University of Southampton

FACULTY OF ENVIRONMENTAL AND LIFE SCIENCES

SCHOOL OF HEALTH SCIENCES

"OLDER PEOPLE'S EXPERIENCES AND FACTORS ASSOCIATED WITH HOSPITAL READMISSION: A MIXED METHODS STUDY"

by

FANIS STAVROU BSc, MSc, RN

Thesis for the degree of <u>DOCTORATE IN CLINICAL PRACTICE (DClinP)</u>

August 2022

University of Southampton

Abstract

FACULTY OF ENVIRONMENTAL AND LIFE SCIENCES

SCHOOL OF HEALTH SCIENCES

Thesis for the degree of DOCTORATE IN CLINICAL PRACTICE (DClinP)

"OLDER PEOPLE'S EXPERIENCES AND FACTORS ASSOCIATED WITH HOSPITAL
READMISSION: A MIXED METHODS STUDY"

by

FANIS STAVROU

Hospital readmission is a multifactorial issue that negatively impacts older people's lives and the healthcare system. Current literature pertaining to hospital readmission focuses on clinical outcomes based on cross-sectional data whilst research exploring patients' experiences and priorities is limited. The present mixed methods study explored the factors that matter most to older people who may have had an experience of readmission and examined whether these factors were integrated into routinely collected hospital data.

This study was conducted with three interconnected Phases. Phase 1 adopted a qualitative approach with the involvement of individuals from a Patient Public Involvement group in order to review and finalise the interview schedule that was used in Phase 2. Semi-structured qualitative interviews were conducted in Phase 2, to identify factors linked to hospital readmission that were analysed using principles of interpretative phenomenological analysis and informed the subsequent Phase. Phase 3 included a cross-sectional retrospective analysis of primary routinely collected clinical data to examine if the main factors identified in Phase 2 were reflected in the UHS database and if so, identify their relationship with hospital readmission.

Phase 1 - 10 people aged 65 years and over were recruited. *Phase 2 -* 10 people aged 65 years and over, who have had an experience of hospital readmission within a period of 30 days were recruited from a large single tertiary referral centre. Phase 3 used a dataset of 2708 patients, of which 159 had been readmitted.

The qualitative interview schedule was developed and finalised with input from the PPI group in Phase 1**.** Four superordinate themes were identified in phase 2: 'All about me without me', 'Fragmented and ad hoc post-discharge support', 'My readmission experience and what led me back' and 'Segregated health and social services that are detached from people's needs'. The factors that mattered the most to participants in Phase 2 were mainly concerned with discharge planning and patient understanding, engagement with, and access to post-discharge resources, and formal and informal support. In phase 3, emergency admission, shorter length of stay, number of comorbidities and medication, postcode prefix, having a planned follow up, and living alone were identified as factors that increased the likelihood of hospital readmission.

This study adds important findings on how discharge planning improves when readmitted and patients highlighted clinical and non-clinical factors such as Shared Decision Making, Activities of Daily Living, lack of physiotherapy as important to them and identified these as some of the reasons for their readmission. Non-clinical factors related to patients' everyday contexts are likely to be at least as important as clinical indicators for readmission, however, such data is not routinely collected.

Table of Contents

Table of Tables

Table of Figures

Research Thesis: Declaration of Authorship

Print name: Fanis Stavrou

Title of thesis: "Older people's experiences and factors associated with hospital readmission: a mixed methods study"

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

This work was done wholly or mainly while in candidature for a research degree at this University;

Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

Where I have consulted the published work of others, this is always clearly attributed;

Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

I have acknowledged all main sources of help;

Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

None of this work has been published before

Signature: Date:

Acknowledgments

I would like to thank my supervisors Dr Dinesh Samuel, Dr Ivaylo Vassilev, and Professor Jo Adams for their invaluable support and guidance throughout my DClinP.

I would like to acknowledge and thank the participants who shared their experiences with me as without their contribution this study would have not been possible.

I would like to further extend my gratitude to all the UHS staff (nurses, matrons, data analysts) for taking time to support participant recruitment. Thank you to Dr Harnish H. Patel for his interest in this study and for his role as Principal Investigator within UHS. Special thanks to my manager and colleagues at Brooke Ward for their support in this research and my professional development.

I would like to thank my parents Pavlo & Eleni and friends for their support in this journey.

I would like to thank and dedicate this work to my fiancé Andriana whose love and support got me through and for being there in my good and bad moments as this would not have been achievable without her. This work is dedicated to my lovely daughter Olivia. Her arrival brought joy and meaning to our lives.

Finally, this work is dedicated in memory of my grandfather George, grandmother Stavroulla, and my father-in-law Panikos. Each one of them gave me memories which I will hold dear for the rest of my life.

Abbreviations

ADL – Activity of Daily Living

CGA – Comprehensive Geriatric Assessment

COPD – Chronic Obstructive Lung Disease

DH – Department of Health

ED – Emergency Department

ERGO – Ethics and Research Governance Online

GS – Grip Strength

HRA – Health Research Authority

ICD-10 – International Classification of Diseases

IMD – Index of Multiple Deprivation

IPA – Interpretative Phenomenological Analysis

IRAS – Integrated Research Application System

LoS – Length of Stay

M – Mean

MDT – Multidisciplinary Team

MoCA – Montreal Cognitive Assessment

NHS – National Health Service

NOF – Neck of Femur

ONS – Office for National Statistics

PIS-P1 – Participant Information Sheet Phase 1

PIS-P2 – Participant Information Sheet Phase 2

POC – Package of care

PPI – Patient and Public Involvement

REC – Research Ethics Committee

RHDS – Readiness for Hospital Discharge Scale

SD – Standard Deviation

UHS – University hospital of Southampton

UK – United Kingdom

VATS – Video Assisted Thoracoscopic surgery

y.o. – years old

Chapter 1 Introduction to the study

1.1 Introduction

The world population is ageing and our society will not stay unaffected from this demographic transition. In 2011, the world population was seven billion and is expected to reach 10 billion by 2083 (Haub and Gribble, 2011). In the United Kingdom (UK), there are approximately 12 million people over 65 years old (y.o.), constituting approximately 18% of the total population (ONS, 2018). It is anticipated that by 2030, 21.8% of the total UK population will be people over 65 years. The increasingly ageing population has implications in terms of health and social care delivery (Wittenberg, Hu and Comas-Herrera, 2012; Age UK, 2019b).

Appropriate action will be required to ensure that the health and social care services can sustain the demands of this demographic transition (Ready for Ageing Alliance, 2016) including better coordination of services and support to workforce (NHS, 2019b). The NHS Long Term Plan recognizes the importance of having measures in place that aim to support the ageing population and proposes focusing on reducing pressure on emergency services, offering more personalised care, and digitally enabling primary and outpatient care (NHS, 2019b). One of the difficulties hospitals are facing is the increasing numbers of hospital readmission making prevention of readmissions a key objective for the NHS (Lawrie and Battye, 2012).

The term hospital readmission is defined as one or more admissions to hospital after a discharge, within a time span of 28 or 30 days (Bendassat and Taragin, 2000; Zhou *et al.*, 2016; Artetxe, Beristain and Graña, 2018). According to NHS digital, emergency hospital readmission in the UK increased from 12.5% in 2013-14 to 13.8% in 2017-18 (NHS Digital, 2020). NHS digital data also show that emergency hospital readmissions in deprived areas are higher compared to least deprived areas (NHS Digital, 2020). It has also been noted that older people experience higher readmission rates compared to younger age groups, a trend that is seen internationally (Li *et al.*, 2014; Blakey *et al.*, 2017; Friebel *et al.*, 2018; NHS Digital, 2020).

Emergency readmissions have an impact on the wider health and social care system, incur significant financial costs (Conroy and Dowsing, 2012; Blakey *et al.*, 2017), and are associated with poor outcomes for patients (Walsh 2014). In addition, this kind of experience can be distressing for patients and their families and it is reported that it can lead to daily life disruptions and challenges in recovering and returning to "normality" (Verhaegh *et al.*, 2019; Considine *et al.*, 2020). Some of these disruptions include shortfalls in successfully performing activities of daily living (ADL) and/or following their discharge plan (Schultz *et al.*, 2021). The number of hospital readmissions is rising despite efforts to implement preventative services such as better discharge planning and co-ordination of health, social and community services (Walsh, 2014; Healthwatch England, 2018). Although these measures have already been in place, the NHS Long Term Plan highlights the importance of improving these practices and taking further steps to support older people (NHS, 2019b). One of the main measures is developing rapid community response teams to prevent unnecessary hospital admissions and readmissions (NHS, 2019b).

Moving care out of hospitals and supporting an integrated care model has been a priority for health and social care policy in the UK for over a decade. This model aims to improve patients' care and experience through improved coordination of services, further progress on prevention services, and by promoting patient-centred care (RCN, 2013; NICE, 2015; NHS, 2019b). A framework by Frankel (2017) which centres around the patients and their families is the Framework for Safe, Reliable, and Effective Care which aims to provide a strategy upon which organisations can achieve safe and reliable operational excellence and by addressing deficiencies, provide better outcomes across continuum of care (Frankel A, 2017). In recognition of the complexity of the systems supporting patient care, the framework consists of two interrelated domains and nine components all of which focus on providing a comprehensive method to cultivate a culture of safety and a learning system, that matches patients' expectations and needs. The culture domain relates to the shared values and behavioural of a group, which is set as a keystone on creating a learning system. That being said, the learning system aims to identify what works well or not, in a continuous performance assessment. These two domains aim to guide organisations to set benchmarks and continually improve (Frankel A, 2017). Figure 1.1 below presents the framework in more detail.

Figure 1.1:Framework for Safe, Reliable, and Effective Care

*Adapted from Frankel A, Haraden C, Federico F, Lenoci-Edwards J. A Framework for Safe, Reliable, and Effective Care. White Paper. Cambridge, MA: Institute for Healthcare Improvement and Safe & Reliable Healthcare; 2017.

Another important focus of the latest NHS strategy in supporting the ageing population is giving people a voice about the care they receive and where they receive it. Specifically, NHS puts more focus in encouraging more collaboration between primary and secondary care and community services and helping more people to live independently at home for longer (NHS, 2019b). Literature suggests that patients value communication and interaction with health professionals, involvement in decisions about their care, and continuation of their care outside the hospital (Blakey *et al.*, 2017; Considine *et al.*, 2020). However, the literature around hospital readmission is heavily influenced by studies that use quantitative methods with only a small number of studies using qualitative and mixed methods. The latter approaches can help shed light into older people's experiences, and improve our understanding of the risk factors from their perspective as these may not be reflected in clinical data. In turn, these can help improve predictive models as well as interventions' efficiency.

The present study adopted a mixed methods approach and focused on understanding hospital readmission with patient-centred care in mind and in line with the latest NHS strategy may help inform: (i) services aimed at preventing readmissions, (ii) improve patient experience, (iii) provide a better understanding of patients' needs and (iv) inform existing predictive models of hospital readmission. The following sections will present in detail the aim and objectives of the current study.

1.2 Aim

The study aimed to explore the factors that matter most to older people who may have had an experience of readmission and examine whether these factors were integrated into routinely collected hospital data.

1.3 Research questions

The specific research questions were as follows:

➢ What do older people identify as the main factors for hospital readmission through their own lived experience of hospital readmission?

➢ What factors identified as important by people who have had an experience of hospital readmission are recorded in routine patient data obtained by the University Hospital Southampton NHS Trust (UHS) database?

➢ What is the relationship between the factors indicated by participants in Phase 2 that are recorded in the UHS database and hospital readmission?

1.4 Objectives

The following objectives were achieved through this research:

• To iteratively design and develop, alongside user input, the final qualitative interview schedule used to explore older people's experiences of hospital readmission.

• To identify, through interpretative phenomenological analysis, the main factors that matter the most to older people who had experienced hospital readmission.

- To examine through correlation and logistic regression analysis what factors identified by patients were recorded in the UHS database and their relationship with hospital readmission.

To address the aim, research questions, and objectives the study was divided into three interconnected phases, each complementing and informing the next phase. Details of the study's methodology are presented in the following section.

1.5 Methodology

1.5.1 Introduction

The majority of research studies on hospital readmission are based on health data that are routinely collected in hospitals (Horwitz *et al.*, 2015). However, relying on routine data alone may not facilitate understanding of how older people actually experience readmissions as it precludes an in-depth understanding of the phenomenon (Blakey *et al.*, 2017) and due to the variety and complexity of the phenomena involved in health care. Therefore, research that focuses on understanding the perspectives of patients would help understand what matters to patients, what are their priorities, contexts, and resources, and may facilitate greater understanding of the causes and processes involved in readmission. This approach is consistent with providing and delivering quality healthcare and is consistent with nursing values (McCormack *et al.*, 2010; Blakey *et al.*, 2017).

1.5.2 Theoretical background

A mixed method research can be useful as this approach recognises the importance of real-life situations and the influence of human experiences. Specific to this patient-centred study, the mixed method approach enables patients' experiences to be shared, analysed and compared to routinely collected clinical data. In the relatively short history of nursing research, quantitative methods were used in the 1950s', with qualitative methods becoming more popular during the 1980s'. In addition, these two experimental approaches correspond to different paradigms of research, and in fact, (Tashakkori and Teddlie, 1998) characterised the relationship of these two as ''*battlefields of wars*''.

The term ''mixed methods'' is defined as the combination of qualitative and quantitative research within a single project (Bryman, 2012). There are arguments for and against mixed methods research. Supporting arguments include: (i) the shared goal of understanding the world, and (ii) that in areas of complexity, a mixed method approach is preferred (Bryman, 2012). Furthermore, a mixed method approach enables the researcher to address the research questions through various methods and techniques (Guest and Fleming, 2015). On the contrary, opposing arguments are associated with the difference between the two methods. The debate is that these two paradigms are searching for different things with different approaches; a quantitative method is searching for a single truth, whilst a qualitative approach is looking for multiple truths and therefore, these crossing paradigms cannot really be combined (Guba, 1987).

Hospital readmission is a complex area of study and our understanding of it has been constructed by observations and experiences. However, this phenomenon consists various mechanisms and events (observed and unobserved) before it occurs. The present study underpins a realist framework as it tries to make sense of the 'observable' world and its links to the underlying mechanisms and process in the 'real' world, through deeper engagement with and understanding of people's experiences of hospital readmission. This philosophical stance is applicable to various research methods and designs, and it was chosen as it is more appropriate for addressing this study's aim and research questions.

In contrast to positivism and interpretivism, realism suggests that existence is not limited by only what is observed or experienced but is independent of them (Bryman, 2012; Koopmans and Schiller, 2022). Critical realism recognises that the world is an open system consisted of a mixture of mechanisms, contexts and structures that go beyond the two aforementioned paradigms (Mukumbang *et al.*, 2020). There is an agreement with interpretivists regarding the importance of experiences/narratives in understanding a phenomenon, but realists extend these meanings by considering them as windows onto real lives and events. With the assumption that participants are reliable witnesses of the phenomenon, the rapport increases, and the depth of the data improves (Robinson and Smith, 2010).

