2.2, 6.4.3.2, 7.4.1, 7.4.2
Delayed medical review, investigations, treatment	6.4.3.2, 7.4.2
Prolonged length of hospital stay	4.3.4.2, 4.3.5.1, 6.4.3.2, 7.4.2
Multiple ward transfers	4.3.4.3, 6.4.1.1, 7.4.1
Unavailability of medication and equipment	6.4.4.4, 7.4.5
Inadequate communication between staff and between staff and patients	6.4.4.2, 7.4.4
Lack of input from specialist multidisciplinary team	6.4.4.1, 6.4.4.2, 6.4.4.3, 7.4.3, 7.4.5
<b>Patient safety issues (adverse events)</b>	
Omission or incorrect administration of medicines	6.4.3.1, 7.4.5
Falls risk due to change in environment	6.4.3.1
Unrecognised deterioration / delayed intervention	6.4.3.1, 6.4.3.2, 6.4.4.3, 6.4.4.4
Infection control issues	6.4.3.1, 7.4.5

### **8.3.5 The wider impact of placing patients on clinically inappropriate wards**

The preceding sections demonstrated the potential risks to patient safety posed by placing patients on clinically inappropriate wards. In addition to these risks, there are a number of other important implications associated with the presence of outlying patients in hospitals. Firstly, the descriptive study of outliers demonstrated that such patients may have a prolonged length of hospital stay. The financial impact of this could be substantial as the average bed day cost is estimated to be between £250-£300 (NHS institute for Innovation and Improvement, 2010). Secondly, the staff interviewees raised a number of concerns regarding the impact that the presence of outliers has on other inpatients. Over occupancy within hospitals can result in the cancellation of elective operations, delaying elective patients' management and losing money for the Trust (Ashdown *et al.* 2003 - see section 1.8 for study details). Furthermore, the staff interviewees proposed that mixing patients from different specialties and transferring patients between wards could heighten the risk of infection. Finally, the burden on staff time created by having outlying patients may compromise the quality of care for all inpatients.

### **8.4 Strengths and limitations of the research presented in this thesis**

Individual critiques of the three primary studies are presented in sections 4.4.2, 6.5.2 and 7.5.2. This section provides a summary of the strengths and weaknesses of each study and then of the thesis as a whole.

The main weakness of the descriptive study presented in Chapter 4 which compared the characteristics of outliers and other inpatients in the Trust was the poor quality of the routinely available data. This was caused, in the main, by inaccurate recording of the details of the outliers on each ward. This resulted in issues with case definition for both 'known outliers' and 'other inpatients'. Not all of the 'known outliers' were outliers for the whole of their hospital stay and, due to missing or inaccurate data, a small proportion of patients in the 'other inpatients' group will have spent time on outlying wards.

Inaccuracies in the data may have introduced bias in the results. For example, it is possible that outlying patients who had longer lengths of stay were more likely to have their data included in the 'known outliers' group than outlying patients with shorter lengths of stay as the longer patients stay, the greater the opportunity for their details to be recorded with accuracy.

Additionally, the use of routinely available data impaired the study of confounding factors. Had it been available, data which enabled an estimate of the severity of illness of outliers and other inpatients may have been of great use in discussing and providing potential explanations for the results, particularly the observations that known outliers had a significantly longer length of hospital stay yet there was no evidence for a significant difference in mortality.

Also, there was no way of determining whether transfers between hospital wards were made for clinical reasons or due to bed management reasons and the data available could not be used to make inferences about the numbers of patients with co-morbid illnesses as patients were assigned to a single broad clinical specialty.

Alameda & Suárez (2009) found that outliers were significantly more likely to have been admitted on a weekend or a bank holiday than patients placed on the correct specialty ward. This was not assessed or adjusted for in the descriptive study of outliers. Furthermore, information on outcome variables which could be used to indicate differences in the quality or safety of care of outliers and other inpatients was not collected (length of stay, transfers and mortality aside). For example, the present study did not extract data on readmission, infection, haemorrhage or venous thromboembolism, as was studied by Alameda and Suárez (2009).

Finally, in the case of the mortality comparison in particular, the sample sizes adopted may have made the statistical comparison underpowered to detect an effect due to the relatively small number of deaths in each group.

Poor quality data is a problem often encountered in research studies that utilise routinely collected data rather than data that are collected for the sole purpose of research (Martin, 2005). However, leaving the results of this research aside,

inaccuracies in data collected on outlying patients in a hospital has real life implications for health care professionals who use the data to locate patients and thus provide care, and for bed managers who use the information to reconcile the bed base. It is easy to surmise that inaccuracies in this information source may negatively impact patient care.

In defence of the limitations of the descriptive study outlined above, a small scale exploratory study of the characteristics of outliers in comparison to other inpatients was justifiable due to a lack of prior research. A particular strength of the study was the use of samples which captured the whole of the relevant patient population during the specified time periods (and therefore included patients with a variety of diagnoses). Alameda & Suárez (2009) criticised their own single site study which compared outliers with patients placed on the correct specialty ward for focusing on a single diagnosis related group. Furthermore, the use of routinely available data proved to be a relatively fast and inexpensive research method. The results gained proved to be consistent with previous research and in particular with the findings of Alameda & Suárez (2009).

Limitations of the qualitative interview studies with staff and patients presented in Chapters 6 and 7 respectively included the recruitment of participants from a single site, the use of a single researcher during data collection and the potential for gatekeepers to have restricted or controlled access to research participants. In the case of the interview study with patients who had spent time on outlying wards, participants from ethnic minority backgrounds were arguably under-represented. It is not known why so few non-white participants wished to take part in the study as potential participants were not asked for the reasons behind their decline. Furthermore, a number of patients met the pre-defined exclusion criteria and therefore were not included in the study. Confused patients were not invited on the grounds that they may not be able to provide their informed consent. Those who were unable to understand and converse in English were excluded due to a lack of resources to produce materials and conduct interviews in languages other than English. Those who were critically ill were excluded from the study on the grounds that the demands of the research may be excessive and they may not be able to provide their informed consent. It is acknowledged that a number of hospital patients



fall into one or more of these categories thus the study under-represents the views and experiences of people from each of these groups. On a positive note, the interview studies proved to be an excellent way to begin to explore this under-researched area and the findings gained were consistent with the existing literature.

Considering the research presented in this thesis as a whole, the main limitation is that all three research studies were carried out at a single large NHS teaching hospital in the north of England (information about the study site is provided in section 2.3). Because of this, the findings may lack generalisability to other hospitals and further research involving multiple sites is required to establish whether the findings are applicable elsewhere (Brown *et al.* 2008b). Additionally, the data collection for each of the three primary studies was carried out by a single researcher. However, as the conduct, analysis and interpretation of the research presented in this thesis was overseen by a research advisory group (in line with recommendations made by Mays & Pope (1995) and Barbour (2001) for ensuring rigour in qualitative research), the potential for researcher bias has been minimised. There are also issues surrounding the definition of an outlier as the classification is often subjective, depends on the specialist facilities available, may vary between Trusts and becomes complicated when patients have co-morbid illnesses. A standard definition would be essential for any future research involving multiple sites. Finally, as the practice of moving patients to outlying wards and the consequences of this are complex, it is impossible to explore the phenomenon in its entirety within the scope of this thesis.

Nevertheless, it is hoped that the findings demonstrate good face validity, thus making future research in this area a priority. It is thought that the concerns highlighted in this thesis may indeed be NHS wide as outliers are prevalent in almost all NHS hospitals (National Audit Office, 2000) and taking into account the related research in this area, it is assumed that the potential quality and safety issues identified in this thesis would be similar in other Trusts. Furthermore, reference to the bed management policies of a number of NHS Trusts serves to suggest that the safety of outliers is indeed an NHS wide concern (Tameside and Glossop Acute Services 2011, University Hospitals of Leicester NHS Trust 2011, Newcastle Upon

Tyne Hospitals NHS Foundation Trust 2011, South Tees Hospitals NHS Trust 2011).

The main strength associated with conducting all three studies at a single site was the opportunity for triangulation of the results as the findings were comparable. Brown *et al.* (2008d, p180) tell us “the conclusions drawn from research findings of one type are reinforced when they are corroborated by findings of a different type.” Furthermore, conducting the research at a single site allowed for the results of the initial studies to inform subsequent studies. For example, the information derived from plotting the number of nights spent by outliers on each ward (Chapter 4) was used to inform the sampling strategies used in the interview study with NHS staff (Chapter 6) and the interview study with outlying patients (Chapter 7), enabling targeted recruitment on wards which frequently cared for outliers and on one ward that cared for a moderate number of outliers. Similarly, the results of the interviews with NHS staff were used to plan the study and inform the topic guide for the interviews with outlying patients.

In addition, focussing on a single Trust offered the opportunity to build a case to potentially change practice in areas where the quality and safety of care received by outliers was found to be compromised. The results of the research presented in this thesis were fed back to the Trust in clinical governance and quality and safety meetings that were attended by board members and senior clinical and management staff. The changes made as a result of this of this are described in section 8.5.3.

In sum, the methods adopted in this thesis were a cost effective way to begin to explore the quality and safety of care given to patients who are allocated a bed on a clinically inappropriate ward and to generate hypotheses for future research into this under-researched yet important problem. Bowling (2002 p3) states that health services research “must be translated into action to be of value”. The research presented in this thesis achieved this, as described in forthcoming section 8.5.3.

## **8.5 Implications and recommendations**

The following sections will consider the potential implications of the research findings for policy and practice and for future research which investigates the quality and safety of care provided for inpatients who are placed on clinically inappropriate wards. The changes that have been made at the study site in response to the research presented in this thesis are then detailed.

### **8.5.1 Implications for policy and practice**

This section is designed to offer suggestions which may help NHS acute Trusts to assess the quality and safety of care provided for their outlying patients and make subsequent improvements where necessary. These suggestions are tentative as it is acknowledged that the findings presented in this thesis may not translate directly to other Trusts.

Given that the current national policy trend in the UK is for an overall reduction in the number of inpatient beds (Macfarlane *et al.* 2005), outliers look set to remain a feature of secondary care in the future, particularly as patients appear to fill the available bed base and then ‘spill over’ regardless of the number of beds available (Audit Commission, 2003). However, the prevalence of outliers may be tackled by devising strategies to reduce the number of inpatient admissions (e.g. increasing the provision of care in the community) and to reduce patients’ length of stay (e.g. by facilitating discharge). Furthermore, additional ‘defences’ can be implemented to ameliorate contributory factors which may underpin adverse events in outlying patients. Suggestions for the defences that could be put in place are detailed hereafter.

Efficient bed management is needed within organisations to prevent patients from being placed on clinically inappropriate wards wherever possible and therefore to reduce the prevalence of outliers. Regular appraisal of the supply and demand of inpatient beds in each specialty may be useful. It is suggested that this could include an assessment of the provision of single side rooms for infection control purposes. Bed management should be reinforced by local policy and this policy should be

updated regularly. Policy should seek to clearly define the terms in use, for example 'outlier' and 'outlying ward'. It is recommended that the policy includes a safeguard to prevent unsuitable patients (e.g. those patients awaiting initial senior medical review, acutely unwell patients, people with confusion, dementia or other impairments and disabilities) from being inappropriately transferred to outlying wards. Transfer checklists to aid handover of outlying patients may form a useful part of local policy. Regular audits could be carried out to ensure that the bed management policy is being accurately implemented and that all staff members are aware of its content. In addition, it may be useful to compile accurate information on the number and location of all outlying patients in the hospital on a daily basis to help staff to locate outlying patients and to provide an ongoing assessment of bed supply and demand. Again, this information should ideally be audited to ensure data are being collected correctly. Patients and staff could potentially benefit if bed managers strive to locate outliers on as few wards as possible. This may reduce the time physicians spend visiting outliers and help to facilitate team working between medical and nursing staff. Additionally, patients may feel less like outsiders if they are in the company of other outlying patients. Local policy should ensure that the need to move to an outlying ward is thoroughly explained to each patient prior to transfer and that the implications of this for their care are understood. Ideally, patients should not be transferred between wards at night or early in the morning.

An ongoing assessment of both medical and nursing staffing levels may be useful to ensure enough on call medical staff are available at the site to cover outlying patients and to ensure that there are enough qualified nurses on each shift to provide adequate nursing care for patients with potentially diverse needs. The appointment of a member of nursing staff whose role is to support all aspects of the care of outlying patients could potentially help to improve quality and safety by supporting wards that care for outlying patients. On every shift a junior doctor from each specialty could carry a designated 'sleep-out bleep' which they must prioritise above other tasks.

The research presented in this thesis highlighted the need for additional training and education of nursing staff who work on wards which receive outlying patients. Such training could stress the importance of keeping an accurate record of the location of

outlying patients. Training could potentially be used to help to eradicate the perception that outliers are “not our patient” and to improve communication between staff and outlying patients; thereby optimising patients’ perceptions of the quality of care. Additionally, training could be provided to act as a ‘refresher’ course for aspects of nursing care that are not regularly practised (e.g. mobilisation or wound care) and to help nurses communicate effectively with unfamiliar medical teams or seek help in instances when they are unsure of the nursing care required. Many healthcare professionals are already trained in the use of ‘SBAR’ (a technique for communication that emphasises Situation, Background, Assessment and Recommendation) (NHS Institute for Innovation and Improvement, 2008). This could be incorporated into training on the resolution of communication issues surrounding outlying patients. To summarise, it could be useful to provide a short training course for nursing staff which covers: correct implementation of the bed management policy, effective communication with outlying patients and unfamiliar medical teams, the potential quality and safety issues surrounding outlying patients and the methods that can be used to resolve them. The effectiveness of such an educational intervention could be tested in future research.

It is also suggested that doctors’ ward rounds could potentially be organised in a manner that does not disadvantage outlying patients. As it is anecdotally assumed that outlying patients are relatively stable, it is understandable that clinicians may wish to review sicker patients who are on the correct specialty ward first. However, it is proposed that a robust system should be put in place to ensure that outlying patients are reviewed promptly by a clinician from the correct specialty at least once a day. Ideally this review should take place as early in the working day as possible to prevent outliers from being disadvantaged in terms of investigations and treatment. The regular and prompt review of outlying patients may help to prevent prolonged length of hospital stay by ensuring that patients are being appropriately managed and ultimately this would facilitate discharge. Furthermore, it is suggested that patients receive a senior medical review before being transferred to an outlying ward to prevent patients from being moved inappropriately. Formal criteria detailing suitability and unsuitability to move to an outlying ward could be put in place at directorate or even specialty level so that senior clinical staff can establish which patients are suitable to move to outlying wards should the need arise.

It is proposed that Trust wide standardisation of patients' case-notes may help members of NHS staff to find, understand and accurately record patient information. Furthermore, strategies could be devised to help with the efficient location and delivery of equipment required by outlying patients. In particular, strategies could be implemented to ensure that outlying patients receive the medication they require in a timely manner, regardless of whether these medicines are stock items on the ward.

One of the patient interviewees who took part in the patient interview study included in this thesis suggested that the discharge of outlying patients could be improved if the correct specialty ward took over the discharge. It would be interesting to determine whether this would help to ensure that patients receive the information they need about their ongoing care. Additionally, if social care is required post-discharge, this might be better arranged with involvement from the correct specialty multidisciplinary team. Early discharge planning which involves the multidisciplinary team could help to reduce 'bed blocking' which contributes to over occupancy and the outlier phenomenon. A Cochrane review by Shepperd *et al.* (2010) suggests that individual discharge plans which are tailored to each patient's needs reduce patients' length of stay and the likelihood of readmission in comparison to routine discharge arrangements that are not tailored to each individual.

The potential for using technology to improve the care of outlying patients could also be explored. For example, one of the staff interviewees who took part in the staff interview study presented in this thesis suggested the use of electronic bar-coding to help keep track of the location of outlying patients and ensure that they receive regular medical review. In a similar vein to this suggestion, electronic systems have been devised to help hospitals to monitor patients' stay. For example, McKesson's 'Horizon enterprise visibility system' uses real time information on a white board system to detail the location and status of each patient in each ward. The system comprises a number of alerts and safeguards, for example, if a patient has not been reviewed by their medical team by a specified time the bed space representing that patient changes colour on the board, signifying that action is needed. Similarly, pertinent information on each patient such as availability of test results or infectious status can be illustrated on the white board. McKesson claim that implementation of

their system at Walsall Hospitals Trust resulted in “a 21% reduction in average length of stay in adult acute wards, a 40% reduction in breaches of the four-hour emergency wait limit, a 68% reduction in medical outliers, a 16% reduction in surgical outliers and a 78% reduction in the number of surgeries cancelled due to a lack of available beds” (McKesson, 2010). Highlighting this system is not a recommendation per se; rather it serves to suggest the potential need for innovative solutions to help reduce the prevalence of outliers and, where outliers exist, to mitigate the factors that may compromise their care.

### **8.5.2 Implications for future research**

Leape (1997) suggests that original research in patient safety should first aim to describe and define the problem, second aim to quantify the problem and finally intervene to solve the problem. The research presented in this thesis has described and defined the outlying phenomenon and its associated risks at a large Trust in the north of England. Suggestions have been made which may help to improve the quality and safety of care received by outlying patients. Steps should now be taken to assess the generalisability of the findings presented in this thesis, to quantify the problem and to test evidence based interventions which may ameliorate the risks associated with placement on an outlying ward.

#### *- Further description and definition*

As previously stated, further research should be undertaken at a variety of sites to establish whether the quality and safety issues identified in this thesis are generalisable and therefore constitute a risk to outlying patients across the U.K. (Brown *et al.* 2008b). Qualitative interviews proved to be a particularly useful research method and could be incorporated into future multi-site studies. It may be useful to interview additional staff groups, for example, newly qualified doctors, allied health professionals and social workers. Observation may also be a useful method for further helping to describe and define the potential risks associated with placing patients on outlying wards. Future research which seeks to define the risks associated with placing patients on clinically inappropriate wards may benefit from focussing on specific areas that this thesis has identified as problematic. Areas of

potential interest may include in depth investigations of the quality and safety issues that may arise during the transition phase as patients are moved between wards and the quality and safety issues surrounding discharge of outlying patients. In addition, empirical research is needed to demonstrate whether the premise that outlying patients are less ill than patients on the correct specialty ward (as patients are usually selected to move based on their medical stability) holds true.

- *Quantification of the problem*

Chapter 3 demonstrated the infeasibility of conducting a study to estimate the incidence of adverse events in outliers in comparison to other inpatients within the scope of this Ph.D. project. However, now that staff and patient perspectives have been gathered which serve to suggest that placement on an outlying ward is a risk factor for adverse events, it may now be worth investing in a large scale observational study to confirm and quantify this. Drawing on the considerations made in Chapter 3, it is suggested that case-note review methodology would pose the best method to answer this question. Please refer to Chapter 3, section 3.3.2 for details of how this may be implemented. Such a study must be adequately powered to detect an effect, requiring thorough consideration of the incidence of adverse events in outlying patients that would be deemed to be clinically significant in comparison to other inpatients. Furthermore, as the staff interviewees who took part in the research presented in this thesis suggest that outlying patients are less ill than other inpatients, measurement and subsequent adjustment for illness severity would be required. However, as Brown *et al.* (2008c) point out:

*“patients who are sicker and/or older have more comorbidities and are at increased risk of both worse outcomes and experiencing more errors due to the requirement for more interventions. This situation leads to case-mix bias in comparative studies even after statistical adjustment for known confounders.”*

Brown *et al.* (2008c p172)



Consequently, prior to embarking on a large scale case-note review, an extensive assessment of the cost of the study and the potential utility of the results would be necessary.