Positivists and realists both support that knowledge should be positively applied, however, they disagree on the method used. In investigations of causal relationships, realists argue that causal structures and processes are often invisible and cannot be directly observed. Additionally, realists argue that empirical regularities are best described as demo-regularities that are not necessarily meaningful but need to be explained and theorised, which is another difference compared to positivists (Mukumbang *et al.*, 2020)*.*

Critical realism in healthcare research may offer a deeper understanding of health and illness and help explain how contexts and mechanisms, observable, unobservable and unobserved, interact in shaping institutional processes, the delivery of care, and people's experiences. Critical realism aims to offer explanatory accounts of the problem of interest and in developing theorisations (which are always incomplete and fallible, but plausible), considers the interactions of processes operating on the macro, meso and micro levels. Taking such an approach aims to offer a deeper understanding of the real world, and the theories developed aim to have practical adequacy for understanding and addressing the problem of interest (Koopmans and Schiller, 2022).

This study adopted a critical realist approach as it offers the lens to explore how patients' hospital readmission experiences may be influenced by underlying events, social factors, and mechanisms operating on different levels (individual, organisational, structural). Adopting a critical realist approach meant recognising that hospital readmission was not only influenced by patients' health trajectory and behaviours but also by a range of other factors, such as socioeconomic factors, access to healthcare, regional and local specificities, intra-organisational divisions and processes.

1.5.3 Research design

This is a mixed method research study with an exploratory design conducted in three interconnected phases, in which the results of the qualitative component will inform the quantitative component (Creswell and Plano Clark, 2006). This study was designed to be patient-centred and ensuring that older people's voices would be at its core. For the purposes of the present study, hospital readmission was defined as two admissions within a time span of 30 days, with the second admission being non-elective.

The study commenced with a scoping review aimed at establishing the risk factors of hospital readmission within the literature and those identified through patients' perspectives; and developing an understanding of the gaps in knowledge this research may be able to address. The results of the scoping review guided the development of the draft interview schedule which was presented in the first phase of this study. Phase 1 of the study focused on engaging individuals from a Patient and Public Involvement (PPI) group to develop and finalise a user-friendly interview schedule. Utilising PPI representatives to develop the final interview schedule helped the researcher to ensure its relevance to older people and benefiting the study by positively engaging participants and them participants to share their experiences comfortably.

The interview schedule was then used in Phase 2 where the focus was to engage with older people and enable them to share their hospital readmission experiences. This qualitative study utilised an interpretative phenomenological approach to explore what matters most to people who have had an experience of hospital readmission. Phase 2 aimed to develop an in-depth exploration of the factors, processes, and mechanisms people highlight to have led to their readmission. To facilitate a more thorough analysis and offer more context to people's experiences, pen portraits were developed for participants which were aimed at providing a rich and detailed description of their sociodemographic characteristics, medical information, experiences, perceptions, and feelings on hospital readmission in order to develop a deeper understanding of the factors and mechanisms that influenced their experiences.

Phase 2 of the study had a dual purpose with first being to understand what mattered the most to people regarding their hospital readmission experience and second to inform the subsequent phase. The findings of Phase 2 guided the data collection of Phase 3 by providing a list of information and data required to examine hospital readmission through quantitative methods. Understanding how readmission is experienced from the users' perspective is vital in informing what difficulties they are facing; what their unmet needs are; and how the health care system could evolve to address these issues. The factors highlighted from the scoping review and Phase 2 formed the request for administrative and routinely collected data from UHS in the quantitative study.

Phase 3 focused on examining the factors highlighted by patients in Phase 2 further, understand if these were reflected in routinely collected data from UHS, and investigate the relationship between these factors and hospital readmission. Phases 2 and 3 are not only interconnected by means of the former informing the latter, but also through the in depth descriptions of people's experiences one can interpret quantitative results through the context of real life examples. Furthermore, examining whether the factors that mattered the most to people are routinely collected could add more to our existent knowledge by adding new information around hospital readmission.

Finally, the findings of all phases and the scoping review are brought together and discussed in detail in Chapter 6 to draw conclusions on hospital readmission. The analysis of the data collected from all phases and the interpretation of the overall study's results were approached using a critical realist perspective. This approach involved focusing on understanding the relationship between observed experiences, event and underlying causal mechanisms to obtain new knowledge of how things work fundamentally rather than just describing it. By considering how various factors and processes operating on different levels may have interacted, the critical realist approach sheds light on how participants' experiences, behaviours, and emotions were shaped. Through the discussion, the potential implications of these findings in the wider context of hospital readmission are explored. The findings clearly identify what is already collected, how those data are used as well as what data are not collected and what new insights those bring, which are discussed on how these may provide solutions that address patients' real-life problems that often extend further to hospital.

This work was completed as part of a DClinP programme at the School of Health Sciences, Faculty of Environmental and Life Sciences, University of Southampton. The research study was self-funded and aimed at supporting the work in relation to reducing hospital readmissions which has remained an issue as no significant reduction in readmission rates has been noted since 2010 (Schultz *et al.*, 2021).

The thesis structure is outlined below:

- Chapter 2 presents a scoping review clarifying important concepts of hospital readmission and presenting key factors related to it. These factors guided Phases 1 and 3 by helping format the interview schedule draft and identify key factors to be examined in routinely collected health data respectively. This chapter also helped frame the discussion on the topic of hospital readmission and how it relates to the findings of Phase 2 and results of Phase 3.

- Chapter 3 presents Phase 1: Design and Development which introduces how the interview schedule was designed and finalised with the help of PPI. The engagement with PPI helped the researcher to develop an initial understanding of the multiple issues involved in the research topic which extend beyond hospital readmission which further developed throughout the study.

- Chapter 4 presents Phase 2: Qualitative study which explored patients' lived experiences of hospital readmission and enabled them to share their views on hospital readmission and what it involved for them. In addition, it focussed on bringing light to patients perspectives, feelings, concerns and processes that took place during their lived experience

- Chapter 5 presents Phase 3: Quantitative study which examined if the factors identified in Phase 2 were reflected in routinely collected clinical data and their relationship with hospital readmission. Any factors that were identified in Phase 2 and not routinely collected or included in the UHS' database, were highlighted and explored in the discussion in Chapter 6. The need for collecting relevant information has been emphasised in this chapter accordingly.

- Chapter 6 discusses the findings of the overall study against the existing literature and makes recommendations for future research and clinical practice. This chapter brings the study together and discusses how each phase contributes to understanding hospital readmission better and how they relate to other literature findings. Finally, the chapter highlights the study's novel findings and how they may impact future practice.

Chapter 2 Scoping review

2.1 Introduction

To guide this mixed methods study, a scoping review was conducted, and its findings are summarised in this chapter. The review aimed to identify the key findings, gaps and existing knowledge related to older peoples' risk factors for hospital readmission. As this is a patient-centred study that aimed to explore what matters most to patients, the scoping review will present the key concepts related to the study's topic.

The scoping review method was chosen as it aligns with the purpose and complexity of this topic. This method is rigorous and transparent for mapping areas of research that enables researchers to: (i) identify available evidence, (ii) identify knowledge gaps, and (iii) clarify key concepts in the literature, especially in regard to topics of a complex nature (Pham *et al.*, 2014; Jun and Faulkner, 2018; Munn *et al.*, 2018; Schultz *et al.*, 2021).

To review the evidence in the existing literature the methodological framework suggested by Arksey and O'Malley's (2005) was followed: (i) identifying the research question, (ii) identifying relevant studies, (iii) selection of studies based on inclusion/exclusion criteria, (iv) charting the data according to key themes, and (v) summarising and reporting the results (Pham *et al.*, 2014; Jun and Faulkner, 2018). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was used to report the findings of this review.

The question guiding this scoping review was, "What does the literature identify as risk factors of hospital readmission, and which are identified through patients' perspectives". To answer this question, this review identified published studies, reviews, policies, guidelines, and reports suitable to the research topic and question and adopted a strategy that involved searching different sources.

2.2 Methods

Hospital readmission is a complex, multifactorial topic which has been explored and examined with a variety of methods within the literature. As such, the scoping review considered all study designs (qualitative, quantitative, mixed methods) and various sources discussing this topic. As there is a vast amount of information within the literature that reference hospital readmission, it was important to limit the searches and focus to those most relevant to this study (please see the inclusion/exclusion criteria in Appendix 1). The eligible studies included in this review were identified through a literature search involving three electronic databases, CINAHL, PubMed and Delphis and websites such as Age UK, King's Fund, Healthwatch England, and NHS Digital. In addition to the literature search, relevant articles from cited references were also reviewed and selected based on their relevance. The keywords used to reflect core areas of interest were: Older people OR aged OR elder AND Hospital readmission AND Factors OR Perception OR Experience OR Discharge Planning OR Intervention OR prediction.

The data charting process was done independently by the researcher and included a charting table that focused on collecting key information (author(s), year of publication, country of origin, aims, sample size, methodology, key findings, and strengths/limitations). The data were reviewed and discussed with the researcher's supervisors. Data items were extracted based on publication characteristics (e.g. research methods), and relation to hospital readmission (e.g. patient experiences, people perspectives, and risk factors).

A critical appraisal of sources of evidence was omitted from the scoping review as the study focused on mapping the evidence surrounding hospital readmission and the representation of peoples' voices on the topic. Furthermore, the scoping review focused on identifying the different types of available evidence and understanding the gaps in knowledge in relation to the topic which can be limited by the use of quality appraisal. The lack of critical appraisal has been reported to provide a vast range of designs and methodologies rather than focusing on a certain quality of evidence (Pham *et al.*, 2014). To synthesise the results, the studies were grouped based on their setting, population, and findings.

2.3 Results

The evidence included in the initial review were chosen after being scanned for relevance. If their title, abstract or keywords included the terms hospital readmission, risk factors or relevant issues on the topic of hospital readmission such as perception, interventions, prevention, predictive modelling were taken into consideration. After the identification of relevant studies, a full text review took place to assess for eligibility. The selection of publications is presented in Appendix 2 which details the number of publications screened, included, and excluded. The scoping review was initially completed in 2017 which resulted in the inclusion of 88 publications. The review was subsequently updated in 2019 which resulted in 47 publications being included and then finally in 2021 which resulted in 12 further publications being added to the total publications included in this review.

The scoping review flowchart presents the overall number of publications identified, screened, and included in the review. The type of the publications included are 88 quantitative studies, 21 qualitative studies, 20 systematic reviews, 11 reports, 4 narrative reviews, and 2 mixed method studies. The charting table presents detailed results of the data charted for each publication included in the review and is presented in Appendix 3. The results were charted as these relate to the study question and are presented by following the key themes as these emerged from the grouping of the publications (i.e. perception and experiences of hospital readmission, risk factors, discharge planning, and predictive models).

2.3.1 Perception of hospital readmission

Exploring the experiences of patients, their families and health professionals around the issue of hospital readmission is important as it reflects the issue from different perspectives. Patients who have had a lived experience of hospital readmission develop their own perception of the events, and at the same time, people around them develop their own. All these perceptions hold valuable knowledge in regard to a better understanding of the phenomenon of hospital readmission.

To address this, a variety of researchers who explored hospital readmission, not only focussed on patients' lived experiences, but included family and healthcare professionals' perceptions for a more comprehensive approach (Slatyer *et al.*, 2013; Greysen *et al.*, 2017; Smeraglio *et al.*, 2019; Considine *et al.*, 2020). The perceptions around hospital readmissions found in the literature are summarised in four key themes: (i) health trajectories, (ii) communication challenges, (iii) discharge readiness, (iv) lack of sufficient follow-up and (v) decision to return and delayed care-seeking (Slatyer *et al.*, 2013; Reed, Isherwood and Ben-Tovim, 2015; Howard-Anderson *et al.*, 2016; Greysen *et al.*, 2017; Smeraglio *et al.*, 2019; Verhaegh *et al.*, 2019).

Through previous literature it is apparent that patients and providers perspectives are not always aligned. In a study by (Stein *et al.*, 2016), regarding the contributing factors for hospital readmission, 35% of patients mentioned medical issues and 22% incomplete diagnosis. In contrast, the providers mentioned medical issues (45%) and pain (24%) (Stein *et al.*, 2016). Their findings agree with (Smeraglio *et al.*, 2019), where 58% of participants identified discharge process issues as contributors to readmission, while only 2% of providers shared this opinion (Smeraglio *et al.*, 2019). The inclusion of different perspectives may be significant in understanding the issue of hospital readmission which may help prevent readmission, identify potential risk factors, and promote better discharge planning and post discharge support. Most interventions were limited because they utilised clinical or administrative data to predict or identify risk factors and failed to include subjective views. People who may have experienced hospital readmission, directly or indirectly, have an important perspective as they report that they have encountered specific problems that caused readmissions (Greysen *et al.*, 2017).

2.3.1.1 Experiences of older people

The quality of healthcare is based on three pillars: clinical effectiveness, patient safety and patient experience. Evidence suggests that patient experience is positively associated with the former two, and better health outcomes (Doyle, Lennox and Bell, 2013). Whilst the NHS aims to actively consider patients' voices regarding the care or treatment they received, many healthcare professionals are not always taking into consideration what really matters to patients which may be detrimental to the patient experience (Edwards, Duff and Walker, 2014; Blakey *et al.*, 2017).

Hospital readmission amongst older people is still an area with a relatively incomplete understanding of the factors relating to it, despite its frequency. Regardless of the increase in number of hospital readmissions amongst older people, not many studies have explored the experiences and views of older people who have had an experience of readmission (Pedersen, Mark and Uhrenfeldt, 2018). According to Age UK (2012), the voices of this group of people have been largely silent in the debate about the problem. Without listening to people who may have had this experience, it is likely that solutions will not address real problems (Lawrie and Battye, 2012).

An incident of hospital readmission may be interpreted by a single cause; however, it is more likely that the experience itself will be more complex and challenging to fully understand from the perspective of the patient (Pedersen, Mark and Uhrenfeldt, 2018). The existing literature frames the experiences of older people, regardless of how good or bad they have been, with feelings of exclusion. Various studies highlighted that older people, when describing their experience, referred to being excluded from decisions about their care, treatment and discharge planning (Dilworth, Higgins and Parker, 2012; Lawrie and Battye, 2012; Healthwatch England, 2015b, 2015a; Blakey *et al.*, 2017; Considine *et al.*, 2020).

Another emerging theme in the literature is the existence of communication gaps and how participants' needs were not fully addressed. Anecdotally, most planned hospital discharges proceed without incident as many hospital trusts now have dedicated discharge teams who have oversight of the discharge pathway. According to Considine et al. (2020), participants stated that they did not receive adequate or understandable information regarding their condition or discharge planning and felt that this was due to time pressures or wider organisational issues (Considine *et al.*, 2020).

 Similar reports are found in other studies where participants felt they were not heard or were disregarded and having no control over their own care (Dilworth, Higgins and Parker, 2012; Blakey *et al.*, 2017). In addition, from people's experiences in the literature, the lack of coordination and communication between the care services and had an immediate effect on their well-being (Lawrie and Battye, 2012; Retrum *et al.*, 2013; Healthwatch England, 2015a).

Alongside the gaps in communication, there are many reports highlighting patients' being discharged before they were ready or well enough or deeming the discharge to be too early (Healthwatch England, 2015b; Blakey *et al.*, 2017). Considine *et al.*, (2020), found that discharge initiated by a clinician was mostly described as a negative experience by participants as they felt pressured to be discharged (Considine *et al.*, 2020).

Furthermore, even when patients were medically optimised for discharge, some felt that going home was not safe or that they had inadequate support at home (Healthwatch England, 2015b; Verhaegh *et al.*, 2019). The concept of a shorter length of stay leading to reduction in health care associated infections and better treatment outcomes benefits the system in terms of reducing medical costs and optimizing bed turnover rates, however, this is not always clearly explained to patients (Baek *et al.*, 2018).