Steps towards quantification of the problem may also be achieved via comparative studies (of outliers and patients placed on the correct specialty ward) that measure patient outcomes (e.g. patient satisfaction), clinical outcomes (e.g. mortality and readmission) or both (Brown *et al.* 2008c). It is noted once again that the mortality comparison of outliers and other inpatients presented in this thesis (section 4.3.5.2), and indeed in the study by Alameda and Suárez (2009), may have lacked statistical power due to the relatively small number of deaths. Future research should ensure that large enough sample sizes are adopted to detect any difference in the mortality of outliers and other inpatients.

Finally, future quantitative research may benefit from inclusion of an economic evaluation. The descriptive study of outliers (Chapter 4) demonstrated that known outliers had a significantly longer length of hospital stay than other inpatients. This potentially represents a great financial burden to the NHS. The cost implications of placing patients on clinically inappropriate wards would therefore be extremely useful to know.

#### - *Intervention*

Interventions that are aimed at improving the quality and safety of care provided to outlying patients may be devised if large scale studies confirm that placement on an outlying ward is a risk factor for unsafe care. Such interventions may be aimed at either reducing the prevalence of outliers (therefore reducing the number of people exposed to the risk factor) or mitigating the factors that may compromise care when patients are placed on outlying wards. For example, technological solutions designed to facilitate bed management and reduce the number of outliers would need to be trialled and their cost-effectiveness determined. Similarly, research would be needed to determine whether additional training on the care of outliers would be beneficial for nursing staff and ultimately improve patient outcomes.

### **8.5.3 Changes made at the study site**

As suggested previously, the benefit of conducting the primary research presented in this thesis within a single NHS Trust was the ability to effect change in the organisation. Feedback of the results to the Trust was used to encourage staff to take ownership of the problem and to devise potential solutions. The work presented in this thesis was used to inform the development of part of a patient safety programme in the Trust, known as SAFE! Changes that have been implemented as part of the ‘optimising patient flow’ aspect of this patient safety programme include:

- Patients must be reviewed within 12 hours of admission by a senior doctor or appropriate specialist practitioner.
- Outlying patients must be reviewed on a daily basis by senior members of the correct specialty medical team. This should help to reduce delays and prolonged length of hospital stay.
- Senior members of medical staff decide which patients are suitable to move to outlying wards through use of a traffic light system. Red signifies that the patient must stay on the correct specialty ward. Amber signifies that the patient can be moved within the directorate. Green signifies that the patient is suitable to move to an outlying ward outside of the directorate should the demand for beds exceed the available supply. Each patient’s suitability to move to an outlying ward is re-reviewed regularly. Criteria for assigning patients as red, amber or green are devised at directorate level and include consideration of clinical condition, whether or not the patient has been transferred previously, and any additional needs for example, confusion, dementia or learning disabilities. This should help to prevent patients from being inappropriately selected to move to outlying wards.
- Information on the number and location of outliers present in the Trust is presented during the bed management meeting at 1100 each morning. Accurate information on outliers must be compiled at ward level each day.
- Patients must be informed of the potential need to move to a different ward for their continuing care prior to the transfer. This should help to reassure patients.

- Transfers between wards should occur between 0700 and 2200. Exception reports should be filed for transfers made out of hours. Exemptions include transfers to assessment areas and intensive care. This should help to improve patients' perceptions of the quality of care.
- A transfer checklist must be completed for each patient. This should help to aid handover of outlying patients and ensure nursing staff on outlying wards know which medical team is responsible for each outlying patient.
- Enquiries are being made to ascertain whether an item related to medicines may be added to the transfer checklist and thus incorporated into the bed management policy. When this work was presented at the Trust's Clinical Governance meeting, senior members of clinical staff suggested that a strategy should be devised to ensure that where possible medicines are sent with patients when they are transferred to outlying wards.

Spot check audits are being carried out in the Trust to ensure these conditions are being met. In sum, the research presented in this thesis has led to a number of changes and new guidelines in the hospital to improve patient safety (John Wright, personal communication October 2011).

## **8.6 Conclusion**

The research presented in this thesis adopts multiple methods which demonstrate that the placement of patients on clinically inappropriate wards is a latent threat which may underpin adverse events and thus represents a classic system error. This practice often creates competing demands on staff members' time and consequently results in delays, poses a number of communication barriers, compromises input from knowledgeable staff, may provide an unsuitable ward environment, and can be inappropriate for individual patients' needs. These factors may make outlying patients vulnerable to specific patient safety issues such as omission or incorrect administration of medicines, late recognition of deterioration or deterioration due to delayed intervention, falls due to change in the physical environment and spread of infection caused by inappropriate movement between wards. Furthermore, both NHS staff and patients suggest that the placement of patients on outlying wards may negatively affect perceptions of the quality of care provided as outliers habitually receive a 'second service'.

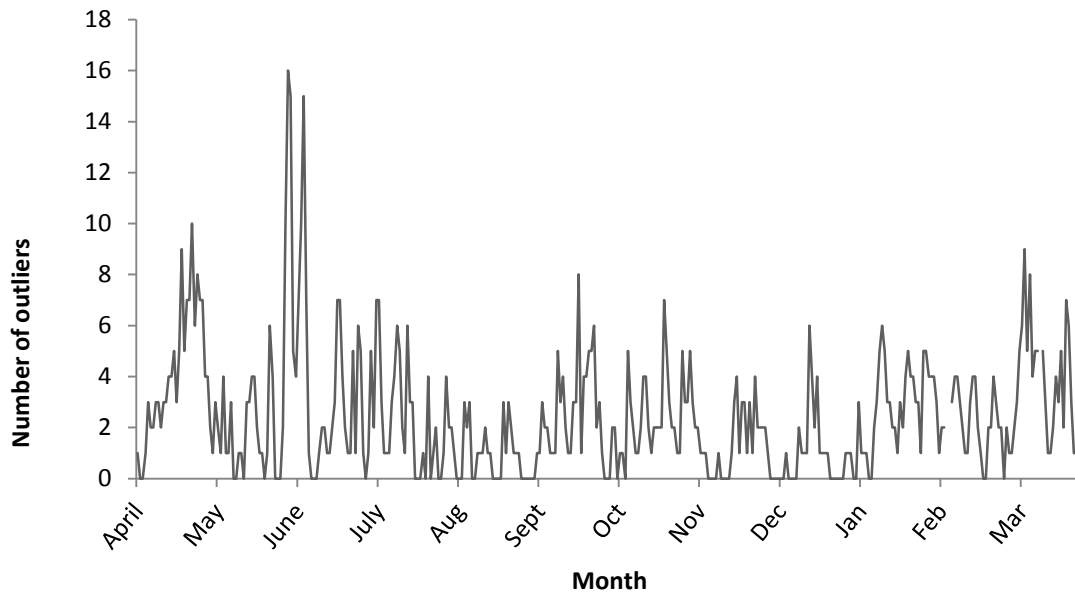
Further research may now be required to quantify the incidence of adverse events experienced by patients placed on clinically inappropriate wards and to establish whether the findings presented in this thesis are generalisable elsewhere, as outliers are a feature of NHS hospitals and will continue to be so in the future. While the prevalence of outliers may be tackled by reducing admissions and patients' length of stay, it is extremely difficult to entirely prevent outliers, thus efforts could be usefully focused on mitigating the factors which may contribute to poor quality care or harm in this group of patients. While NHS Trusts often have policies relating to outliers and hence systems in place to protect patients and improve care, presence of some or all of the contributory factors outlined in this thesis may remain, potentially increasing the vulnerability of outlying patients to safety issues. Policy and practice may be improved by taking these factors into account and making staff and patients aware of these potential 'holes in the defences' (Reason, 2000).

## Appendices

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**Appendix 4A: Seasonal trend of outliers from surgery, orthopaedics, ENT, gynaecology and plastics – 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009**

*Figure 4A.1 Number of surgical outliers each day from 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009*



*Figure 4A.2 Number of orthopaedic outliers each day from 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009*

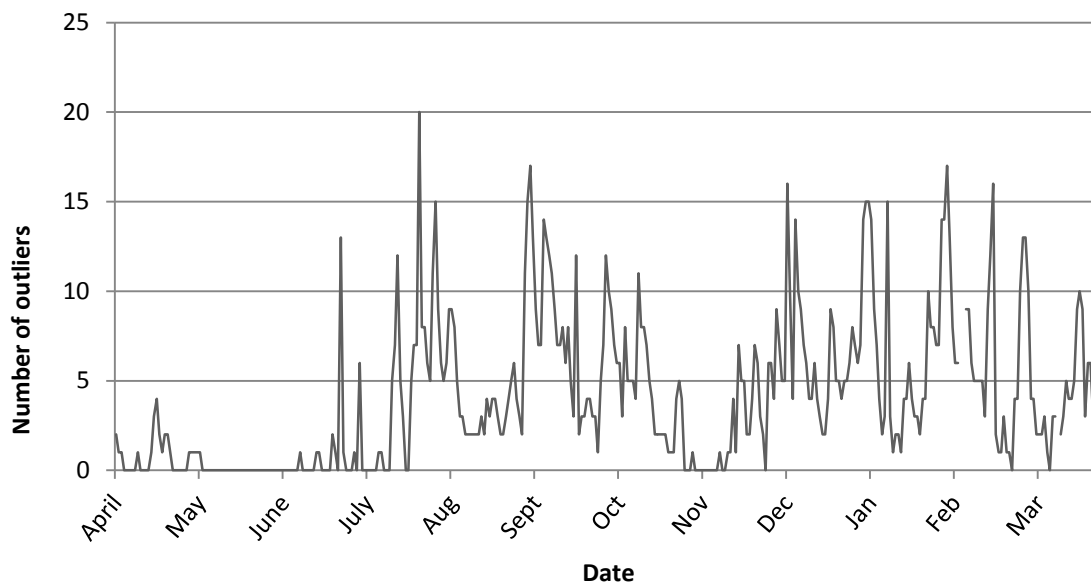


Figure 4A.3 Number of ENT outliers each day from 1st April 2008 to 31st March 2009

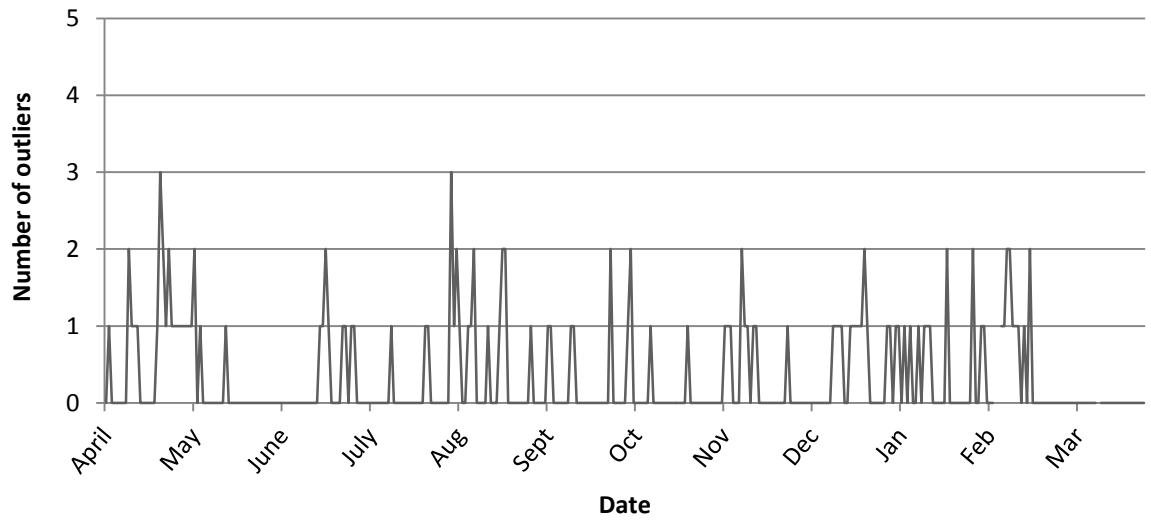


Figure 4A.4 Number of gynaecology outliers each day from 1st April 2008 to 31st March 2009

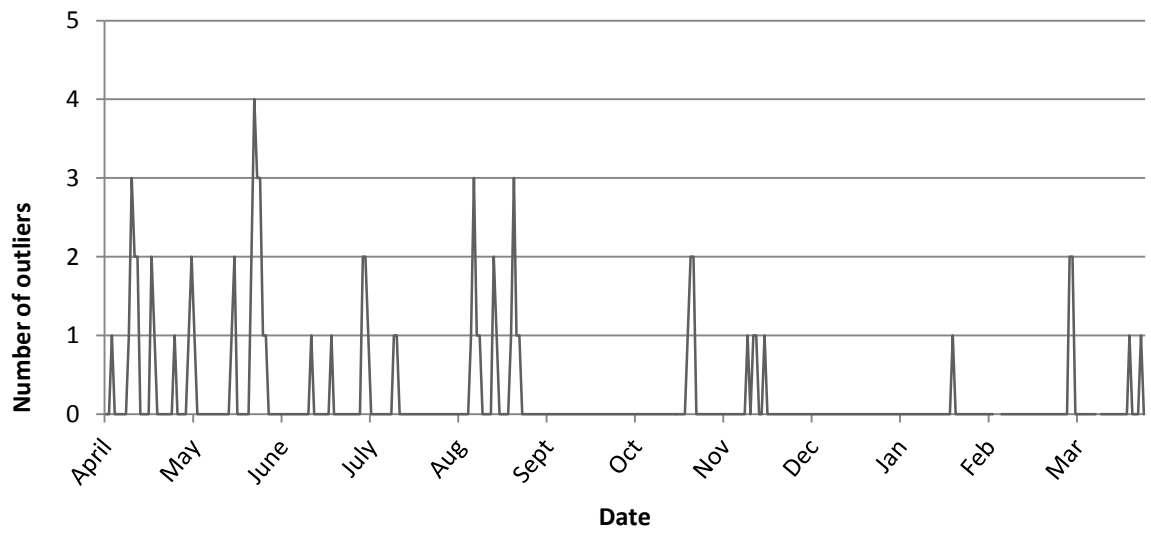


Figure 4A.5 Number of plastics outliers each day from 1st April 2008 to 31st March 2009

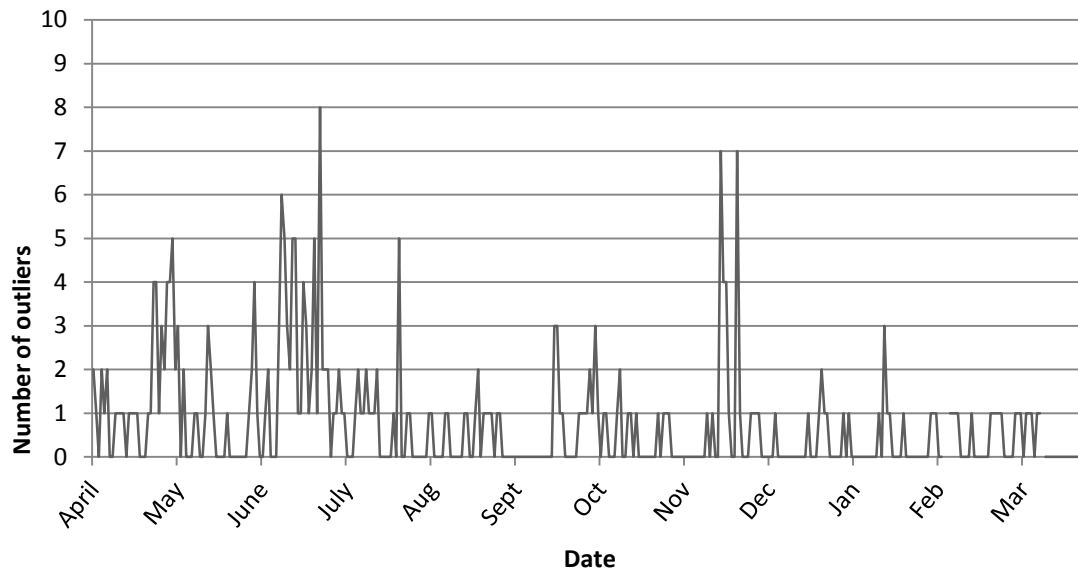




Table 4A.1 Basic details of known outliers who died after spending time on an outlying ward - part 1 of 5

Gender	Age band (years)	Specialty	Diagnosis as recorded on Sleep-out list	Diagnosis recorded on PAS	Number of internal transfers (wards stayed on)	Length of stay (days)	Days on outlying ward	Days on specialty ward	Ward at time of death	Ward the patient should have been on according to sleep-out list
Female	70-79	Medicine	<i>Clostridium difficile?</i>	UTI then fracture of neck of femur, closed	7 (MAU, Decant facility during refurbishment, Rehabilitation, MAU, Acute medicine, Female surgery, Decant facility during refurbishment, Acute stroke and neurology unit)	30	26	4	Acute stroke and neurology unit	Decant facility
Male	30-39	Medicine	Liver problem	Alcoholic cirrhosis of liver	1 (Acute medicine, Male surgery)	16	16	<0.25	Male surgery	Acute medicine
Male	50-59	Medicine	Abdominal pain	Malignant neoplasm without specification of site	0 (Oncology)	30.25	30.25	0	Oncology	Acute medicine

<i>Table 4A.1 Continued: Basic details of known outliers who died after spending time on an outlying ward - part 2 of 5</i>										
Gender	Age band (years)	Specialty	Diagnosis recorded on Sleep-out list	Diagnosis recorded on PAS	Number of internal transfers (wards stayed on)	Length of stay (days)	Days on outlying ward	Days on specialty ward	Ward at time of death	Ward the patient should have been on according to sleep-out list
Female	80-89	Care of the Elderly	COPD	Pneumonia	2 (Acute elderly admissions, orthopaedic surgery, care of the elderly)	11	10	1	Care of the elderly	Care of the elderly
Female	80-89	Care of the Elderly	CVA	Cerebral infarction due to embolism of cerebral arteries	4 (Acute elderly admissions, head and neck, Decant facility during refurbishment, Renal unit, Rehabilitation unit)	14	14	0	Rehabilitation unit	Care of the elderly
Female	60-69	Medicine	Unwell	Pneumonia	2 (MAU, Orthopaedic surgery, Acute medicine)	20	11.5	8.5	Acute medicine	Acute medicine

<i>Table 4A.1 Continued: Basic details of known outliers who died after spending time on an outlying ward - part 3 of 5</i>										
Gender	Age band (years)	Specialty	Diagnosis recorded on Sleep-out list	Diagnosis recorded on PAS	Number of internal transfers (wards stayed on)	Length of stay (days)	Days on outlying ward	Days on specialty ward	Ward at time of death	Ward the patient should have been on according to sleep-out list
Female	80-89	Orthopaedics	R Gamma nail	Fracture of neck of femur	2 (Orthopaedic acute assessment, female surgery, orthopaedic acute assessment)	36	22	14	Orthopaedic acute assessment	Orthopaedic acute assessment
Female	80-89	Care of the Elderly	Collapse	Subarachnoid haemorrhage from anterior communicating artery	1 (Acute elderly admissions, urology)	4.75	4.75	1 hour	Urology	Acute elderly admissions
Male	80-89	Medicine (haematology / oncology)	Falls	Pneumonia	0 (Private suite)	3.75	3.75	0	Private suite	Haematology / oncology
Male	60-69	Medicine	[blank]	Alcoholic cirrhosis of liver, polyp of colon	5 (MAU, Renal, Acute surgical admissions, Male surgery, Gastro unit, Male surgery)	15.75	15.75	0	Male surgery	Acute medicine