Feelings of uncertainty and lack of post discharge support seemed to be emerging in the literature (Healthwatch England, 2015b, 2015a; Blakey *et al.*, 2017). (Pedersen, Mark and Uhrenfeldt,(2018), highlighted a close link between the incidents identified as critical by participants that took place before, during and after admission and life conditions which they indicated as affecting the care received by participants. These critical incidents varied from not being ready to be discharged to not having the opportunity to participate in decisions and life conditions such as illness and being vulnerable (Pedersen, Mark and Uhrenfeldt, 2018; Considine *et al.*, 2020).

Hospital readmissions can be described as a complex web between everyday life and critical incidents across time and care that older people receive (Pedersen, Mark and Uhrenfeldt, 2018). What is currently known about hospital readmission and potential contributing factors, are mainly professionals' views derived from chart reviews and cross-sectional studies. Despite their importance, experiences and perspectives of patients are less known (Jeffs *et al.*, 2014; Considine *et al.*, 2020). It is therefore, vital to explore the experiences and perceptions of patients to fully understand the issue of hospital readmission.

2.3.1.2 Readiness for discharge

One important risk factor that has been identified from studies with a focus on perception of hospital readmission, is the lack of patients' readiness for discharge. Research findings indicate that age, living alone and lack of readiness for discharge were associated with hospital readmission (Mabire, Coffey and Weiss, 2015; Howard-Anderson *et al.*, 2016). In contrast, Lau *et al.*, (2016), did not find any association between discharge readiness and risk of hospital readmission. They showed that factors related to not being ready for discharge were: unsatisfied with health care services, cognitive impairment and depression (Lau *et al.*, 2016). In addition, the results of Verhaegh *et al.*,(2019), indicated that patient's readiness was influenced by their involvement and preparation for discharge and the organisation of hospital-based care (Verhaegh *et al.*, 2019). It is suggests that the implementation of a structured readiness for discharge assessment that includes patients' self-assessment may reduce hospital readmissions and A&E visits (Weiss *et al.*, 2019).

The findings of Coffey and McCarthy, (2013), showed that lower perception of readiness at discharge was associated with increased use of formal and informal care post-discharge and higher readmission rate for older people (Coffey and McCarthy, 2013). Readiness for discharge may be affected by several factors, including the reason for admission, physical/mental ability, education, length of hospital stay (LoS) or post-discharge support (Causey-Upton *et al.*, 2019). According to Brent and Coffey (2013), hip fracture patients tend to have lower perception of readiness for discharge when compared to medical and surgical patients (Brent and Coffey, 2013).

A variety of issues have been identified in previous studies on the perception of hospital readmission, such as: patient discharge readiness, sufficient follow-up care, lack of communication between services, professionals, and people and the feeling of safety whilst inpatient rather than being in the community. In order to minimize these issues, multidisciplinary teams with a multi-faceted approach are essential when addressing them, in order to provide guidance and support during and after the discharge process. Therefore, further research is required regarding patients' perception of readmissions, which might contribute to supporting effective identification of older people at-risk.

2.3.2 Preventable or inevitable readmissions

As noted earlier, a gap between patients' and providers' perception exists regarding the cause of hospital readmission as well as its preventability (Conroy *et al.*, 2013; Stein *et al.*, 2016; Considine *et al.*, 2020). It has been estimated that 5% to 79% of hospital readmissions are potentially preventable. The vast range of preventable readmissions are probably due to the subjectivity of the issue and the wide variation of definitions, method and care settings used in research (Steventon *et al.*, 2018; Considine *et al.*, 2020). Stein et al., (2016) showed that for the providers, 30% of readmissions were considered as preventable whereas patients considered 13% readmissions as preventable and 35% as not preventable (Stein *et al.*, 2016). In contrast, Smeraglio et al., (2019), showed that providers did not view readmission as preventable compared to patients who were more likely to do so (Smeraglio *et al.*, 2019).

Some hospital readmissions could be potentially prevented by organising safe and timely discharge or by arranging the most suitable post-discharge interventions (Steventon *et al.*, 2018). Conroy et al., (2013), showed that 32 out of 50 readmissions were related to the first admission, 22 out of 50 were judged medical and 19 out of 22 were potentially preventable (Conroy et al., 2013). According to Middleton et al. (2019), patients under home care and functional limitations were associated with a greater risk of potentially preventable readmissions. In addition, the most common conditions for preventable readmissions were congestive heart failure, septicaemia, pneumonia, COPD and renal failure (Middleton *et al.*, 2019). Furthermore, LaWall et al., (2019), agreed with the abovementioned studies and added that neither living alone nor homelessness were significantly associated with preventable readmissions (LaWall *et al.*, 2019).

Upon further reflection of the findings from relevant literature, it seems that not all readmissions are necessary. Nevertheless, it is obvious that some readmissions are inevitable and not all readmissions can be prevented. However, there is information in the literature on which readmissions may be classed as preventable and it may therefore be useful to find a way for this to be taken into consideration during the screening stage or discharge stage to help prevent future unnecessary readmissions. Nonetheless, reinforcing a patient-centred approach and constructing a patient support system post discharge, may help reduce readmission rates.

It appears that the most effective interventions for avoidance of hospital readmission are provided by MDT. However, it may not be realistic to offer these interventions to all patients due to their high cost. Another solution may be the use of predictive risk modelling which may help identify readmissions, so they can be potentially prevented. However, this may have its own challenges due to the variety of associated risk factors (Steventon *et al.*, 2018).

2.3.3 Risk factors of hospital readmission

In order to assess hospital readmissions and risk factors, most studies have mainly focused on demographics, clinical features, specific diseases and characteristics of healthcare utilisation. Additional factors reported in the literature include socioeconomic status and environment (Purdy, 2010; Hallgren and Aslan, 2018; Emmerling *et al.*, 2019). Hospital readmissions involving older people may occur for a variety of reasons, but most of the time they differ from the index reason for admission, although they may be related (Hughes and Witham, 2018; Brunner-La Rocca *et al.*, 2020). Risk factors have been described in many studies as vital aspects of predictive tools and they could help identify patients at risk of emergency readmissions, improve interventions and reduce hospital readmissions (Hallgren and Aslan, 2018). The most common risk factors identified within the literature include: (i) comorbidities, (ii) functional impairment, (iii) frailty, (iv) polypharmacy, (v) length of stay and (vi) type of first admission. However, most studies were limited as they involved a single site or there was a lack of information on social determinants of health (e.g., formal or informal care after discharge or health literacy) (García-Pérez *et al.*, 2011; Morandi *et al.*, 2014; Craven and Conroy, 2015; Sganga *et al.*, 2017; Low *et al.*, 2018; Aggarwal, Woolford and Patel, 2020; Woolford *et al.*, 2021).

2.3.3.1 Sociodemographic characteristics

Many studies have concluded that increasing age was a risk factor and was strongly associated with hospital readmission (Robinson, Howie-Esquivel and Vlahov, 2012; Craven and Conroy, 2015; Mathew *et al.*, 2016; Ali *et al.*, 2017; Ferré *et al.*, 2019). Men experienced poorer health outcomes and were at a higher risk of hospital readmission when compared to women (Paula *et al.*, 2016; Hallgren and Aslan, 2018; Kadri *et al.*, 2018; Low *et al.*, 2018; Pedersen, Mark and Uhrenfeldt, 2018; Wen *et al.*, 2018).

However, some studies observed that age and sex were not considered to be risk factors as no significant association was found with hospital readmission (García-Pérez *et al.*, 2011; Sganga *et al.*, 2017). Individual social capital has been significantly associated with physical health, mental health and health-related behaviours (Emmerling *et al.*, 2019). According to a report from the Office for National Statistics (ONS), 4,023,000 people over 65 were living alone in 2019 in the UK (ONS, 2020). In addition, living alone may be associated with a higher risk and frequency of hospital readmission especially in men (Dilworth, Higgins and Parker, 2012; Royal Voluntary Service, 2014; Pimouguet *et al.*, 2017).

A systematic review by García-Pérez *et al.*, (2011), highlighted the importance of clinical practise and paying extra attention to vulnerable older people as it could be a determinant for a new admission (García-Pérez *et al.*, 2011). According to Shebehe and Hansson (2018), low neighbourhood socioeconomic status was associated with hospital readmissions. Social isolation and self-neglect is common among older people and may increase negative health events (Dong and Simon, 2014; Shebehe and Hansson, 2018). Identification of older people who are potentially at risk of hospital readmission, by assessing their needs and ensuring relevant social support is in place to meet those needs may hold promise in terms of reducing the risk of hospital readmission (García-Pérez *et al.*, 2011; Schultz *et al.*, 2021).

2.3.3.2 Time related factors

Time related risk factors play an important role in identifying both patients at risk of hospital readmission and interventions aimed at preventing hospital readmission. Time related factors are separated into three chronological stages: (i) index admission to discharge, (ii) post discharge and (iii) hospital readmission. Many studies have identified an index length of stay of three days and less, or ≥ eight days as one of the major risk factors for hospital readmission (García-Pérez *et al.*, 2011; Morandi *et al.*, 2014; Paula *et al.*, 2016; Ali *et al.*, 2017; Hallgren and Aslan, 2018; Kadri *et al.*, 2018). Older people with comorbidities who have shorter index hospital stay have an earlier readmission (Horney *et al.*, 2017; Hallgren and Aslan, 2018).

Research has shown that the highest risk period for a patient to be readmitted is within the first three days post-discharge. Hospital readmissions that occurred one day after discharge accounted for one in 10 readmissions within a 28-day period (Considine *et al.*, 2018, 2020; Hallgren and Aslan, 2018). The most reported day of index discharge was Friday, and the most common day of readmission was Saturday (Considine *et al.*, 2018). (Park *et al.*, 2014), found that patients who were discharged during winter were more likely to be readmitted when compared to patients who were discharged in the summer. However, it was unclear why readmission rates during the winter were higher (Park *et al.*, 2014).

Hallgren and Aslan, (2018), concluded that the mean number of days from index discharge to readmission was 7.92 (± 6.2) and history of falls within the last 12 months was associated with hospital readmission (Hallgren and Aslan, 2018). Furthermore, most patients were readmitted via the Emergency Department (ED) with pain being the most common reason (Hallgren and Aslan, 2018; Considine *et al.*, 2020). (Ferré *et al.*, 2019), examined patients who visited ED within 3 days of discharge and identified the main risk factors as: (i) age, (ii) pressure ulcer and (iii) low functional ability (Ferré *et al.*, 2019). The limitations of the above studies were that: (i) medical data may not cover the entire spectrum regarding hospital readmission as there are many more factors that may have an impact and (ii) the researches were limited to a specific site and so the generalisability of the results may be limited.

2.3.3.3 Comorbidities

A well-known risk factor that increases the likelihood of hospital readmission is comorbidities (Low *et al.*, 2018; Brunner-La Rocca *et al.*, 2020). In the UK, almost half of the population of older people live with two or more long-term conditions (Cassell *et al.*, 2018; Kingston *et al.*, 2018). According to Kingston *et al.* (2018), the proportion of older people with over four conditions will double from 9.8% in 2015 to 17% by 2035. Comorbidity for the incoming age group between 65 and 75 will increase from 45.7% to 52.8% along with life expectancy gains (Kingston *et al.*, 2018). Comorbidities reduce quality of life and increase dependency, polypharmacy and mortality (Cassell *et al.*, 2018; Pereira *et al.*, 2021a).

According to Picker *et al. (2015)*, patients who were on more than six medications at discharge were at a greater risk of readmission (Picker *et al.*, 2015). Healthcare systems mainly focus on the treatment of single-diseases, and they are not built to manage patients with multiple health conditions, which could lead to disorganised care provision (Kingston *et al.*, 2018; Aggarwal, Woolford and Patel, 2020). With the upcoming demographic changes, single-disease guidelines might need to be modified as healthcare delivery becomes more complex with increases in the length of stay, rising cost of care and reduced quality of life (Age UK, 2019b).

Considering the high readmission rates, it is important to identify which conditions or diseases put older people at a higher risk of being readmitted (Park *et al.*, 2014). In a study by Wong et al., (2011), people with liver disease were more likely to be readmitted, and people with cerebrovascular disease had longer stays and the medical costs were higher for people with heart disease. Park et al. (2014) showed that the readmission rate for heart failure was 19.6%, 14.3% for chronic obstructive lung disease (COPD) and 13% for pneumonia. Cardiac patients had a reduced level of readmissions when compared to medical patients, which may be related to the type of care they received or the ward they were admitted (Park *et al.*, 2014). Although cardiac patients may have fewer readmissions when compared to other patients, cardiovascular diseases increase the risk of hospital readmission and mortality among older people (Retrum *et al.*, 2013; Public Health England, 2020).

2.3.3.4 Cardiovascular readmissions

Older people admitted with cardiovascular disease are at higher risk of being readmitted, as it is one of the leading causes of hospital readmission (Retrum *et al.*, 2013; Kadri *et al.*, 2018). In a cohort study by Kadri et al. (2018) on hospital readmission after syncope/collapse, out of 282,311 admissions 9.3% were readmissions. The most common reasons for readmission were syncope, cardiac, neurological and infectious causes (Kadri *et al.*, 2018). The characteristics associated with readmission were age, cardiac conditions, COPD, diabetes mellitus, LoS 3-5 days and leaving against medical advice (Southern *et al.*, 2014; Considine *et al.*, 2018; Kadri *et al.*, 2018; Wen *et al.*, 2018).

According to Southern *et al. (2014)*, readmissions amongst patients with acute coronary syndrome were common and the reasons for readmission were varied. Their findings suggested that 53% of hospital readmissions were linked to cardiovascular or associated diagnosis and many readmissions were not related to the first admission (Southern *et al.*, 2014). Retrum et al. (2013), explored the causes of hospital readmission of patients with heart failure. The researchers acknowledged that the reasons were multifactorial and difficult to assign a single cause to. The main themes that emerged from their study were: (i) comorbidities, (ii) progression of heart failure, (iii) psychosocial factors, (iv) self-care and (v) health system factors (e.g., early discharge, lack of continuation of care) (Retrum *et al.*, 2013). The causes of cardiovascular readmission have been described to be of heterogeneous nature and complex within the literature (Retrum *et al.*, 2013).

Interventions aimed at reducing readmissions should use a multifaceted approach in order to match patients' needs. Literature suggests that health care systems fail to meet patients' needs due to lack of continuation of care and lack of communication (Retrum *et al.*, 2013). Thus, patient-centred care might address the patients' needs whilst multidisciplinary team (MDT) interventions could enhance communication. In addition, more attention needs to be given to management of comorbidities and unhealthy behaviours.

2.3.3.5 Surgical readmissions

Literature related to surgical readmission has highlighted many risk factors such as age, comorbidities, LoS and type of operations. According to Paula *et al. (2016)*, patients who underwent arthroplasty were at a higher risk of readmission compared to those with osteosynthesis (Paula *et al.*, 2016). Ali et al. (2017), examined the factors and predictors associated with hospital readmission for NHS patients (n=514,455) after total hip replacements. Those who were readmitted were divided into three groups: (i) all cause readmission [5.9%], (ii) surgical readmission [3.2%] and (iii) return to theatre [0.8%], with 54.1% related to surgical causes. Pollock et al. (2015), found that patients were two and a half times more likely to be readmitted due to medical complications rather than surgical. The most common reasons for readmissions were infections followed by cardiovascular conditions (Pollock *et al.*, 2015; Lasater and Mchugh, 2016).

In a study by Lasater and Mchugh, (2016), readmission outcomes after major joint replacement were associated with the quality of nursing care. High quality nursing care has been described in the study as consistent monitoring of patients for signs of infection and other clinical deterioration such as pain. Also, nursing activities' that support a safe transition to discharge such as mobilisation and patient education on self-care enhanced health outcomes. Patients who received care in an optimum environment, including enhanced communication, coordination and collaborative care between providers, had 12% fewer odds of being readmitted (Lasater and Mchugh, 2016). Similar findings suggest that hospitals with better staff responsiveness, such as communication and hourly rounding programmes, had lower rates of readmission (Yang *et al.*, 2018).

Yli-Kyyny et al. (2019), found higher hospital readmission risk due to complications amongst post-surgical patients with a medical history of alcoholism, Parkinson's disease, osteoarthritis, mental health issues and at least a three day delay of surgery (Yli-Kyyny *et al.*, 2019). The findings of the last three studies must be seen in light of some limitations regarding databases restrictions, such as: (i) not easy access to specific data (e.g., surgical technique), (ii) patients admitted to other hospitals and (iii) difficulty identifying a single cause of readmission due to multiple recorded complications. The literature suggests that post-surgical readmissions were mostly associated with medical complications such as infections. One of the main factors for preventing readmissions post-surgery has been reported to be nursing care and responsiveness. Frequent monitoring of patients and enhanced communication during frequent rounding programmes may help patients' education, may prevent adverse events such as falls or identify early signs of infection which could be addressed early and thus avoid being readmitted at a later stage (Lasater and Mchugh, 2016; Yang *et al.*, 2018).

2.3.3.6 Frailty

Frailty is a common syndrome among older people which is characterised by a gradual loss of physiological reserve across multiple systems (Gale, Cooper and Aihie Sayer, 2015; Kahlon *et al.*, 2015). Gobbens et al. (2010), defined frailty as ''*a dynamic state affecting an individual who experiences losses in one or more domains of human functioning (physical, psychological, social) that are caused by the influence of a range of variables and which increases the risk of adverse outcomes''* (Gobbens *et al.*, 2010).

It is suggested that one in six older people living independently could have frailty which continues to rise with increasing age and comorbidities (Gale, Cooper and Aihie Sayer, 2015; Ofori-Asenso *et al.*, 2019). Comorbidity and frailty are related conditions, but people living with comorbidity may not necessarily be living with frailty because they may recover and return to their baseline health status (Aggarwal, Woolford and Patel, 2020; Woolford *et al.*, 2021).

Frailty has been associated with several adverse health outcomes such as: disability, falls, increased length of stay and hospital readmission (Reeves *et al.*, 2018; Hao *et al.*, 2019; Stillman, Stillman and Beecher, 2021). According to Kahlon et al. (2015), frail medical older patients had more comorbidities, lower quality of life and higher risk of being readmitted compared to non-frail patients. Frailty in combination with comorbidities has been reported to be a leading cause of polypharmacy, where it implies increased healthcare use and higher risk of being readmitted (Kahlon *et al.*, 2015; Aggarwal, Woolford and Patel, 2020). Identifying frail older people in hospital/community could help provide person-centred care tailored to individual needs and may prevent hospital readmissions (Kahlon *et al.*, 2015; Hao *et al.*, 2019; Stillman, Stillman and Beecher, 2021).

2.3.3.7 Functional ability

Ageing is a continuous natural process of physical and mental changes that happens gradually over time. Functional decline is part of ageing or a consequence of a medical condition, and it has been placed as a risk factor for readmission (Hoyer *et al.*, 2014; Craven and Conroy, 2015; Greysen *et al.*, 2015; Middleton *et al.*, 2019). Hospitalisation can be a pivotal event for older people in relation to their health and well-being. Following hospitalisation, it is a common phenomenon to develop difficulty with regard to ADL due to the significant functional decline people experience as most never regain their pre-admission level of functional ability (Courtney *et al.*, 2011). The decline in functional ability is often caused by extended periods of time spent lying in bed. (Liu *et al.*, 2013), noted that medical patients spent 83% of their time lying in bed (Liu *et al.*, 2013). Prolonged bed rest and immobility has been associated with muscle atrophy and loss of muscle mass, resulting in up to 40% reduction in muscle strength within the first week (Kortebein *et al.*, 2007; Parry and Puthucheary, 2015; Dirks *et al.*, 2016).

Moreover, medical patients with lower functional status had the highest readmission rates compared to those with higher functional status (Hoyer *et al.*, 2014). Improvements in physical performance can be achieved in-hospital, with larger improvements being noted in patients with poorer physical function at admission. However, these patients continued to have poor performance and there were no improvements regarding their ADL's at discharge (De Buyser *et al.*, 2014a).

Andreasen *et al.* (2015), investigated this transition by interviewing people one week after their discharge. The main themes that emerged were: (i) health/social services support (ii) social life (iii) mood and daily mind-set and (iv) physical constrains. The above factors have an immediate effect on how older people experience daily living and adjust to a new normal (Andreasen *et al.*, 2015). Patients' functional needs after discharge should be carefully evaluated and addressed. People who reported new unmet needs in relation to ADL after discharge were at higher risk of hospital readmission (DePalma *et al.*, 2013). The physical changes may reduce autonomy and functional independence, which might lead directly or indirectly, to falls (Craven and Conroy, 2015).

Falls have been reported to be one of the main causes of hospital admissions amongst older people (Age UK, 2019b). According to Lee *et al. (2018)*, patients who, within a six-month period, had a fall, were less active and had reduced independence post discharge were associated to have a readmission within the following month (Lee *et al.*, 2018). Patients with a history of falls, are more likely to fall again, have reduced functional ability and poor quality of life (Sganga *et al.*, 2017; Lee *et al.*, 2018). Moreover, history of falls has been associated with functional decline at 30 days, in-hospital complications and adverse outcomes (Kronzer *et al.*, 2016; Hallgren and Aslan, 2018).

Recording mobility levels following discharge showed potential as a simple, reliable and valid indicator of overall health and risk of 30-day readmission (Fisher *et al.*, 2013). The most common assessments used for physical performance in the literature include walking ability and grip strength. Many studies have recommended grip strength as a biomarker for current or future health status due to the various positive associations (e.g., general strength, upper and lower limbs, falls) (Beseler *et al.*, 2014; De Buyser *et al.*, 2014b; Bohannon, 2019). In addition, grip strength could be a useful measure for frail

older inpatients whose physical function might be difficult to assess due to physical or cognitive impairments (Beseler *et al.*, 2014).

The literature to date demonstrates that functional ability is strongly associated with hospital readmission. Patients with lower levels of mobility are more likely to be readmitted within 30 days following discharge (DePalma *et al.*, 2013; Hoyer *et al.*, 2014). Falls are common among older people and it has a direct impact on their wellbeing, as it can cause serious injury, pain, loss of confidence and independence (Age UK, 2019b). The functional status of a patient during hospital stay and at discharge, can be used as a reliable, valid and responsive physical biomarker of overall health and as a risk of hospital readmission (Fisher *et al.*, 2013). Functional ability is an important factor that needs to be addressed as it is associated with patients' well-being, independence and morbidity.

2.3.3.8 Mental health

The opinions in the literature are divided regarding psychological disorders being a risk factor leading to hospital readmission. The relationship between these disorders and hospital readmission is still unclear, despite the understanding regarding their prevalence and impact. A variety of studies have identified depression or anxiety as being associated with hospital readmission and considered as risk factors or even predictors (Ketterer *et al.*, 2014; Gold *et al.*, 2016; Singh *et al.*, 2016).

In contrast, (Tully *et al.*, 2016), who examined medical and surgical patients, did not identify depression as a risk factor for hospital readmission. The researchers concluded that even though patients were not at risk of readmission, they had poor quality of life and were more likely to have an increase in their psychiatric drug intake (Tully *et al.*, 2016).

Physical illness and/or medication related side effects are more likely to result in poor mental health (Mueller *et al.*, 2017). This was also supported by (Albrecht *et al.*, 2014), however, they suggested that even though depression may not be directly associated with hospital readmission, depressive symptoms are linked to other poor outcomes and may lead to adverse health events (Albrecht *et al.*, 2014).

2.3.4 Discharge planning and interventions

Discharge management and continuity of care play a significant role in patients' health improvement. Previous research has examined discharge planning and interventions in relation to hospital readmission. 'Poor' discharge management is considered as a risk factor for hospital readmission (Al-Maqbali, 2014; Hesselink *et al.*, 2014). One of the goals of the NHS is to provide patient-centred care in and out of hospitals. In order to achieve this, the NHS encourages and acknowledges the importance of involving patients and their families in discharge decisions and post discharge care (Al-Maqbali, 2014; Hesselink *et al.*, 2014; Boge *et al.*, 2018).

Discharging older people from hospitals is challenging for health and social services, as it includes a variety of professionals trying to provide patient centred care for a lot of patients under time pressures (Boge *et al.*, 2018). (Healthwatch England, 2015a), suggested that a disjointed NHS and social care system poses difficulties in terms of providing care for a rapidly ageing population. According to Baxter et al. (2020), healthcare professionals felt that exceptionally safe transitions of care were prioritised for patients with complex health and social care needs due to pressures and constraints (Baxter *et al.*, 2020).

Ineffective discharge process has been linked with issues such as: (i) low-quality discharge information, (ii) discharge information not understood by patients, (iii) delayed assessments or providing appropriate care arrangements, (iv) communication gap between services, (v) patients/families not being included and (vi) the lack of training and knowledge related to the needs of older people. In turn, these affect the patient flow through the system, resulting in poor experiences for patients and adds excessive workload for health care services (Hesselink *et al.*, 2014; Healthwatch England, 2015a; Greysen *et al.*, 2017; Hallgren and Aslan, 2018). Over the past 30 years, the bed stock in England has decreased from 299,000 (1987-88) to 141,000 (2015-16), resulting in the lowest rates of hospital beds per population (2.5 beds per 1000 population) (Ewbank *et al.*, 2020).

In addition, hospital admissions have increased from 12.7 million to 16.2 million and the average bed occupancy has risen from 84.5% in 2005-6 to 91.4% in 2017. Moreover, the NHS is facing a staff shortage of more than 100,000 staff (The King's Fund, 2018). High rates of hospital admission and bed occupancy, alongside workforce shortages may impact on the quality of care (Steventon *et al.*, 2018; Friebel *et al.*, 2019).

In 2015, 1.75 million bed-days were lost due to: (i) patient decision, (ii) lack of access to health and social services, (iii) overburdened hospitals and (iv) avoidable admissions (Oliver, 2015; AgeUK, 2016). According to Friebel *et al.* (2019), when bed occupancy increases by 1% there is an association with the increase in discharge rate by 0.49% and hospital readmission by 0.011%. These results were more pronounced for older patients, and it may be linked with ineffective discharge planning (Friebel *et al.*, 2019).

Older people are at greater risk of hospital readmission when they are discharged from the hospital at times of high bed occupancy (Blom *et al.*, 2015; Friebel *et al.*, 2019). Evidence from the literature suggests that the discharge process could be improved by addressing these issues and hence hospital readmission rates could be reduced. An effective discharge process could be achieved by: (i) including and educating patients and their families, (ii) promoting MDT communication and (iii) providing high-quality discharge information (Al-Maqbali, 2014; Abu *et al.*, 2018). In addition, discharge planning should start as early as possible in order to reduce LoS and identify discharge barriers. Early discharge planning is associated with reduced hospital readmissions and it may help improve quality of life (Fox *et al.*, 2013; Gonçalves-Bradley *et al.*, 2017).

Many interventions have been implemented to prevent hospital readmissions around the world. However, there is limited evidence of positive outcomes regarding the effectiveness of these interventions (Conroy *et al.*, 2011; Coffey *et al.*, 2019). Hansen et al. (2011), showed that no single intervention out of the 12 distinct activities that were examined was associated with a reduction in hospital readmission. However, home based interventions by experienced and trained MDT showed more positive outcomes (Hansen *et al.*, 2011). Research suggests that even a simple intervention such as a community nurse contact after discharge could help reduce 30-day hospital readmission rates (Vernon *et al.*, 2019).

According to Greysen *et al.*, (2014), hospital-based discharge interventions that focus on traditional aspects of care may not take into consideration functional, social and environmental barriers and these aspects may be overlooked in post-discharge care. The researchers highlighted the importance of home-based interventions to include these barriers in order to improve post-discharge recovery and prevent hospital readmissions (Greysen *et al.*, 2014). A more holistic approach like home-based care is considered to be both beneficial for patients and health systems (Batty, 2010; Hansen *et al.*, 2011; Linertová *et al.*, 2011; Finlayson *et al.*, 2018). In addition, the routine implementation of comprehensive geriatric assessment (CGA), has shown to be very effective in the care of older people as it is responsive to patients' needs, in the medium and longer term (Aggarwal, Woolford and Patel, 2020; Woolford *et al.*, 2021).

Hallgren *et al.* (2015), indicated that patients showed more trust in hospital care rather than community care. Hospitals provide a feeling of safety, with the availability of resources and 24-hour care (Hallgren *et al.*, 2015). Howard-Anderson *et al.* (2016), added that there were patients who reported that they felt more relieved upon their readmission (Howard-Anderson *et al.*, 2016). The management of continuity of care for older people is fundamental as it may determine better health outcomes (Fox *et al.*, 2013). Many studies in the literature have reported that follow-up interventions, either through home visits or telephone support, had a positive effect in terms of reducing hospital readmission (Courtney *et al.*, 2009; Rytter *et al.*, 2010; Legrain *et al.*, 2011; Falvey *et al.*, 2016; Coffey *et al.*, 2019; Rayan-Gharra *et al.*, 2019).

Follow up interventions provide numerous benefits for patients, such as: (i) personalised care plan, (ii) counselling, education and guidance, (iii) medication control, (iv) building independence, self-esteem and self-management, (v) feeling of safety and (vi) increased quality of life (Legrain *et al.*, 2011; Chow and Wong, 2014; Bellon *et al.*, 2019; Coffey *et al.*, 2019; Karlsson and Karlsson, 2019; Rayan-Gharra *et al.*, 2019). A multidisciplinary approach which targets patients' needs may help reduce hospital readmissions, as long as, communication and patient-provider trust exists (Batty, 2010; Rytter *et al.*, 2010; Torisson *et al.*, 2013; Leung *et al.*, 2015; Falvey *et al.*, 2016; Ismail and Coulton, 2016; Coffey *et al.*, 2019).

Literature suggests that informal care should be included and supported by the services as they play a vital role during the in-hospital and post discharge period in relation to patients' quality of life and health trajectory. In the UK it is estimated that around 6.5 million were informal carers and 38% of older people were receiving help from family and friends (Aldridge and Hughes, 2016; Age UK, 2019b).

Many studies have highlighted that patients rely on the support provided by informal carers as it has been repeatedly noted by many people that without informal care, they would not be able to manage on their own (Dilworth, Higgins and Parker, 2012; Verhaegh *et al.*, 2019; Considine *et al.*, 2020). According to Holmås, Monstad and Steskal, (2019), receiving informal care has been positively associated with readmission and negatively with mortality, as informal carers encourage people to seek medical advice or act as their advocates (Holmås, Monstad and Steskal, 2019).