<i>Table 4A.1 Continued: Basic details of known outliers who died after spending time on an outlying ward - part 4 of 5</i>										
Gender	Age band (years)	Specialty	Diagnosis recorded on Sleep-out list	Diagnosis recorded on PAS	Number of internal transfers (wards stayed on)	Length of stay (days)	Days on outlying ward	Days on specialty ward	Ward at time of death	Ward the patient should have been on according to sleep-out list
Female	80-89	Care of the Elderly	Heart failure	Pain localised to other parts of lower abdomen	1 (Acute surgical admissions, acute elderly admissions)	7	5.5	1.5	Acute elderly admissions	Acute elderly admissions
Female	90-92	Care of the Elderly	Diarrhoea, dehydration	Acute renal failure unspecified	0 (Acute medicine)	10.75	10.75	0	Acute medicine	Acute elderly admissions
Female	70-79	Medicine	Falls	Fracture of pubis – closed. Aplastic anaemia, unspecified	3 (MAU, plastics, acute medicine, Coronary care unit)	13.5	7.5	6	Coronary care unit	Acute medicine
Male	70-79	Medicine	Jaundice	Malignant neoplasm of pancreas	3 (Acute surgical admissions, male surgery, gastro unit, male surgery)	22.25	22.25	0	Male surgery	Acute medicine

*Table 4A.1 Continued: Basic details of known outliers who died after spending time on an outlying ward - part 5 of 5*

Gender	Age band (years)	Specialty	Diagnosis recorded on Sleep-out list	Diagnosis recorded on PAS	Number of internal transfers (wards stayed on)	Length of stay (days)	Days on outlying ward	Days on specialty ward	Ward at time of death	Ward the patient should have been on according to sleep-out list
Male	50-59	Medicine	TB?	Pneumonia due to pseudomonas	2 (MAU, private suite, intensive care unit)	21	4	17	Intensive care unit	Acute medicine
Female	70-79	Medicine	Unwell	Septicaemia	0 (Acute elderly admissions unit)	2.75	2.75	0	Acute elderly admissions unit	Acute medicine (not old enough for elderly admissions)

THE UNIVERSITY *of York*

— DEPARTMENT OF —  
HEALTH SCIENCES

**Patient safety in medical and surgical outliers**  
**Interviews with NHS staff**

**Participant Information Sheet**

This information sheet is about a research project that we would like to invite you to take part in. Your decision to take part is entirely voluntary. If you agree to take part you can withdraw from the study at any time and do not have to give a reason for doing so. If you don't understand anything or have any questions, please contact us.

**What is the purpose of this study?**

We would like to find out more about the patient safety issues faced by patients who are allocated a bed on a ward that is not specialised to treat their illness (known as medical or surgical outliers or sleep-outs). This study is investigating NHS staff members' experiences and opinions of patient safety in medical and surgical outliers.

**Why have I been invited?**

We are inviting members of nursing and medical staff and bed managers to take part in the study. We would like participants to have experience of either caring for medical or surgical outliers, or bed allocation.

[TRUST LOGO]

**What will be involved if I agree to take part in the study?**

If you agree to take part you will be asked to attend an informal one-on-one interview where you will be invited to talk about your experiences of patient safety in medical or surgical outliers. You will be asked to sign a consent form and give some basic details of your occupation (including what type of ward you work on or what your clinical specialty is). The interview will be tape-recorded. The interviewer will be a PhD student from The University of York. The interview will last about 30 to 50 minutes.

**When and where will the interviews take place?**

The interview will be arranged to take place at a time and location convenient to you. For example, the interview could take place in a room at the [study site], before or after work. Unfortunately we cannot reimburse you for any travel costs.

**Who will know what I say to you?**

The interview will be completely confidential and no information will be discussed or published that could be used to identify you. Nobody will know what you have said other than the interviewer and yourself.

**Where is the study taking place, and for how long?**

The study is taking place at [study site] from January to May 2010.

### **What will happen to the information you gather?**

The information you provide will be stored securely and anonymously until the end of the study. The results of the study will then be written up as part of a PhD thesis. The results will also be published in a scientific journal and may also be reported through presentations. Direct quotations of things that you said during the interview may be published, however all of the results gathered will be presented anonymously so nobody will know that you have taken part in the study or what you have said. Nothing will be published that could be used to identify you.

### **Are there any benefits?**

There are no direct benefits in taking part although the study will give you chance to consider and talk about patient safety in medical and surgical outliers and in the future may help to reveal the difficulties faced by staff in caring for outliers. Unfortunately we cannot offer you any payment for taking part in this study.

### **What if there is a problem?**

If you have a concern about any aspect of this study you should contact the chief investigator or one of the study supervisors. If you remain unhappy and wish to complain formally you may do so through the NHS complaints procedure or The University of York.

### **Who has reviewed this study?**

All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by York Research Ethics Committee.

### **What happens next?**

If you would like to take part or have any questions about the study, please contact us.

**Thank you.**

#### **Please contact:**

Lucy Goulding (Chief investigator),  
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[TRUST LOGO]

### **Interviews with patients who are placed on wards that would not normally treat their illness**

This information sheet is about a research study that we would like to invite you to take part in. **The decision to take part is entirely voluntary.** If you agree to take part you can withdraw from the study at any time and do not have to give a reason for doing so. Talk to others about the project if you wish. If you don't understand anything or have any questions, please contact us. **Taking part in this study (or deciding that you do not wish to take part) will not affect the hospital care or treatment you receive in any way.**

#### **What is the purpose of this study?**

We would like to find out about the patient safety issues that might sometimes be faced by patients who are allocated a bed on a ward that would not normally treat their illness. We would therefore like to talk to patients about their experiences of different hospital wards and any differences in the care that they received.

#### **Why have I been invited?**

We are inviting patients who have spent time on both the specialty ward for their illness and a ward that would not normally treat their illness to talk to a researcher as we would like to know about these people's experiences of staying on different hospital wards.

#### **What will happen if I agree to take part in the study?**

If you agree to be involved you will be asked to take part in an informal one-on-one research interview where you will be invited to discuss the different hospital wards you have stayed on and any positive and negative things about these wards. You will be asked to sign a consent form and give some basic details (your age, gender and ethnicity, however providing this information is voluntary). The interview will be audio-recorded. The interviewer will be a PhD student from The University of York. The interview will last about 30 to 40 minutes.

#### **When and where will the research interview take place?**

The interview will be arranged to take place at a time and location convenient to you. For example, the interview could take place on the ward that you are staying on at the [study site]. If you are happy to be interviewed while you are still in hospital then we will sort out a suitable private location and arrange for the interview to take place when you are almost ready to be discharged. If you would like to take part after you have been discharged from hospital, please contact the chief investigator (details overleaf). The interview could be arranged to take place in your home or in a different location that is convenient to you.

#### **Who will know what I say to you?**

The interview will be completely confidential and no information will be discussed or published that could be used to identify you. Nobody will know what you have said other than the interviewer and yourself.

#### **Where is the study taking place, and for how long?**

The study is taking place at [study site] from November to April 2010.



### **What will happen to the information you gather?**

The information you provide will be stored securely and anonymously until the end of the study. The results of the study will then be written up as part of a PhD thesis. The results will also be published in a scientific journal and may also be reported through presentations. [The study site] will be informed of the findings. Direct quotations of things that you said during the interview may be published, however all of the results gathered will be presented anonymously so nobody will know that you have taken part in the study or what you have said. Nothing will be published that could be used to identify you.

### **Are there any benefits?**

There are no direct benefits in taking part although the study will give you chance to consider and talk about your experience of being a patient at the hospital. The research may help us to make things better for patients in the future. Unfortunately we cannot offer you any payment for taking part in this study.

### **What if there is a problem?**

If you have a concern about any aspect of this study you should contact the chief investigator or one of the study supervisors. If you remain unhappy and wish to complain formally you may do so through the NHS complaints procedure or The University of York. If you have any questions or concerns about any aspect of your care or treatment, you should speak to your doctor or nurse. If you wish to formally complain about your care, you should do so via the NHS complaints procedure.

### **Who has reviewed this study?**

All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by Leeds West Research Ethics Committee.

### **What happens next?**

If you would like to take part or have any questions about the study, please tell a member of staff on the ward or contact the chief investigator.

**Thank you.**

#### **Please contact:**

Lucy Goulding (Chief investigator),  
Health Sciences PhD student,  
ARRC building, Room A/RC/202  
2<sup>nd</sup> Floor Health Sciences Postgraduate Area,  
The University of York,  
York,  
YO10 5DD.  
Email: [lg529@york.ac.uk](mailto:lg529@york.ac.uk) Tel:

The supervisors of this project are:

Professor Ian Watt, Professor of Primary Care, Department of Health Sciences, The University of York, YO10 5DD. Email: [isw1@york.ac.uk](mailto:isw1@york.ac.uk)  
Tel:

Professor John Wright, Director of Research, Bradford Institute for Health Research, Bradford Royal Infirmary, Duckworth Lane, Bradford, BD9 6RJ. Email: [John.Wright@bradfordhospitals.nhs.uk](mailto:John.Wright@bradfordhospitals.nhs.uk) Tel:

**Appendix 5C: Consent form for interviews with staff**

THE UNIVERSITY *of York*

— DEPARTMENT OF —  
HEALTH SCIENCES

*Patient Safety in Outliers - Interviews with NHS staff*

***Participant Consent Form***

Name of Researcher: Miss Lucy Goulding (B.Sc., M.Sc.)