Each person is different, and for this reason, MDT incorporating a patient-centred approach may improve health outcomes and help reduce hospital readmission. Well-established integrated MDT, capable of taking care of older people in their own homes, plays an important role in the prevention of hospital readmission (Leung *et al.*, 2015; Coffey *et al.*, 2019; Considine *et al.*, 2020). A patient-centred approach organised by MDT is considered as one of the best practices for the care of older people. The patient-centred approach requires a formation of a therapeutic partnership between professionals, patients and their families (Dilworth, Higgins and Parker, 2012; Coffey *et al.*, 2019; Verhaegh *et al.*, 2019; Aggarwal, Woolford and Patel, 2020).

2.3.5 Prediction models

Over the past decade, the use of predictive models as a strategy to reduce hospital readmission has received increased interest (Artetxe, Beristain and Graña, 2018; Friebel *et al.*, 2018). The identification of patients at 'high risk' of readmission may be a cost-effective strategy to assist healthcare organisations to focus their resources on more targeted interventions. However, it is still unclear whether interventions are more effective when targeting high risk rather than low risk patients (Friebel *et al.*, 2018).

Predictive modelling studies have mainly been using primary clinical data from patients or their health records and administrative data to inform predictive models (Silverstein *et al.*, 2008; Artetxe, Beristain and Graña, 2018). Most studies developed their predictive models by using regression analysis or survival analysis. Furthermore, with the rapid development of information technology and electronic medical data systems, predictive modelling techniques, like machine learning and data mining, have been recently adopted (Lee, 2012; Artetxe, Beristain and Graña, 2018; Min, Yu and Wang, 2019).

Many predictive models have been developed and used worldwide for a variety of reasons, such as: (i) quality measure for performance of health organisations, (ii) informative tool for better discharge planning and (iii) more in-depth investigation of specific conditions or subpopulation (Kansagara *et al.*, 2011; Sohrabi *et al.*, 2019; Dobler *et al.*, 2020). Some of the most widely used models are LACE index, HOSPITAL score and PARR-30 (Billings *et al.*, 2012; Damery and Combes, 2017; Baig *et al.*, 2018; Robinson *et al.*, 2019). Despite the plethora of research studies on predictive modelling, most readmission risk models perform poorly due to the complexity of the issue (Kansagara *et al.*, 2011; Artetxe, Beristain and Graña, 2018).

The literature suggests that the discrimination ability of predictive models vary over a wide range. According to Zhou *et al.* (2016), the performance of 56 out of 60 studies reported ranges of C-statistic between 0.21 and 0.88 (Zhou *et al.*, 2016). The study results concurred with (Artetxe, Beristain and Graña, 2018), where the researchers identified 77 studies with the performance of the models reported to vary between 0.54 and 0.92 (Artetxe, Beristain and Graña, 2018). This indicates that the models vary from poor to strong with 1 being a model that performs perfectly.

The most frequently used variables in predictive models are patient-level, such as 'comorbidities', 'demographics', 'LoS' and previous admissions' (Kansagara *et al.*, 2011; Zhou *et al.*, 2016). Some factors that may contribute to the performance improvement of predicting models but need further research are patient perception and functional status (Kansagara *et al.*, 2011; Kapoor *et al.*, 2017; Carter *et al.*, 2018).

In a novel study by (Shih *et al.*, 2015), readmission models based on functional status performed better than those based on comorbidities. The researchers highlighted the importance of functional status as a valuable predictor, as it may help reduce readmissions (Shih *et al.*, 2015). Furthermore, many studies suggest that the inclusion of patient-reported data within the development of predictive modelling would provide many benefits as they may: (i) provide a new perspective on readmission in relation to existing healthcare datasets, (ii) capture patients' behaviours (self-care and intervention effectiveness) and (iii) evaluate their experience (satisfaction and communication) (Kansagara *et al.*, 2011; Borkenhagen *et al.*, 2018; Carter *et al.*, 2018; Steventon *et al.*, 2018).

In addition to the aforementioned, the inclusion of health system-level factors within predictive modelling may improve their performance. Despite the variety of existing models, only few studies included variables, such as: social determinants of health, time periods of continuation of care after discharge or hospital bed occupancy (Kansagara *et al.*, 2011).

In any case, the use of hospital readmission predictive modelling as a preventive strategy has the potential to: (i) lower healthcare costs, (ii) increase quality of care, (iii) more accurate identification of patients at high risk and (iv) provide clinical information to healthcare teams for targeted delivery of transitional care interventions (Baillie *et al.*, 2013; Casalini *et al.*, 2017).

2.4 Discussion

The scoping review identified 147 relevant publications which addressed the topic of hospital readmission between 2010 and 2021. This review identified a gap in understanding the patient voice in relation to hospital readmission, evident by the limited number of publications that had a key focus of patients' experiences. Qualitative data on patient perceptions and experiences is limited within the literature and this review identified only 21 qualitative studies which represents 14.3% of all publications included in the review. Furthermore, from the 147 publications, only 18 were set in the UK and 5/18 used a qualitative method.

There are many factors that can affect hospital readmission. Most findings suggest that readmission is heavily influenced by socio-demographics (e.g. age, gender), social aspects (e.g. social network, access to support), time related, and clinical factors. The majority of hospital readmissions differ from the index admission although there seems to be a relationship between the two (i.e., infection) or due to comorbidities that were not fully addressed during the first admission. Another important factor is a patient's functional ability which is strongly associated with hospital readmission as patients with lower levels of mobility are more likely to be readmitted after discharge (DePalma et al., 2013; Hoyer et al., 2014).

Although moving care out of hospitals has been a priority, it is important to acknowledge that some readmissions are inevitable and not all readmissions can be prevented. The literature suggests that one of the most effective ways of preventing readmissions is effective discharge planning that includes MDT. This supports the aim of the UK-wide health and social care policy of supporting an integrated care model which enhances patient care and experience through improved coordination of services (RCN, 2013; NICE, 2015).

This review has helped identify gaps within the literature. The main limitation found in the literature is that the patient voice is not prominent in relation to research on hospital readmission, discharge planning, and post-discharge support. Patient views do not appear to be accounted for in predictive models. Furthermore, there is a clear lack of inclusion of

factors related to social relations and support outside hospital, and limited understanding as to how these may impact readmissions. Research on discharge interventions aimed at reducing the risk of hospital readmission is an area that still needs further investigation. Despite the vast research on interventions taking place with different study designs, study samples, and settings, it still remains unclear which interventions are effective in reducing hospital readmission.

This scoping review had its limitations as the included publications were only written in English which may have resulted in the exclusion of valuable insights written in other languages. In addition, most studies were set outside the UK which may have resulted in the findings that have limited applicability to the UK due to differences in terms of culture, beliefs, healthcare system (e.g. infrastructure, access), and socioeconomic characteristics. In addition, a quality appraisal of the publications included was not conducted as the main purpose of this scoping review was to map and identify an overview of the available evidence. However, the included publications were all from highly reputable sources.

2.5 Conclusion

There is extensive research on hospital readmissions with the majority of research being quantitative, fewer qualitative and limited studies incorporating both quantitative and qualitative data. A key limitation of the literature that was identified through the review is that the majority of research includes clinical data, based on chart reviews written by professionals, and cross-sectional studies and excludes patient perspectives, concerns, and priorities. However, there is evidence to support that listening to the experiences of patients is vital to facilitate a holistic view of the problem.

Patients' feelings of exclusion resulting from communication gaps and a lack of patient voice regarding their care whether in-hospital or once discharged were noted. Patient-centred research also shows that lower perception of readiness at discharge is associated with increased use of formal and informal care post-discharge and higher readmission rate for older people (Coffey and McCarthy, 2013).

Readmission is complex and has a negative impact on people's lives and there are a variety of risk factors which lead to it. It is a multi-faced issue and as the demand for in-hospital and community care is growing, it seems that a disjointed health and social care system is struggling to cope. However, the efforts to address this are continuous either by introducing new policies or improving upon existing practices. In light of this, understanding how readmission is experienced by the users of services could prove vital in understanding relevant processes and may help reduce hospital readmission. By understanding the patients' experiences, the system could tailor interventions accordingly and/or use predictive risk modelling to try and avoid readmissions.

Even though the main factors identified from clinical data seem to match the ones emerging from patients' experiences, more research is needed as many factors lack detailed understanding of how they impact hospital readmission or how they can prevent it. These may hold the key in understanding the wider aspects linked to hospital readmission as patients' experiences can shed light on details overlooked or not included in clinical data. The complexity of hospital readmission requires a holistic approach that combines all these findings into one research.

The present study attempts to address the gaps in the literature and explored what matters the most to older people in combination with routinely collected clinical data. The full Doctorate in Clinical Practice course timeframe is presented in Appendix 4.

Chapter 3 Phase 1 – Engaging public representatives in research design and development

3.1 Introduction

This chapter will summarise Phase 1 of this research study which involved finalising the interview schedule that was used in Phase 2, with the support of individuals from a PPI group. PPI has not always been incorporated in either healthcare or health policy. Public participation in healthcare officially started in 1978 when the World Health Organisation's Alma Ata Declaration claimed that the public had the right and duty to be part of the process of planning and implementation of healthcare (De Freitas, 2017). Since then, PPI has evolved and is considered an integral part of health research.

PPI has not always been part of health care research and over the years the use of PPI in research has attracted much interest both locally and internationally, however, there is no universal definition to describe it (Brett *et al.*, 2012). There have been attempts globally to capture the general meaning or definition of PPI. Not having a single and specific application, resulted in having a variety of definitions that could cause confusion as to the role of PPI in research.

For the purposes of this research, the definition and principles of good practice provided by INVOLVE were used, which defines PPI as "research being carried out 'with' or 'by' member of the public rather than 'to', 'about' or 'for' them" (INVOLVE, 2012). Despite the use of other definitions in other countries, they all portray PPI as 'engagement in research' (Schilling and Gerhardus, 2017).

3.2 Background

The UK Department of Health (DH) values the engagement of the public in all relevant health care services, including research (Pollard *et al.*, 2015). PPI must be embodied in all stages of research and as a result many funding bodies require evidence of PPI when researchers submit their proposals (Hull *et al.*, 2012a; Gamble *et al.*, 2014). The recognition of the importance of PPI by the DH has been an important factor in the

evolution of health services. It has been recognised that patient/public experience could enhance research, improve treatments and ultimately improve the outcomes for future service users (Ardron and Kendall, 2010; Hull *et al.*, 2012b; Fereday and Rezel, 2016). Research suggests that including a PPI group can help explore the views of people from underserved groups (Morgan *et al.*, 2016) which may play a crucial role as it can shape the whole study by providing the freedom to the users to express their opinions (Brett *et al.*, 2012). However, there is limited robust evidence about the impact of PPI in health and social care research. This may be due to the limited discussions given on PPI in journal publications because of the limitation in word count, lack of funding and time to conduct the PPI activity and the results possibly not being perceived as important. In addition, the impact of PPI is difficult to measure using quantitative methods (Brett *et al.*, 2012).

Despite the lack of robust evidence and the concerns highlighted in previous research, Davis et al. (2019), illustrated that involving service users can be valuable as through their own experience they can identify research priorities, enhance the quality of research, and may help on conducting more relevant research (Davis *et al.*, 2019). Furthermore, a systematic review by (Baldwin *et al.*, 2018) suggested that the benefits of older people's involvement in research outweighs its limitations (Baldwin *et al.*, 2018). Nursing as a profession focuses on patients' well-being by providing person-centred care. The recognition of the patients' and the public's perspective on health issues, might improve the quality of care, treatment, and service delivery.

The involvement and participation in research can be categorised into three levels. The first level is consultation which focuses on asking views regarding questionnaires and surveys. The second level is collaborating and establishing an active ongoing partnership to design the methodology and collect data. The third level is service user led, and the research project is led by PPI representatives, including the topic and methodology (Hanley, Bradburn and Barnes, 2004; Hayter, 2011). The present study utilised PPI in order to enhance the person-centred approach as part of the design and finalisation of the interview schedule (Appendix 5). Furthermore, the PPI representatives provided feedback and input which helped ensure the final interview schedule for Phase 2 was user-friendly, appropriate, clear and cohesive.

3.3 Methods

Phase 1 began in February 2017 and concluded in February 2018. This research phase adopted a qualitative approach with the involvement of PPI. During this phase individual face-to-face interviews were conducted to review and finalise the interview schedule that was used in Phase 2. The interview schedule draft was developed by the researcher following the scoping review with the intention to capture the timeframe of hospital readmission to reflect the three-time spans of a hospital readmission event (first admission-discharge, post-discharge and readmission).

The researcher met each member of the PPI group once and utilised a semi-structured approach for the interview. Face-to-face interviews were chosen as they enable an in-depth engagement with the discussion topics and provide the opportunity to share their views (Ritchie *et al.*, 2014). Due to the sensitivity of the subject being explored and the impact it can have on people's lives and their social network, it was crucial to ensure that the interview schedule asked the right questions whilst not being insensitive, intrusive or overwhelming. As research suggests, PPI can shape the whole study by providing the freedom to the users to express their opinions (INVOLVE, 2012) and this helped to ensure that the interview schedule was appropriate.

3.3.1 Objective

- To iteratively design and develop, alongside user input, the final qualitative interview schedule used to explore older people's experiences of hospital readmission.

3.4 Ethical considerations

Conducting research with the involvement of PPI does not normally require formal ethical approval, however, there is guidance that suggests otherwise on certain occasions. Guidance on ethical approval and PPI recommends seeking ethical approval when using formal research methods (interviews, audio recordings), planning to analyse data, and publishing the findings of the research (University of Oxford, 2017). Furthermore, it has been argued that discussing sensitive topics that may cause distress would benefit from formal ethical approvals (Mitchell *et al.*, 2019). Taking into account how sensitive and

distressing an hospital readmission event can be and asking the PPI group to share their views on how to approach discussions on this topic, the researcher and supervision team decided to obtain ethical approval.

Prior to commencing this phase, ethical approval was sought and obtained from the Ethics and Research Governance Online (ERGO ID: 25487). During Phase 1, it was ensured that participants understood the Participant Information Sheet (PIS-P1) (Appendix 6) and any questions or concerns were answered prior to the meeting commencing. The PPI group commented on the appropriateness of the questions included in the schedule, therefore, the potential for psychological or physical discomfort in this part of the research study was low in the ERGO risk assessment. The participants acted as advisors and helped with the design of the final interview schedule and this phase was informed by good clinical governance following ethical principles for working alongside public groups. Participation was confidential and all study information will be retained for a minimum of 10 years in accordance with the University of Southampton Research Data Management Policy. All participant data were coded and stored securely on a university password-protected computer, and only the researcher and supervisors have access to this data. Consent forms were securely stored in a locked filing cabinet within the post-graduate research office.

3.5 Participant recruitment

Participants were recruited through the Faculty of Health Sciences Participant Register which includes people who have consented to be contacted regarding research studies and through posters (Appendix 7) placed on the Faculty of Health Sciences and Library notice boards. A meeting was scheduled with the manager of the Participant Register during which the selection criteria and recruitment plan was discussed and agreed. It was decided that an invitation letter (Appendix 8) and the participant information sheet would be sent via e-mail to individuals over 65 years old, regardless of their health status. As this phase focused on identifying the appropriateness and sensitivity of the interview schedule for people over 65, having an experience of hospital readmission was not mandatory. The researcher felt that any individual over 65 years may be able to provide valuable input and feedback to meet the objective of the phase.

Individuals who were interested in participating in the study, contacted the manager who then shared their contact details with the researcher. The researcher contacted the participants to provide them with detailed information related to the study and to arrange a mutually convenient date, time and place to meet. The researcher met with each participant individually either at the University of Southampton or in their own home.