Please read this form carefully and **initial** the box next to each statement.

*I confirm that I have read and understand the information sheet dated  
.....(version 2) for the above study.*

*I have had an opportunity to consider the information, ask questions and clarify  
anything that I do not understand.*

*I understand that my participation is voluntary and that I am free to withdraw at  
any time without giving any reason.*

*I understand that I will participate in an interview where I will be asked to  
discuss my experiences of patient safety in medical or surgical outliers.*

*I understand that the interview will be audio taped.*

*I understand that all data will be kept confidential and that the only people who  
see this information are the research team.*

*I understand that direct quotations of things that I have said may be published,  
and I understand that these quotations will be presented anonymously so that  
nobody knows that I have taken part in the study or what I have said.*

*I agree to take part in the above study.*

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Participant Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Full Name: \_\_\_\_\_

Researcher Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Information about participant

**Gender:**

**Staff Group:** *(e.g. nursing or medical)*

**Job title:** *(e.g. staff nurse, nursing assistant, registrar, consultant, bed manager)*

**Type of ward(s) worked on or clinical specialty:**

<b>Participant ID code:</b>
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## Appendix 5D: Consent form for interviews with patients

THE UNIVERSITY of *York*

— DEPARTMENT OF —  
HEALTH SCIENCES

[TRUST LOGO]

### Interviews with patients who are placed on wards that would not normally treat their illness: Participant Consent Form

Name of Researcher: Miss Lucy Goulding (B.Sc., M.Sc.)

Please read this form carefully and **initial** the box next to each statement.

I confirm that I have read and understand the participant information sheet dated 23/06/10 (version 2) for the above study.

I have had an opportunity to consider the information, ask questions and clarify anything that I do not understand.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.

I understand that I will participate in an interview where I will be asked to discuss my experiences of the different wards I have stayed on in hospital and any positive and negative aspects of these wards.

I understand that the interview will be audio recorded.

I understand that all data will be kept confidential and that the only people who see this information are the research team.

However, I understand that authorised people from the NHS Trust or regulatory authorities may look at the research data to check that the study is being conducted properly. I give my permission for this to happen.

I understand that direct quotations of things that I have said may be published, and I understand that these quotations will be presented anonymously so that nobody knows that I have taken part in the study or what I have said.

I agree to take part in the above study.

Participant Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Full Name: \_\_\_\_\_

Researcher Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Information about participant**

**Has the participant spent at least half a day on both an outlying and specialty ward?**

**Gender:**

**Age:**

**How would you describe your ethnicity?**

**Would you like to be informed of the results of the study?**

**If yes, what would your preferred method of contact be?**

**Participant ID code:**

## **Appendix 5E: Topic guide for qualitative interviews with staff**

### Patient safety in patients placed on wards that are clinically inappropriate for their needs

Main areas to explore:

- 1) What are the characteristics of outliers on your ward/under your care?
  - 2) What are the quality and patient safety issues faced by outliers?
  - 3) What do you think may contribute to causing patient safety or quality issues in outliers?
- Establish an agreed definition of medical and surgical outliers
  - What proportion of patients under your care are medical / surgical outliers?
    - Does this vary according to time of year?
  - Do you feel that any types of patients are more likely to become outliers?
    - How does the process of bed allocation work?
    - Does illness severity have a role?
    - Patients with social issues?
  - Within [your clinical area] what happens to outliers? What wards do they go to and who are they treated by?
  - Are patients commonly transferred / repatriated between 'outlying' and 'specialty' wards?
    - If yes, why? If no, why?
  - Do you think patient safety in medical / surgical outliers is an issue?
    - If yes, why? If no, why?
  - Are there any specific patient safety issues faced by outliers on your ward/ under your care?
    - What specialist care for patients in your clinical area do you feel is sometimes not delivered or is delivered wrongly to patients on outlying wards?
  - What factors do you think are involved in causing patient safety concerns when patients are outliers?
    - Lack of specialist nursing care?
    - Lack of senior medical review?
    - Volume of care?
    - Issue of time delays?
    - Lack of follow up?
  - Which patient groups (if any) are particularly at risk and why?
  - What could be done to improve the safety of outliers?
  - Is there anything else you want to say about patient safety in outliers?

## Appendix 5F: Topic guide for interviews with patients

### Patient safety in patients placed clinically inappropriate wards

- Would you mind telling me a little bit about why you have been in hospital?
- How long have you been in hospital for during your recent hospital stay?
- Which wards have you been on during this hospital stay? How long were you on each ward for?
- Were you transferred between different hospital wards?
- Were you ever transferred late at night or early in the morning?
  
- Was it explained to you why you were placed on [outlying ward]? When was it explained & what did they say?
- How did you feel about being moved?
- What was your overall feeling about being on [the outlying ward]?
  
- Do you think there are any important differences in the care you received on [the outlying ward] and [the specialty ward]?

*Prompts will be asked in relation to the specialty ward & in relation to the outlying ward.*

- Were there any differences in the input you received from the doctor on the different wards?

#### ***Prompts***

- Did you see the doctor regularly? How often?
- Were there any times when you didn't see a doctor but felt that you should have?
- What time of day did the doctor visit you?
- Did your family get to see the doctor?
- Were you happy with the input that you received from the doctor?

- Were there any differences in the nursing care you received on the different wards?

#### ***Prompts***

- Did the nursing staff seem knowledgeable about your illness and the care you required?
- Did the nursing staff help you promptly when you needed them?
- Were the nursing staff knowledgeable about your medication?
- Did you receive your medication on time?
- Were you happy with the nursing care that you received?
- Did you receive help or advice from other staff members, for example occupational therapists, physiotherapists or social workers?

- Were there any differences in the information that was given to you on the different wards?

**Prompts**

- o Were you kept informed of the plans for your tests, treatment and discharge?
- o Were there any delays in waiting to have a test or in getting test results?
- o Did you feel that you could ask staff questions if you wanted to?

***The following questions will be asked in relation to the specialty ward and in relation to the outlying ward.***

- What were the positive things about the ward?
  - What were the negative things about the ward?
  - Did you feel as if you were in 'safe hands' on the ward?
  - Did you experience any problems where a mistake was made in your health care?
  - Did you fall?
  - Were there ever any problems with your medication?
  - Were there any other problems with your care?
- 
- Finally, is there anything else you would like to say about your experience of being moved to [outlying ward] or the differences between the wards you stayed on?

**Thank you!**

**Please speak to your doctor or nurse if you have any questions or concerns about any aspect of your care.**



# Patient safety in patients who occupy beds on clinically inappropriate wards: a qualitative interview study with NHS staff

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## ABSTRACT

**Objective:** To explore NHS staff members' perceptions and experiences of the contributory factors that may underpin patient safety issues in those who are placed on a hospital ward that would not normally treat their illness (such patients are often called 'outliers' 'sleep outs' or 'boarders').

**Design:** Qualitative study using semi-structured interviews.

**Setting:** A single large teaching hospital in the north of England.

**Participants:** 29 members of NHS staff (doctors, nurses and non-clinical or management staff).

**Results:** Five themes describing contributory factors underlying safety issues were identified: competing demands on staff time created by having patients on inappropriate wards and patients who are on the correct specialty ward to care for; poor communication between the correct specialty ward and the clinically inappropriate ward; lack of knowledge or specialist expertise on clinically inappropriate wards; an unsuitable ward environment for patients on inappropriate wards; and the characteristics of patients who are placed on clinically inappropriate wards (specifically staff perceive patients on inappropriate wards to be medically fit and therefore of lower priority and moving patients between wards may disorientate confused or impaired patients). Examples of how these contributory factors may lead to safety issues are given.

**Conclusions:** NHS staff report that placement of patients on clinically inappropriate wards is a specific patient safety concern. The application of James Reason's Swiss cheese model of accident causation suggests that placement on an inappropriate ward constitutes a 'latent condition' which may expose patients to contributory factors that underlie adverse events.

## INTRODUCTION

Due to high demand for hospital beds almost all NHS hospitals in the UK regularly place patients on wards that are not clinically appropriate if there are no beds available on the correct specialty ward.<sup>1</sup> This phenomenon is also evident in other countries with publicly funded healthcare systems, including France,<sup>2</sup> Spain<sup>3</sup> and New Zealand.<sup>4-5</sup> Such patients are commonly called 'outliers', 'sleep outs' or 'boarders'. In particular, medical patients are often placed on surgical wards when the medical bed base is full.<sup>3-8</sup> An audit across the UK estimated that 7.5% of all surgical beds were filled with medical patients.<sup>9</sup> Given that the audit was carried out in May, when occupancy rates are typically lower than in the winter months,<sup>10</sup> this figure may underestimate the prevalence of the phenomenon during peak times. Hospitals are advised to avoid this practice if possible and place patients on wards that are suitably equipped and have staff with the appropriate clinical expertise.<sup>9-11</sup> There is evidence to suggest that being treated on the correct specialty ward is beneficial. For example, patients with stroke who are placed on a specialist stroke unit are more likely to survive, return home and become independent than those who are allocated a bed on a general ward. Reasons cited for this finding include better nursing care, improved diagnostic procedures, efficient rehabilitation and prevention of complications on stroke units.<sup>12</sup> Specialty wards have also been shown to be of benefit to patients with asthma<sup>13</sup> and upper gastrointestinal haemorrhage.<sup>14</sup>

Approximately one in 10 NHS inpatients experience an adverse event that causes them

## Original research

harm as a direct result of the care they receive while in hospital.<sup>15 16</sup> These patient safety issues are often underpinned by underlying (latent) conditions in the environment,<sup>17</sup> which are created as a result of decisions made regarding policy, strategy, planning, design and maintenance.<sup>18</sup> Placement on a ward that is not clinically appropriate for patients' needs could act as a latent condition which may increase patients' susceptibility to adverse events. However, presence of a latent condition alone is usually not enough to directly cause an adverse event. There are often a number of contributory factors (eg, patient factors, team factors and organisational factors) which when combined with the latent condition and a lack of suitable defences can lead to an adverse event.<sup>19</sup>

Studies have suggested that care on clinically inappropriate wards may be compromised. For example, nursing staff become specialised by virtue of working on specific wards and may at times lack the expertise required to provide optimal care for patients with unfamiliar diagnoses.<sup>20–22</sup> Additionally, patients on inappropriate wards may be vulnerable to safety issues as a result of lack of input from specialist doctors, poor communication between wards and insufficient detail and standardisation within patient notes.<sup>2</sup> Bed management policies formulated by NHS trusts across the UK frequently recognise the potential threat to safety created by placing patients on unsuitable wards and seek to minimise the perceived risks.<sup>23–27</sup> However, there remains a lack of empirical research to indicate whether placement on a clinically inappropriate ward is a specific patient safety concern and, if so, what the contributory factors that underpin adverse events may be. This study aimed to explore this premise by ascertaining NHS staff members' perceptions of safety issues faced by patients who are placed on clinically inappropriate wards.