All participants were advised that there would be no remuneration for participating in this study as this was self-funded research. Despite the recommendations from NIHR to involve PPI throughout the whole research, this study has not been able to do that due to lack of reimbursement for participants and time constraints. Furthermore, involvement in the interview and analysis stages would require training which could have not been provided due to funding restrictions and the researcher's work commitments.

3.6 Sample

For the purposes of this phase, it was decided a sample of 10 people would ensure it is manageable whilst ensuring data diversity and quality. Similarly, other studies that engaged a PPI group ranged from five to 48 participants (Hull *et al.*, 2012b; Gamble *et al.*, 2014; Davies *et al.*, 2017; Davis *et al.*, 2019). All participants were recruited from the Faculty of Health Sciences Register and none were recruited via posters. These individuals were identified from an initial search which had identified 18 potential participants, of which only 10 expressed their interest in participating.

The recruitment resulted in 10 PPI advisors aged 65 years and over living in Southampton. The sample consisted of four females and six males (Mean age (M): 78.2 years; Standard deviation (SD): ± 4.54). Six participants were married; two were divorced; and two were widowed. In addition, six were living with a partner and four alone. All participants were white British and five had secondary level education and five had tertiary education (Appendix 9).

3.7 Procedure

Following initial contact with the participants, a meeting was scheduled at least a week after the information sheet was received in order to give participants time to process the information and gather any questions for the researcher. All meetings were scheduled at a mutually convenient date and time between Monday and Friday, 09:00 am to 17:00 pm. Out of the 10 meetings, six took place in a room on Highfield campus of the University of Southampton and four at the participant's home. It was ensured that the meeting place was private and quiet for avoidance of disruptions and interruptions.

The meeting started with a brief introduction by the researcher and the participants. Following the opening remarks, the research project was explained in detail using an information leaflet (Appendix 10), the benefits to this research from the input of the PPI group were highlighted, and any questions the participants had were answered. All participants were then reminded that the discussion will be recorded and that they will be required to provide their consent by signing the consent form (Appendix 11).

Once consent was obtained, the draft interview schedule was given to the participant to read. Once the participant had read the interview schedule, the recorded session was initiated. A semi-structured discussion followed using a set of prepared questions (Appendix 12) and the participant suggested changes that needed to be made and provided feedback regarding the questions and the overall structure of the interview schedule. Following the discussion, the session was concluded, and the participant was thanked for their time and contribution to this research.

The meeting lasted approximately 30 – 60 minutes (Table 3.1) and the sessions were recorded so a transcript could be created to track the proposed changes in order to develop the final interview schedule. Specifically, the sessions lasted on average 08:52 minutes.

Table 3.1: Phase 1 – Meeting Schedule

Structure	Duration in minutes
Introduction (interviewer & interviewee)	10
Research study brief	10
Questions & Answers	10
Complete Consent Form	5
Feedback session on Interview schedule	M: 08:52 (min=02:39 / max=21:37)
Conclusion	5

3.8 Findings

A transcript was created for each meeting using the recording of the session. All comments were taken into consideration and the final interview schedule was developed based on the comments and feedback from the PPI. The interview schedule was also reviewed and approved by the research supervisors. It was important to determine whether the questions were clear and easy to understand for lay people whilst not being insensitive, intrusive or overwhelming. In addition, PPI advisors were asked if any of the questions would make the reader feel uncomfortable. Finally, the researcher asked if any questions should be removed or added and if participants had any other suggestions.

All 10 PPI advisors agreed that the questions were easy to read and understand and that the interview schedule was clear and that it helped the readers to share their experiences.

"Well, there are very straight forward, anyone can understand them."

(P 8M, 70-74 y.o.)

"They are clear enough. I think the way the questions are, you will be able to receive a lot of words." (P 5M, 75+ y.o.)

The interview schedule according to the PPI group was not tiring and people would not have any problem answering the questions. In addition, most of the PPI advisors believed that the questions will not make anyone feel uncomfortable. However, some concerns were raised about people sharing personal information.

"It was a comfortable interview, in the sense it was not tiring, and I think

it can be completed easily." (P 10M, 75+ y.o.)

"I suppose some people might take objections of talking about personal

hygiene, but it depends on the person, but otherwise I think its ok" (P

8M, 70-74 y.o.)

All PPI advisors agreed that the interview schedule was appropriate, and no questions needed to be added or removed. The only suggestion was to replace the word 'unforgettable' to 'significant' in question six as it would make the question more neutral.

"I think you cover almost everything, I don't think you have to add or

remove any questions… Unforgettable doesn't sound right…Significant

it's pretty neutral isn't it… you neither had a very good experience or

pretty awful, it's got to be very good or bad… most time is bad, people

tend to remember only the bad" (P 7F, 75+ y.o.)

The feedback proved very useful and relevant amendments were made to ensure the interview schedule was clear and concise. Most importantly, by meeting with older people to discuss the interview schedule helped enhance the quality of the data collected in Phase 2 by facilitating a user informed interview schedule. Please refer to Appendix 13 for details of the feedback provided by the PPI advisors and corrections made to the draft interview schedule.

Further to the suggestions made regarding the interview schedule, the PPI advisors highlighted other important aspects that helped shaped this study which are presented below.

Participants raised concerns on how people would feel about sharing their experiences as the researcher was a staff nurse resulting in some people being reluctant to open up. This was a concern relating to people showing reluctance to offer criticism and even making them feel uneasy if they had a difficult experience.

" …especially if I was admitted to hospital and there was something that
I didn't t like and you are from the hospital, I would be uneasy about
answering the question." (P 1M, 75+ y.o.)

"Possibly if they had a criticism of someone, they might feel uneasy
about expressing that criticised." (P 9F, 75+ y.o.)

PPI advisors also offered their views and opinions on the topic of readmission. Participants' accounts show readmission as a matter where a patient does not have a say as staying home and not returning to hospital is seen as taking a risk. Readmission is described as a dreadful experience and some participants raised the question as to whether someone who had a bad experience in their first admission would go back.

"…because you are not necessarily think about why you might be
admitted- if they say you are going to be admitted, you go along with
what they say, because you are not in an opinion to say you are going to
stay home with a chance dying or go back to hospital." (P 2M, 75+ y.o.)

"If you have to go back again it would be dreadful, wouldn't it be… I
didn't t have any experience of hospital readmission so I wouldn't know,
I am just commenting on it… and if you had a bad experience on your
first admission would you like to go back again." (P 7F, 75+ y.o.)

Participants also shared their personal experiences on discharge planning and explained how patients are not involved, information is not shared, and how care within the community is limited with follow up plans falling through.

"I just think about my mother who was discharged, she was not really
told what was going on, I think she wouldn't be able to answer that
question I think is difficult for someone to answer when you don't really
know what is available." (P 3F, 75+ y.o.)

"When I was going to be discharged, I remember the doctors coming and saying to me that this will be available for you, but when I was discharged it was a bit quiet, what I was promised in the hospital on discharge didn't exactly happened." (P 4M, 70 – 74 y.o.)

The final contributions of the PPI advisors revolved around the importance of social networks with participants highlighting how family and friends should be involved in care plans and that informal carers should be supported by the system. Finally, participants raised concerns regarding people living alone and how they would cope.

"Add family here, it could be that a family member would be willing to visit every morning so... Evolving the informal care plan, because a lot of people would be happier to help the elderly as a relative rather from a stranger. It would also save money but also it will not be a different person every day, but a familiar face... because that it getting very confusing for older people if it is a different person visiting every day."
(P 6F, 70 – 74 y.o.)

"...If I was living alone and I come home from hospital and I can actually cope and I was been readmitted... I think I might panic a bit that the same thing would happened again, and I think there is not any guarantee that the same wouldn't happened again, presumably this is sort of thing that you are trying to prevent, but that would be my feeling of unease if I was in that sort of situation, oh my goodness I thought they make me better... I must go back again... what will happened afterwards." (P 9F, 75+ y.o.)

3.9 Discussion

The use of a PPI in research has numerous benefits including improving the study by making it more relevant; improving participant experience; and ensuring that participants fully understand the research (INVOLVE, 2012). In this phase, the participants were considered as advisors as they contributed to the development of the final interview schedule. Most of the PPI advisors agreed with the structure of the questionnaire consisting of open questions that were discussed verbally. The individuals felt that in this way interviewees can share their stories in more detail rather than completing a survey or rating scales.

Through the discussion upon the topic of hospital readmission, the PPI group shared some personal opinions and experiences. The most notable concerns were related to the researcher's occupation as hospital nurse which they felt may act as a barrier to people sharing any criticism openly or discussing a bad experience. These concerns helped the researcher to develop his approach as an interviewer and ensure that his role during the interviews was clear and participants felt comfortable to share their experiences as his main focus was to listen to them and their experiences whether they were good or bad.

The participants showed great interest in the research topic by trying to envision how they would feel and cope with such experience. Their main concerns regarding readmission were about: (i) people living alone and how they can handle this situation and (ii) whether a person that had a bad experience during their first admission may lead to not wanting to return. The PPI aspect helped the researcher to develop a clearer understanding of the multiple issues involved, which extend beyond hospital readmission (e.g. the meaning and process of engagement with social networks and formal and informal support outside hospital).

Using the PPI group in order to develop the final interview schedule helped increase the researcher's confidence regarding the interview schedule being more appropriate and acceptable, similar to that reported by Davies et al., (2017). Utilising a PPI group helped the researcher improve on the interview schedule and ensure its relevance to older people which was a great benefit for this study.

Similar reports are seen within the literature by Davis et al., (2019) who found the engagement of the public improved their research design and made the research more relevant to older people (Davis *et al.*, 2019). Furthermore, the views expressed by the PPI group in this study provided an understanding of important issues that people associate with hospital readmission. Similarly, PPI has enabled Davis et al., (2019), to gain a greater understanding of critical issues such as perception of readiness to be discharged, transition to home, and the importance of patient-centred care in their research on discharge planning (Davis *et al.*, 2019).

Despite the benefits seen in this research on the use of PPI, some limitations were identified. All the participants were recruited via the Faculty of Health Sciences Register and they were all white British individuals which limited the views by not reaching a broader spectrum of opinions. Finally, none of the participants had had an experience of hospital readmission which may affect the perception of the questions included in the interview schedule. Despite this, some participants had experience of being admitted to hospital and some even had a family member or friend who had experienced hospital readmission.

3.10 Conclusion

Patients and carers can be considered as the key shareholders in every aspect of healthcare (Chalmers *et al.*, 2017), therefore, their insights and experiences can be valuable in research since it can help make it more relevant and improve the experience of participating in research (INVOLVE, 2012). Although patient public involvement can be beneficial, only recently there has been direct PPI in research following the increasing encouragement by the NHS and research funders (Hull *et al.*, 2012b; Gamble *et al.*, 2014; Chalmers *et al.*, 2017).

The present study recognises the importance of PPI in research especially during the design phase in which the impact and relevance of the study can be improved through involvement of a PPI group (Staniszewska *et al.*, 2007). The main objective of this phase was to iteratively design and develop, alongside user input, the final qualitative interview schedule used to explore older people's experiences of hospital readmission. Utilising PPI

representatives to develop the final interview schedule helped increase the researcher's confidence regarding the interview schedule being more appropriate and acceptable.

The PPI group provided valuable insights and feedback on the draft interview schedule. Limited corrections were made as the PPI group found the interview schedule appropriate and to the point. It was important that the interview schedule was reviewed by people over 65 years old as it ensured that the data collected in Phase 2 might be relevant to the target group. The interview schedule was developed with a sensitive approach, to ensure that the interviewees were comfortable during the interview. Foremost, the interview schedule covers the areas of interest and is easily understandable as evidenced through comments received from the PPI group. The final qualitative interview schedule was used to reach a deeper exploration of individual contexts regarding hospital readmission.

Chapter 4 Phase 2 – Exploring older people's lived experience of hospital readmission

4.1 Introduction

This chapter presents details of the qualitative study focussed on exploring the lived experiences of older people who had had a hospital readmission and what factors, processes, and relationships matter the most to them. Reports suggest that people over the age of 65 have a readmission rate of 15%, a figure that continues to rise and is associated with a significant cost to the NHS (Oliver, 2015; Vernon *et al.*, 2019). Despite the significant impact of hospital readmission, there is a lack of data based on qualitative research carried out in the UK (Blakey *et al.*, 2017).

Multiple studies highlight the requirement for data which might facilitate better planning and support the provision of care and other social services (Gale, Cooper and Aihie Sayer, 2015). The UK National Health Service (NHS) has been lauded globally for delivering a high standard of patient care, free at the point of need. However, concerns have been raised over the NHS' ability to cope with the rising demands that ageing society imposes, in the light of continuous budget cuts, lack of appropriate staffing levels, and the divide between health and social care (Gale, Cooper and Aihie Sayer, 2015; Healthwatch England, 2015b; Ready for Ageing Alliance, 2016).

To address these concerns, the NHS Long Term plan was introduced which focuses on moving care out of hospital by increasing Integrated Care Systems, increasing staffing levels, introducing measures to cut discharge delays and enhancing community capabilities and services (NHS, 2019b). The Long Term plan further highlights the importance of patient voice by committing to giving control to patients over their own health and care needs (NHS, 2019b). Focusing on what matters most to people is a pillar of patient-centred care as it is fundamental to ensure that healthcare professionals understand patients' needs and patients have a voice regarding the support they require (People and Communities Board and National Voices, 2016).

Patient voice should not only be heard but should also be part of the decision-making process, as the right to involvement is established in the NHS constitution and UK law as the recent example of the Supreme Court's decision showed in 2015 in the case of Montgomery v Lanarkshire Health Board (People and Communities Board and National Voices, 2016). As this phase is the main body of the research, it holds great significance to enable people to share their stories as these guides what factors are further examined in the quantitative study. These will in turn enable the researcher to summarise what matters the most to people and through analysis, establish how they impact hospital readmission which could potentially inform future practice.

4.1.1 Research question and objective

- ➢ What do older people identify as the main factors for hospital readmission through their own lived experience of hospital readmission?

- To identify, through interpretative phenomenological analysis, the main factors that matter the most to older people who had experienced hospital readmission.

4.2 Method

Phase 2 began in February 2018 and concluded in December 2019. The research design of Phase 2 is an interpretative phenomenological analysis (IPA) approach of what matters the most to people who have had an experience of hospital readmission. The IPA approach offers a detailed exploration of the participants' experiences as it looks to understand the events from participants' point of view. This approach embraces duality.

In essence, it provides participants with the freedom to express their lived experiences and researchers the role to interpret the participants' accounts (Smith and Osborn, 2008; Larkin and Thompson, 2011; Alase, 2017). Furthermore, pen portraits were created for each participant which include a summary of their experience in chronological order, summary of the participants' responses, and the researcher's interpretation (Appendix 14).

The rationale for adopting this participant-oriented approach was driven by the research topic and the research questions. By using this approach, a better understanding of the 'problem' can be achieved through a deeper understanding and explanation of individual contexts (Smith and Osborn, 2008; Bryman, 2012). Phase 2 focused on exploring older people's experiences of hospital readmission by using semi-structured face-to-face interviews (please refer to table 4.1 below for the final interview schedule questions). This method offered a number of advantages including: (i) high response rate, (ii) flexibility, (iii) non-verbal communication, which was important as more information can be collected through facial expressions and/or body language, and (iv) probes and prompts, which were tools that helped the interviewer to gain in-depth understanding (Bryman, 2012).

Table 4.1: Phase 2 – Final interview schedule questions

Questions
1. Can you please tell me about your experience from the care you received during your first admission; What was good about it and what could have been better;
2. Can you please tell me in a few words about the discharge process; Who was involved in the decision of your discharge; Would you prefer that something could have been done differently;
3. How was your everyday life after discharge; Did you receive any help from family or friends; Did you have any visits from healthcare professionals;
4. Can you please tell me about your hospital readmission experience; What were the differences from the first admission; What do you think were the main factors that led you to be readmitted;
5. If your hospital readmission could have been prevented, what sort of help or services could prevent it;
6. What was the most significant element from your whole experience of hospital readmission and why;
7. In your opinion what issues should be taken into consideration from the health services, social services and local authorities in order to avoid hospital readmissions; Are there any issues that are not being addressed by these services;

The researcher followed good practice to conduct the interviews and a private and quiet place was chosen where possible to minimise interruptions. In addition, as the interview schedule was designed with the assistance of the PPI group, all relevant attempts were made to avoid leading the interviewees and ensure the interview schedule was appropriate. Throughout the duration of the interviews, the researcher remained as neutral and objective as possible. In order to achieve this, various interview techniques were utilised such as repeating any information that was not clear to ensure that it was understood correctly, asking for clarification, using probes and prompts, and using open questions so that the view of the individual was heard. In addition, good listening techniques were also used such as staying present and maintaining eye contact.

Most importantly, the interviewees were reassured that the interview was an opportunity to share their experiences openly and safely as the main interest of the researcher was to listen and understand their lived experience as seen from their own perspective (Ritchie *et al.*, 2014). As in Phase 1, individual interviews were chosen as this phase focused on gaining a deeper understanding of people's experiences which is achieved with this approach. This research provided the opportunity to all participants to share their views and acknowledged the importance of listening to them. As such, individual interviews were fit for purpose in contrast to focus groups which would prevent this goal from being achieved (Ritchie *et al.*, 2014). Furthermore, as hospital readmission is complex, one single experience needs time to capture and a focus group would not provide the opportunity to listen to multiple experiences within a short period of time. Finally, valuable information may be overlooked during focus groups as each individual might not have enough time to share important details.

4.2.1 Trustworthiness and authenticity

In order to achieve, methodological rigour and quality, trustworthiness and authenticity criteria were applied. The present study used a purposive sample based on the inclusion criteria and without bias as anyone who showed interested in participating was accepted, with sufficient time provided to participants to share their experiences and a comprehensive analysis with substantiated interpretation was produced (Ritchie and Lewis, 2003; Bryman, 2012; Shannon and Hambacher, 2015; Cypress, 2017).

Trustworthiness addresses the quality of the research design and whether the research process was carried out correctly. Trustworthiness consists of four criteria, which were applied for the purposes of this study:

(i) Credibility (internal validity) refers to the accurate illustration of participants lived experience which was achieved as all interviews were transcribed verbatim and pen portraits reflected the discussion.

(ii) Transferability (external validity) refers to the level of which qualitative results can be transferred to other contexts which was achieved as this study method can be used again in other cities/hospitals.

(iii) Dependability (reliability) relates to findings that are consistent and could be repeated which was achieved through data saturation.

(iv) Confirmability (objectivity), when findings are shaped by the participants and are free from influence of the researcher which was achieved as the researcher maintained a neutral position and all findings were shaped by the participants' views.

The present study had one interviewer who recorded and transcribed verbatim all interviews, with the main purpose of answering the research questions by remaining neutral and following the same interview structure. All interviews were anonymised and the whole process, from development of nodes to the finalisation of the findings, was monitored by the supervisors (Bryman, 2012; Cypress, 2017).

Authenticity addresses the meaningfulness of the findings, not only in terms of participants' lived experiences but also the wider impact of the research. To establish authenticity five criteria were applied:

(i) Fairness, where participants viewpoints were equally represented.

(ii) Ontological authenticity, in which this research may provide a better understanding of the complexity of hospital readmission through the in-depth analysis.

(iii) Educative authenticity, participants by sharing their lived experience may provide valuable knowledge regarding this issue.

(iv) Catalytic and Tactical authenticity are often difficult to evaluate as their main objective is to monitor and assess any changes and redistribution of power within the system and were unrelated to this study.

For the purposes of this study, the researcher and the supervisors worked as a team, in which independent opinions and ideas were discussed before final decisions were taken. Participants were given detailed information and time to reflect on and collect any questions they had (Bryman, 2012; Shannon and Hambacher, 2015).

4.3 Ethical considerations

Prior to any fieldwork, ethical approvals were sought and obtained via ERGO (ID: 25487), Integrated Research Application System (IRAS ID: 202824), East of England – Essex Research Ethic Committee (REC: 18/EE/0152) (Appendix 15) and Health Research Authority (HRA) (Appendix 16). Gaining ethical approval from all relevant organisations was a necessity as this study focused on the lived experiences of older peoples' hospital readmission and it was expected that participants would share their views about NHS services. Furthermore, the participant recruitment took place at the UHS wards and staff nurses helped with the identification and recruitment of potential participants. The UoS acted as sponsor (Appendix 17) for this research and provided insurance cover (Appendix 18). The researcher was eligible to carry out the study without a research passport, as the UHS Trust is his substantive employer. Also, a statement of activities and schedule of events was not required as a high-level agreement exists between UoS and UHS (Appendix 19). A non-substantial amendment was submitted and approved by all the above-mentioned ethical organisations (Appendix 20), seven months after participant recruitment started. A consultant who works at the UHS in Medicine for Older People agreed to support the research study and assist with participant recruitment under the role of Principle Investigator. The researcher and the supervisory team decided that it would be beneficial to widen the recruitment to meet the target sample size.

Conducting face-to-face interviews with older people presents distinct ethical and practical challenges that require special consideration (Anwar, 2015). According to Bryman (2012), the ethical considerations for the qualitative part of the research were classified into four main areas of ethical principles. These principles are: (i) avoiding harm to participants, (ii) avoiding deception, (iii) lack of informed consent, and (iv) invasion of privacy (Bryman, 2012). All these principles were taken into consideration during the process of gaining ethical approval and were followed throughout the research.

Firstly, the interview schedule was designed in a sensitive manner with the engagement of the PPI group during Phase 1. One of the researcher's main concerns was to 'protect' participants during the interviews. Participants might experience emotional distress by recalling a past experience related to their health. If at any time participants showed signs of distress, the researcher as a qualified nurse was able to use clear communication and reassurance techniques to calm them down. It was made clear to the participants before and during the interviews that they were free to withdraw at any stage of the study. In addition, in the event of noticing any serious health threats (e.g., dangerous living conditions), participants were asked if they would like for their details to be passed onto a responsible third party (e.g. contacting social services). None of the interviewees showed any signs of distress or wanted to withdraw and the interviewer did not notice any reason for medical or social review on any occasion.

Secondly, a participant information sheet (PIS-P2) (Appendix 21) was provided at least one week before the interview and participants were encouraged to discuss their involvement with family and friends. All participants had the opportunity to ask questions about the research prior to their interview in order to have a clear understanding of what this research was about and what was expected of them. A common ethical issue that the researcher tried to avoid was the therapeutic misconception which refers to inappropriate assumptions and beliefs on the part of participants regarding key distinctions between the purpose, methods and intended benefits of the research. The researcher has a background in nursing, so in order to address this ethical issue, the researcher had a discussion with the participants before the interview and gave a clear explanation about the research study and that it had no link to their treatment.

Thirdly, participation in the study was voluntary. Informed consent was obtained and participants completed a consent form (Appendix 22). Participants were reminded that the interviews were anonymous (use of pseudonym) and that the interviews were recorded. Also, they were advised to contact the supervisory or Patient Advise and Liaison Service or University of Southampton Research Integrity and Governance Manager if they needed any support or advice.

For the last principle, the researcher arranged a convenient meeting place that was mutually agreed with the participants. The date and time, was scheduled between Monday and Friday from 09:00 to 17:00 at least one week after the participants received the participant information sheet. All participants were recruited from the UHS wards and on all occasions a staff nurse provided the research information to participants. Staff nurses acted as a third party to ensure that none of the participants felt pressured or obliged to take part in the study. The participants only met with the researcher while they were inpatients. Also, the researcher made sure that none of the participants received any kind of care from him, in order to avoid any sort of inconvenience, invasion of privacy or social-desirability bias.

All the interviews took place in the participants' own home and for safety reasons, before visiting any participants, a table with appointments was created, and a trusted colleague was informed about the place and time of the interviews. In addition, prior to and after any visit to the participants, the colleague was contacted. The researcher used public transport or taxi for travelling to the interview setting.

The interviews took place during daytime and the interviewer always had a fully charged mobile phone with him, with contact numbers of supervisors and local taxi companies. The interviewer gathered as much information as possible about the interviewee and the visiting area prior to the visit. All visits took place at least one week after discharge and participants had the option to choose the interview setting to avoid positive response bias. Participation was confidential and all study information was stored in accordance with the University Guidelines. All participant data, were coded and stored securely on a University password-protected computer, and only the researcher and supervisors have access to this data. Consent forms were securely stored in a locked filing cabinet within the post-graduate research office. Data will be stored for a minimum of 10 years in accordance with the University of Southampton Research Data Management Policy.

4.4 Participant recruitment

Purposive sampling technique was used, as it was crucial to recruit people who were willing to share their experience of hospital readmission that met the inclusion/exclusion criteria as they could provide in depth information on the phenomenon of hospital readmission. A homogenous sample was chosen, in order to approach a specific age group of individuals, with common characteristics, who had knowledge and experience of a specific phenomenon (Palys, 2008). The criteria were carefully selected through an evaluation of findings reported in the literature (Table 4.2).

Table 4.2: Phase 2 – Inclusion and Exclusion criteria

INCLUSION CRITERIA	
Age: 65 years and over	People over 65 are more likely to be readmitted to hospital within 30 days (Purdy, 2010).
Comorbidities: two or more	Comorbidities are common among older people and they are considered as one of the risk factors for hospital readmission (Silverstein *et al.*, 2008).
No cognitive impairment	Cognitive ability is an important marker for independence (Gorenc-Mahmutaj *et al.*, 2015), therefore participants will be able to engage in an interview.
Admitted to hospital twice within last 12-18 months in a period of 30 days	Recalled information receives modification by previously stored information and by other new information. Therefore when an older person is asked to recall an experience from the past year, they might provide important insights for improvement and development of health care system (Gabriel and Bowling, 2004).
EXCLUSION CRITERIA	
People with chronic illness at terminal stage (e.g. Stage 4 cancer)	Patient who have not yet reached terminal phase could have other demands on their lives, such as completing unfinished business. They may also experience mental and physical exhaustion as well as psychological distress (Saunders *et al.*, 2015). Patients may be particularly vulnerable due to the fact that they are at high risk of unforeseen and unintended side-effects because of their illness or treatment. Finally, patients' families may not agree for them to take part in the research study (Karim, 2000).
Cognitive impairment	People with cognitive impairment might have memory loss or they might not be able to recall memories and that could lead to communication gap with the researcher. Also, they may have a carer that could influence the interview. People with cognitive impairment and carers might be unable to give their own consent and for the purposes of this study all participants should be able to give their own consent (Dementia Action Alliance, 2012).
Immobilised	Low mobility is associated with high rates of hospital readmission. Therefore, people who are immobilised are expected to have readmission. The present study focussed on unexpected readmissions (Fisher *et al.*, 2013).*[Note: Amputees will not be excluded from this study since they are not immobilised but fully independent* (Vogel, Petroski and Kruse, 2014)*].*

The recruitment strategy included five sources, which are presented in detail below, with the view that it would maximise the possibilities of identifying as many potential participants as possible and optimizing the possibility of meeting the target sample within the relevant timeframes. All participants were advised that there would be no remuneration for participating or helping with this study and involvement was voluntary.

4.4.1 University Hospital Southampton

The researcher made contact and met with the Matrons of UHS Division B (Medicine and Medicine for Older People) and Division D (Trauma & Orthopaedics and Cardiology) before applying for ethical approvals. During the meetings the researcher explained the purpose of the present study and discussed the support required from clinical staff in relation to recruitment. The Matrons agreed to support the study by signing a collaboration letter and by suggesting which wards might be of help to this study.

In total, 20 wards were approached, with 16 wards agreeing to assist with participant recruitment (one ward closed three months after the recruitment started). From the wards that did not take part, two had mostly acute patients and two did not respond to e-mail communications. The researcher visited each ward three times throughout the recruitment period. The researcher met with the ward managers and provided further information regarding the study and how their staff nurses could help with the recruitment.

The managers shared the information provided to their staff nurses. During each visit the researcher was able to have a conversation with the staff nurses regarding the study's participant recruitment requirements. In addition, each ward was provided posters, participant information leaflets, research information booklets (Appendix 23) and the participants' envelopes that contained the invitation letter (Appendix 24). During the first seven months, 12 potential participants were identified and provided participant envelope but only five agreed to proceed with the interview.

The research team decided that it would be beneficial if a Consultant from one of the divisions was included in the study to facilitate participant recruitment. The researcher met with a doctor working in Medicine for older people who was willing to support the study. After a non-substantial amendment was approved, the Principal Investigator helped in identifying potential participants and also having discussions with other doctors and ward nurses about the study and potential participants. The recruitment plan was the same as the one the ward staff nurses followed.

The staff nurses were asked to follow the steps highlighted below when identifying patients who met the inclusion/exclusion criteria of the study. All staff nurses were advised that the researcher could be contacted and was able to arrange a visit if the patient wished to do so:

1. *Ask patients if they are interested in receiving a Participant envelope for a research study about hospital readmission within 30 days.*

2. *Provide the participant envelope if patients express an interest in taking part in the study.*

3. *Inform those who have shown interest in the study, that they should contact the researcher seven days after they have been discharged.*

All participants were recruited from the 16 UHS wards. For the purposes of recruitment 65 participant envelopes were given to the 16 UHS wards, from which 23 were given to potential participants. From the 23 potential participants, seven did not contact the researcher, six contacted the researcher but did not want to participate in the research study (e.g., did not feel well, not interested, readmitted) and 10 agreed to participate in the study.