## METHODS

### Setting

The study was conducted at a single large NHS foundation trust in the north of England that has approximately 1100 inpatient beds. NHS ethics and R&D approval was obtained for the study. At the time this study was conducted, the trust's bed management policy stipulated that during ward rounds senior medical staff should identify patients who are suitable to move to an inappropriate ward (should the demand for beds exceed the available supply), with the provisos that infection control status should be taken into account prior to transfer, the sending ward should complete a transfer checklist to aid handover, and both junior medical staff and nursing staff should take responsibility for ensuring that patients are reviewed on a daily basis.

Repatriation to the correct ward was not part of the policy as the aim was to minimise the number of ward transfers.

### Participants

Twenty-nine participants were interviewed between January and July 2010. This sample included eight members of medical staff (registrars and consultants), 13 members of nursing staff (sisters, staff nurses and healthcare assistants) and eight members of non-clinical staff (bed managers, patient service managers and a general manager). The sample included members of staff from the following specialties: medicine (six participants), surgery (two participants), care of the elderly (two participants), orthopaedics (four participants), head and neck (four participants), plastics (three participants) and gynaecology (five participants). Three of the non-clinical staff did not work within a specific specialty. The sample included eight men and 21 women. Participants were recruited purposively to ensure that interviewees came from a variety of specialties and professions with the aim of achieving a diverse sample of people able to comment on the safety issues faced by patients placed on clinically inappropriate wards. For the purpose of reporting the results, participants have been allocated ID codes which correspond broadly to their profession; for example, 'D1' is doctor number one, 'N1' is nurse number one and 'M5' is manager number five.

### Collection of data

Following an extensive literature review and five pilot interviews, a semi-structured topic guide was constructed with the aim of exploring staff members' experiences and perceptions of the safety and quality of care given to patients placed on clinically inappropriate wards. Participants were asked about the process of bed allocation, the types of patients who may be moved to inappropriate wards, what safety issues such patients face and what the potential causes of these safety issues may be. Participants gave their informed consent to take part in the study. All participants were interviewed individually at the hospital site by LG. Interviews lasted between 20 min and 1 h with most interviews lasting around 45 min.

### Analysis of data

The interviews were transcribed verbatim by LG. The analysis was overseen by all members of the research group with coding and theme development undertaken by LG and JA to ensure reliability. Analysis was facilitated by use of the qualitative data management programme ATLAS.ti 5.0. Data were analysed using a thematic approach with use of the principles of constant comparison.<sup>28</sup> Data collection and analysis were cyclical



as the initial stages of analysis began once six interviews had been conducted and transcribed to allow for consideration of potential themes and further development of the topic guide. The material was arranged into initial themes and sub-themes by systematically searching the transcripts for items that were notable, unusual or contradictory.<sup>29</sup> An iterative process of coding the data and re-development of themes and sub-themes was conducted thereafter. Sub-categories were added to each code to reflect variations in the data and indicate divergent cases for further exploration. Theme development was achieved by grouping and linking alike codes and involved the use of saliency analysis to pick out concepts that were important to addressing the research objective.<sup>30</sup> Data were collected and analysed until no new themes became evident. The themes relevant to the contributory factors underlying the safety issues faced by patients who are placed on clinically inappropriate wards are reported in this paper.

## RESULTS

NHS staff members believe the safety of patients placed on clinically inappropriate wards may be compromised. Five key contributory factors underlying patient safety issues were identified during the analysis. Examples of the safety issues these contributory factors may cause are given, as articulated by the interviewees.

### Competing demands on staff time created by having patients on inappropriate wards and patients on the correct specialty ward

Interviewees from all staff groups described the difficulties faced when striving to deliver safe, high-quality care, in a fast-paced environment, to patients on clinically inappropriate wards and patients who are on the correct specialty ward. Because of these competing demands, patient safety may be compromised in one or both groups.

Nursing and management staff suggested that it was often difficult to care for a mixture of patients with broadly different needs, particularly when heavily dependent geriatric or medical patients are placed on surgical wards.

M2: ...if they've got a lot of, not dependent as in really sick, but dependent as in toileting and wandersome patients, it can distract the nursing team from looking after people that need regular observations after an operation...

The medical staff described the delays that are inherent in the care of patients on inappropriate wards. Delays in medical review were reported to be particularly problematic as they often cause a chain of subsequent

delays which may result in an increased length of hospital stay.

D2: ...if somebody's admitted to the wrong ward, they will be seen last on the ward round, because ward rounds always start on the home ward and will finish on the outlying wards, so there's delays in assessment, people get missed ... so if you're delayed in assessment you're delayed in investigations, if you're delayed in investigations you're delayed in diagnosis, and if you're delayed in diagnosis you're delayed in treatment, if you're delayed in treatment your length of stay goes up, so all these things factor into people being in hospital longer and everything is delayed.

Delayed medical review may pose a substantial safety risk to patients on inappropriate wards if an important diagnosis is missed placing patients at risk of deterioration.

M2: ...if bed pressures are really tight and there's a decision to sleep people out directly from the A&E [accident and emergency] department into a medical ward but it's not an acute admission ward, the patients might not get properly assessed for sometimes well into the 12 h period ... that is a safety issue that the patient is at risk of further deterioration without proper pro-active treatment taking place...

### Poor communication between specialty ward and clinically inappropriate ward

Communication issues were frequently cited as being problematic in the care of patients placed on inappropriate wards. When a patient is allocated a bed on the correct specialty ward for their illness they are looked after by teams of nursing and medical staff who know each other and work together regularly. One staff member in particular (D3) suggested that this proximity facilitates 'informal' communication and may enhance working relationships and therefore patient care. Patients on inappropriate wards are often not afforded this benefit and communication breakdown between nursing and medical staff had resulted in patients being forgotten about for days at a time.

D5: I know of one instance where a patient had been post-taken and then wasn't seen again for three days because nobody knew the patient was there and nobody was actioning the investigative plan that had been started on day one, and I only happened to be on that ward seeing another sleep-out when the nursing staff said 'oh you've got this other medical patient' and I said to her 'who?', and she had no reason to be in hospital for the preceding three days, she could have gone home on the same day, but there was a breakdown in communication between the nursing staff and the responsible medical team and so she just stayed in hospital unnecessarily, wasting the bed, putting her at risk of hospital-acquired infection and of

## Original research

course from her point of view she put in a formal complaint because she realised that she'd been kept unnecessarily.

Additionally, because of a lack of familiarity between medical and nursing staff, it was often stated that nurses can face difficulties in communicating the deterioration of a patient who is on an inappropriate ward to that patient's medical team. Nurses often do not know which doctor should be contacted, how to make contact or how to describe the situation of a patient whose condition may be unfamiliar. Unless circumstances are exceptional, a request for medical review may go unanswered for some time.

N8: You would try and ring whoever doctor they belong to or whichever SHO [senior house officer], it's always a problem, and you're always passed from pillar to post, you ring the ward that they've come from, they don't know who's on call more often than not and they just tell you to go through switchboard, so that's big problems trying to get whoever we need to come and review. We've had poorly patients that have deteriorated and it's taken a long time to get somebody to come and review them...

The handover of patients between wards was raised as a particular communication issue. Members of nursing staff felt that important information about patients who were selected to move to alternative wards was often not conveyed during the handover, leaving the receiving ward ill prepared to take over patients' care.

N7: Another safety issue is the actual amount of information that's handed over depends on the experience of the nurse handing over, because not all information is given, and things are left out...

It was also suggested that poor communication between staff and patients who are placed on inappropriate wards may compromise the quality of care provided as patients may feel '*cast out from the ward*' (M3) and believe that their concerns are not taken seriously.

### Lack of knowledge or specialist expertise on clinically inappropriate wards

The interviews revealed contrasting viewpoints on whether safety may be compromised due to lack of knowledge on the part of nursing staff. Some of the interviewees suggested that all qualified nursing staff are able to provide basic nursing care to any type of patient on any kind of ward. However, the majority of interviewees suggested that on occasion nursing staff may not have the knowledge and expertise required to provide optimum care for patients from other specialties, as nursing staff become specialised in caring for the types of patients they see most frequently.

D5: ...the other day we had somebody who came in who had a paracetamol overdose, it was a very busy night and she was slept out, but she already had signs of liver problems when she was slept out to a gynaecology ward who weren't familiar with the treatment of paracetamol overdose ... the patient was very agitated, wanted to self discharge and so she discharged without being seen by a doctor because none of the medical team were informed, and the base ward didn't know what was going on, and we've been unable to contact the patient since and she is at risk of developing liver failure because she's gone, because the nursing staff didn't realise the urgency of the situation.

Additionally, nursing staff may at times be unfamiliar with the medication prescribed to patients from another specialty. It was suggested that this makes medication rounds difficult for nursing staff and could perhaps increase the likelihood of drug errors or omissions.

M5: Medicines are a risk, a lot of older people are on lots of medicines and the knowledge of the nurses on another ward may not be the same on medicines. If you send somebody, an elderly care patient who's got complex comorbidities, to a gynae ward, the nursing staff will not have the same level of understanding of those medicines, interactions etcetera as the nurses on the base ward.

A further safety issue arises when deterioration of a patient is unrecognised due to nurses' lack of familiarity with unfamiliar symptoms and conditions.

M1: Sometimes the warning signs of illness are missed because they're not in the right specialty.

Furthermore, patients placed on inappropriate wards are often reviewed by junior members of medical staff as they are assumed to be relatively well and approaching discharge. However, it was suggested that junior doctors may on occasion lack the skills necessary to reach a correct diagnosis or recognise that a patient who they expect to be well is deteriorating. It was also suggested that junior doctors occasionally make poor decisions regarding which patients are suitable to move to clinically inappropriate wards.

D8: ...if the nurses don't realise that this patient is unwell, and the junior medical doctor doesn't realise the patient is unwell, they may end up, by the time the registrar turns up, being a very sick patient. And I have examples of that. I've had patients leave A&E and go to sleep-out wards...a very ill patient, and the ward didn't pick it up as a sick patient. The house officer saw the patient and also didn't pick it up. By the time I saw the patient I was getting intensive care involved straight away because the patient was that unwell and the diagnosis, the junior doctor hadn't got the diagnosis right, and to be



fair it was a complex patient, if I'd have known about how ill that patient was it wouldn't have happened.

### Unsuitable ward environment

A number of interviewees felt that aspects of the ward environment could be detrimental to patient care. For example, the sheer distance between medical staff and patients on inappropriate wards is often prohibitive.

D5: ...there's often a delay in medical review because it's just the geography of the thing really ... In fact often that causes problems to do with antibiotic doses, so they can deteriorate and it's often for silly, silly things like just not having a cannula in because it's too far away for the junior doctors to go and put one in and come back.

Staff also spoke of a lack of equipment on clinically inappropriate wards (eg, Zimmer frames, hoists, profiling beds, drug charts and dressings). Unavailability of medication was highlighted as a specific problem as wards may not stock the required drugs so they have to be ordered from the pharmacy. At best this may introduce a time delay in patients receiving the medication that they require. At worst this may result in medication being missed, therefore delaying patients' management and putting them at increased risk of deterioration.

N9: ...one of the other issues about sleep-outs and patient safety is quite often the sending ward won't send all the patient's medication, and so as you can appreciate medication in my trolley might be totally different to the medication that's in another ward's trolley, and so they may send a patient over that's on maybe, I don't know, twelve different drugs that I don't stock, they haven't sent them, I request them from the ward, they don't come, the patient doesn't get the medication ...

Furthermore, it was proposed that patients with methicillin-resistant *Staphylococcus aureus* (MRSA) and soft tissue infections had been inappropriately placed on surgical wards putting surgical patients at risk.

D5: ...because we're busy in the middle of the night we often don't think. For instance cellulitis which is considered to be a non-urgent thing and can easily be slept-out to surgical wards where the risk of surgical site infections is very real, so that frequently happens, and often people with MRSA for instance are moved around to other wards and it's not taken into consideration because the priority is to get them off the admissions ward.

### Characteristics of patients placed on inappropriate wards (perceived low priority and potential for disorientation)

Staff members from all broad staff groups suggested that patients on inappropriate wards receive a 'second service' because they are assumed to be the most medically fit and stable patients.

M5: ...that patient is last on the list, so I suppose the theory being that if a patient is being slept-out, they're not high risk medical patients, so they don't need as acute an attention, so it'll be later in the day when they get seen...

However, participants spoke of instances in which seriously ill patients had been transferred to clinically inappropriate wards under the guise of 'looking well'. This was suggested to be of particular concern in young, seemingly fit patients who were often initially misdiagnosed.

D5: Well we try to avoid patients that we know are unstable being moved off, but I think it's probably the converse that's true that the patients that you wouldn't necessarily think are at risk are actually the biggest problem, because they're otherwise young and fairly fit so people don't realise that they're very unwell and they get slept out and they deteriorate. Especially kind of young septic patients for instance, often their observations aren't that bad because they kind of, they deteriorate very quickly once they stop having the ability to compensate physiologically.

The movement of confused patients between wards was also perceived to be inappropriate as this may create further disorientation, pose a falls risk and compromise the quality of care.

M2: ...there's a risk with the elderly patients that have got significant dementia or Alzheimer's that it makes that even worse and they're more at risk of falling ... because you sort of disorientate these patients when they come into hospital but to keep moving and moving them, it makes them even worse...

Similarly, a change in physical environment caused by movement between wards may increase the risk of falling in patients with a disability or impairment.

N10: When you start moving them, we increase the danger to that individual because this is their second or third place they've been and they'd forgotten that this one had a step into the toilet or the floor inclined or just very simple things that don't normally seem a problem, but to an individual with an impairment can be.

## DISCUSSION

This qualitative interview study revealed that NHS staff members have concerns about the safety of patients placed on clinically inappropriate hospital wards. Five key themes outlined factors which staff suggested may contribute to compromised safety among patients placed on clinically inappropriate wards: the competing demands on staff time created by having both patients

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on inappropriate wards and patients on the correct specialty ward; poor communication between correct specialty wards and inappropriate wards; lack of knowledge or specialist expertise on clinically inappropriate wards; an unsuitable environment on clinically inappropriate wards; and finally, the characteristics of patients who are placed on inappropriate wards (specifically their low perceived priority and the potential for disorientation).

The findings of this study concord with a study that suggested that lack of input from specialist doctors and poor communication between wards may compromise safety,<sup>2</sup> with studies that suggested the knowledge of nursing staff may be compromised,<sup>20–22</sup> and with a study that suggested that having patients on inappropriate wards creates excess demand on physicians' time.<sup>5</sup> Furthermore, the contributory factors identified in this study are easily encapsulated within frameworks which have been devised to investigate and analyse patient safety incidents in healthcare, for example, the London Protocol,<sup>31</sup> and human factors frameworks.<sup>32</sup> Such frameworks help to uncover factors that contribute towards the production of adverse events at both the individual level and the organisational level, in addition to considering the clinical context in which the incident occurred.<sup>33</sup> Thus the broad types of contributory factors identified in this study have frequently been associated with patient safety issues in healthcare settings. For example, contributory factors listed in the London Protocol include: team factors (such as communication and team structure); staff factors (including knowledge, skills and competence); work environment factors (including workload, skill mix, the availability of equipment and the physical environment itself); and patient factors (eg, the complexity and seriousness of patients' conditions, communication, personality and social factors).<sup>31</sup> According to Reason's Swiss cheese model of accident causation,<sup>17</sup> contributory factors such as those identified in this study cause 'holes in the defences' of patients, increasing their susceptibility to adverse events. In accordance with this model, it can be inferred that the placement of patients on clinically inappropriate wards constitutes a latent condition which creates the contributory factors outlined in this paper, potentially degrading patient safety and the quality of care.

This study was exploratory in nature and qualitative interviews were the optimal way to generate hypotheses in this under-researched area. However, the main limitation of this study is that the interviews were conducted with staff members at a single NHS trust. Nevertheless, it is likely that the concerns highlighted are NHS wide as almost all NHS hospitals place patients on clinically inappropriate wards<sup>1</sup> and taking into account the related research in this area it is not thought that the contributory factors identified in this study would be hugely

different in any other trust. Furthermore, both the practice of bed allocation and the process of healthcare delivery are complex and it is impossible to cover all aspects of the phenomenon within the scope of this paper. Hereafter, further research is required to ascertain whether staff perceptions that patients placed on clinically inappropriate wards face increased safety risks are correct. Such research should include a number of sites to improve generalisability of the results. Measurement is key to quantifying adverse events and assessing any change as a result of corrective measures,<sup>34</sup> thus estimates of the incidence of adverse events in patients placed on inappropriate wards could be obtained using methods developed to estimate the incidence in the general inpatient population, for example, observation<sup>35</sup> or case-note review.<sup>16</sup>

The placement of patients on inappropriate wards is a feature of NHS hospitals and will continue to be so in the future as the policy trend is to decrease the overall number of beds.<sup>36</sup> It has been suggested that the decision to admit patients is directly influenced by the number of beds available in such a manner that medical patients will always fill medical beds and then 'spill over' regardless of the number of beds available.<sup>9</sup> While the prevalence of patients on inappropriate wards may be tackled through good bed management and by reducing admissions and patients' length of stay, it is extremely difficult to prevent this phenomenon. Efforts could be usefully focused on mitigating the factors which may contribute to poor quality care or harm in this group of patients. Recommendations include: redesign of ward rounds to ensure patients on inappropriate wards are seen promptly, strategies to facilitate communication between staff, providing nursing staff with additional training in the care of patients from other specialties and ensuring safeguards are in place to prevent unsuitable patients from being moved to clinically inappropriate wards. While NHS trusts often have policies relating to bed allocation and systems in place to protect patients and improve care, presence of some or all of the contributory factors outlined in this study may remain, potentially increasing the vulnerability of patients to safety issues. Policy and practice may be improved by taking these factors into account and making staff and patients aware of these potential holes in the defences.<sup>17</sup>

**CONCLUSION**

The findings suggest that placement of patients on clinically inappropriate wards is a patient safety concern and constitutes a latent condition which may underpin adverse events. This practice often creates competing demands on staff members' time and consequently



results in delays, poses a number of communication barriers, compromises input from knowledgeable staff, may provide an unsuitable ward environment and can be inappropriate for patients' needs.

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