When the participant recruitment ended, the researcher visited the ward managers and asked for feedback by providing a short questionnaire regarding issues with participant recruitment that prevented the identification of more potential participants (Figure 4.1). The wards were asked about their opinion as to what they thought might be contributing factors that may have prevented and/or slowed down participant recruitment. The following options were given to choose from:

A. Patient not meeting the criteria.
B. Difficulty in identifying participants.
C. Patients not interested in participating in the study.
D. Not enough time to help.
E. No problems.
F. Other:

Figure 4.1: Phase 2 –Feedback from UHS wards

	A	B	C	D	E
UHS Wards	5	12	5	2	1
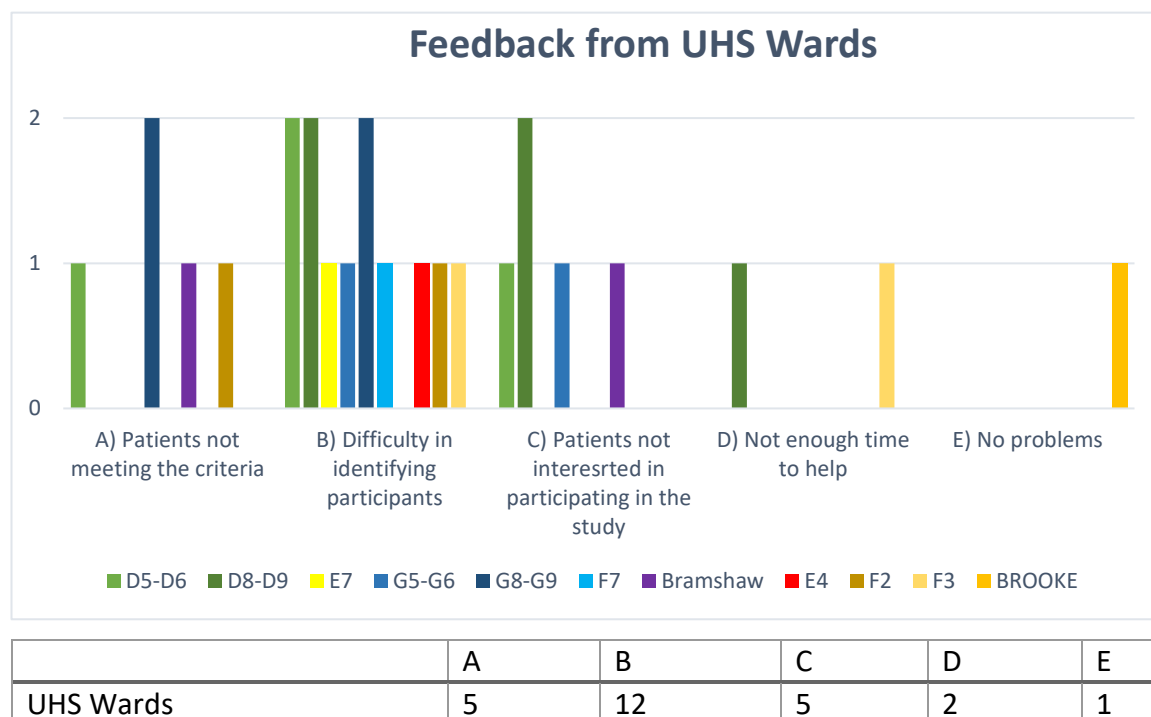
The most common issue noted by 12 ward managers was that their staff nurses found it difficult to identify potential participants. The other issues identified were that most of their patients did not meet the study criteria and that patients were not interested in participating in the study. Two ward managers reported that their staff nurses did not have enough time to help. Only one ward manager stated that they did not have any issues with participant recruitment, probably, because the researcher was able to provide more support to the ward nurses as he was working in the specific ward.

4.4.2 UoS – Faculty of Health Sciences Register

Participants were contacted through the Faculty of Health Sciences Register, with the help of the manager of the Participant Register who held their contact details. From a database search conducted by the manager of the Faculty of Health Sciences Participant Register, individuals were identified and invited to participate in this research via an invitation letter (Appendix 25) and participant information sheet.

None of the participants of Phase 1 were contacted as they did not meet the inclusion criteria for Phase 2. From the UoS Faculty of Health Sciences Register, 32 potential participants were identified but only one potential participant made contact with the researcher. After a telephone discussion regarding the study, the person decided not to participate as their readmission was planned and therefore did not meet the inclusion criteria.

4.4.3 Libraries

The Information, Skills and Area Manager of libraries run by Southampton City Council was contacted and permission was obtained to display posters within the 11 libraries (Central Library, Bitterne Library, Burgess Road Library, Cobbett Hub & Library, Lordshill Library, Millbrook Community Library, Portswood Library, Shirley Library, Thornhill Community Library, YMCA Weston Community Library, Woolston Library). No participants were identified from this source.

4.4.4 Radian Group

The Community Development officer of Radian Group was contacted and agreed to place a poster at the Round About Café in Mansbridge and within their sheltered housing schemes with the help of their community teams (St Francis House, Kelly House and Grange Court). The researcher sent the research poster and participant information via email. No participants were identified from this source.

4.4.5 Community Centres – Social Groups

The researcher contacted five community centres in and around Southampton city (3AC, St Denys', Freemantle & Shirley, U3A, Velmore). Within these community centres, a variety of different weekly social groups and activities exist and most of them are run by volunteers (3AC - Not able to help, St Denys', Freemantle & Shirley, U3A Velmore - No response). No participants were identified from this source.

4.5 Study sample

The sample size for the needs of this particular phase was a minimum of eight and a maximum of 20 participants that met the research criteria and lived in or around Southampton. The target sample size was decided through an evaluation of findings reported in the literature and through discussion with the research supervisors. Researchers have tried to identify the most appropriate sample size for qualitative research. For example, (Charmaz, 2006) suggests that a sample size of 25 participants is adequate for smaller projects, while other studies state that little new information appear from the text after 20 people have been interviewed (Vasileiou *et al.*, 2018).

When taking into consideration the IPA approach used in this research, numerous studies suggest that a smaller sample size may be more appropriate. Namely, by using a smaller sample size it gives the opportunity to analyse each case in-depth and in greater detail which takes time (Smith and Osborn, 2008; Pietkiewicz and Smith, 2014). In phenomenological research, it is common practice to use a sample size between two and 25 homogenous participants to allow a deeper exploration and interpretation of their lived experience (Smith and Osborn, 2008; Pietkiewicz and Smith, 2014; Alase, 2017).

Another critical factor in relation to sampling, is data saturation which has been defined as the result of no new information being found in the analysis (Saunders *et al.*, 2018). Research suggests that 30 participants are the recommended sample size to achieve data saturation in qualitative interviews. However, in IPA data saturation is not the main priority as it focuses on gaining ''rich'' data of individual accounts (Saunders *et al.*, 2018; Vasileiou *et al.*, 2018).

Participant recruitment resulted in 10 people aged 65 years and over, living in or around Southampton. The average age of the study sample was 77 years (SD ±4.57) and all participants had at least three comorbidities. The reasons for their first admission were elective (four participants) and emergency admissions (six participants), of which eight had a surgical intervention and two had conservative treatment, with five being admitted following a fall (Length of Stay (Los) Mean: 4.25 / SD: ±2.71 with the two outliers excluded). Lastly, seven participants were readmitted within 10 days of their discharge,

one within 11-20 days and two within 21-30 days. The most common reasons for readmission were infection and pain, with two people being readmitted after a recurrent fall (Appendix 26).

4.6 Interview procedure

As mentioned earlier, all participants were recruited from UHS wards and the ward staff nurses made the initial contact. All participants asked to meet with the researcher whilst they were inpatients and before their discharge. The researcher met with participants and had a discussion with them regarding the study. Following the initial contact, a meeting was scheduled at least a week after their discharge and the information sheet was received. All meetings took place at the participants' home and it was ensured that the meeting place was quiet to minimise interruptions.

The meeting started with a brief introduction of the researcher and the participants. Following the opening remarks, the project was explained in greater detail by giving more information about what was expected from the participants what will be included in our meeting (e.g. assessment tools) and any questions the participants had were answered. All participants were then reminded that the interviews would be anonymous and recorded, that they can withdraw from the study at any point, and that they will be required to sign a consent form. Once consent was obtained, the structure of the interview schedule (Appendix 5) was followed, and the sociodemographic details of the participants were collected. Afterwards, 3 assessment tools were used for descriptive purposes and for recording of the functional/health status of the participants. The use of these tools for descriptive purposes presented another source of information which focused on their functional and health status which enabled the researcher to create a more holistic description for each participant when creating the pen portraits. This offered the ability to get a greater understanding of how they experienced the post discharge period as well as understanding how this compared to their health status prior to being admitted. The assessment tools provided more context on participants' narratives on their experiences and how the experience may have impacted their daily lives post-discharge and what additional needs it may have led to.

Each tool was explained separately to the participants by giving them information about each one. The assessment tools were: Activities of Daily Living (ADL), Barthel index (Appendix 27), Grip strength (GS) with the use of a Jamar handgrip (Appendix 28) and for cognitive screening the Montreal Cognitive Assessment (MoCA) test (Appendix 29). The assessment tools were administered according to standard operating procedures and guidelines:

- Barthel ADL index is a widely used clinical measure. It is a quick and reliable assessment of mobility and is equally accurate in skilled and unskilled hands. The major problem concerning the index relates to the interpretation of the middle categories (Collin *et al.*, 1988). The researcher asked the questions for the time period between their two admissions.

- Grip strength was measured using a Jamar dynamometer, which is widely used and is recommended for measuring grip strength in clinical practice because it is a reliable and portable method of assessment. The Jamar dynamometer has good to excellent (r>0.80) test-retest reproducibility and excellent (r=0.98) intra-rater reliability (Roberts *et al.*, 2011). The participants sat with their shoulder adducted and neutrally rotated, elbow flexed at 90 degrees, forearm in neutral position and wrist between 0-30 degrees dorsiflexion and between 0-15 degrees ulnar deviation. The researcher recorded the scores of three successive trials for each hand, the highest score was utilised (Lafayette Instrument Company Inc, 2004).

- The MoCA was used for cognitive screening which assesses 8 domains of cognitive functioning: attention and concentration, executive functions, memory, language, visuoconstructional skills, conceptual thinking, calculations, and orientation. MoCA has excellent test-retest reliability (r= 0.92) and very good internal consistency (Cronbach a= 0.83) (Nasreddine *et al.*, 2005).

At the beginning and end of all three assessment tools the researcher reminded the participants that the results will be used only for descriptive reasons. Once the above assessments were completed, the interview was initiated. The researcher asked the participants to summarise in a few words their two admissions in less than 30 days before going through the interview schedule. The researcher wanted to help them be comfortable in sharing their story and their perspective without feeling that they were

being questioned. This also helped gauge if the subject of their admission and readmission was one they could share comfortably. At the end of the interview, the participants were asked if they had any questions for the researcher. The overall interviews lasted between 90-120 minutes (Table 4.3) and they were recorded so a transcript could be created.

Table 4.3: Phase 2 – Meeting Schedule

Structure	Duration in minutes
Introduction (interviewer & interviewee)	10
Research study brief	10
Questions & Answers	5
Complete Consent Form	5
Three Assessment tools	30
Interview schedule	M: 25.56 (min 11.35 / max 40:44)
Conclusion	5

4.7 Reflexivity

In qualitative research, the researcher plays an important role in all stages of the study, from finding the research topic, up to the discussion of the study results. Having the ability to reflect on their own actions and thoughts is very important. The term reflexivity refers to how researchers use their self-awareness, values and attitudes to critically evaluate their actions, with the main purpose of remaining as neutral and objective as possible (Bryman, 2012).

At the time of the interviews, the researcher worked in a UHS ward as staff nurse. Having a professional role within the area of research provided valuable knowledge and enabled access to many wards in order to conduct the participant identification and recruitment. Also, being a staff nurse provided the opportunity to develop a professional relationship with older people who had experienced hospital readmission, which led to creating the researcher's perspective on the topic of research. On the other hand, having two roles, being a staff nurse and a researcher, created a risk of role conflict. Some of the main concerns were: (i) the researcher's background in nursing, (ii) how participants were going to be recruited, (iii) visiting them in their own homes and (iv) if the analysis of the results was going to be affected by the researcher's perspectives as a nurse.

To alleviate these concerns, the researcher followed certain principles to help maintain objectivity. The principles that the researcher followed were: (i) distance between the researcher and the interviewee by avoiding to recruit patients who were under the researcher's care, (ii) making a clear distinction of the roles to the participants from the first introduction and through to the interview procedure, (iii) the researcher kept an interview reflexivity diary, in order to assess progress, performance and maintain reflexivity and (iv) the interpretation of results was done under the neutral researcher perspective (Jack, 2008; Ritchie *et al.*, 2014).

Furthermore, as a registered nurse under the nursing oath, an obligation of promoting, providing and protecting peoples' health exists. There was not a single occasion where the researcher felt the need to interfere as a nurse in any sort of way. The researcher took into consideration the implications of not having a neutral and objective position throughout the whole phase and how it could introduce bias in the study results and final conclusions. The researcher was transparent from the beginning of this phase by: (i) following the abovementioned principles, (ii) each interview followed the pre-existing interview structure (e.g. not leading the questions) and (iii) the analysis process was done under neutral and objective thinking.

4.8 Interpretative Phenomenological Analysis (IPA)

Chapter 4 aimed at exploring the experiences and perspectives of people who have had a lived experience of hospital readmission and what factors mattered the most to them. This research adopted a critical realist approach which offers the freedom to use a number of methods to understand and explain the reality of people's experiences. Critical realism has been used as a theoretical framework and with the combination of IPA analysis, these can offer a holistic and multifaceted understanding of hospital readmission. On the one hand, critical realism offered the ability to explore any underlying social factors and mechanisms that influenced the experiences of people, whereas IPA was used to explore the subjective views of patients who have experienced hospital readmission. Combining the two methods, enables analysis that takes into account the observable and unobservable factors and mechanisms that contributed to hospital readmission which recognises the complexity of the phenomenon.

In order to achieve the aim of the study and to answer the research question, the researcher chose to adopt the IPA approach of Smith and Osborn (2008) as it offers the ability to conduct in depth interviews to understand people's experiences. Using the IPA method, enabled the researcher to establish a rich and detailed understanding of how people made sense of their experience of hospital readmission in their own unique perspective. IPA approach was used for analysing the recorded interviews, in which they were transcribed verbatim and imported into the NVivo 12 Pro computer software. Semantic approach was used for coding (NVivo terminology: nodes instead of codes) and superordinate and subordinate theme development.

The theoretical freedom that is provided by the above method generated rich data that might not be found by other analysis methods (Smith and Osborn, 2008; Alase, 2017). The IPA steps that were followed are presented below (Smith and Osborn, 2008; Larkin and Thompson, 2011):

The first step of the data analysis involved reading the first transcript multiple times to immerse into the data. Reading the transcript several times helped the researcher gain a deeper understanding of peoples' experiences and seeing things from their point of view. The aim of this step was to understand more about the participant's story. Upon reading the transcript, the researcher moved to the second step which included identifying nodes at each reading and highlighting them in the text. Each node aimed at reflecting the meaning the person intended when sharing their story and capturing the environment around them. The researcher also made note of his thoughts on the participant's experiences which formed part of the pen portraits that were developed at the end of the IPA analysis.

The third step involved determining the emerging themes seen in the first transcript's nodes. This was achieved by starting to review the existing nodes and grouping them into relevant subordinate themes. The purpose of the themes was to transform the initial nodes into brief phrases that reflected the essence of what was found in the text during the line-by-line analysis. The subordinate themes were of higher level of abstraction than the nodes so to capture multiple nodes and meanings.

Step four included listing the emergent themes of the first transcript in the order these first emerged in the text on a blank page and starting to look for connections between them. The researcher took an analytical approach in trying to understand the connections between the themes and clustering them together. As these clusters were developed, the researcher continued to check that these related to the words of the participants that led to the relevant node and theme. As supplementary data to the clustering process, the researcher maintained a detailed list of the participant's quotes that supported the relevant theme. The final list of the clusters was reorganised to maintain a more coherent order. Initially, the researcher organised these in chronological order of an event of hospital readmission (i.e. first admission, post-discharge period of first admission, readmission, post-discharge period of readmission).

Step five involved repeating steps one to four with the remaining transcripts and continuing the analysis in other cases. The themes identified in the first transcript were used to support the analysis of all subsequent transcripts, however, any new issues that emerged in later transcripts were acknowledged and added onto the analysis. This approach reflects the fact that not all experiences will be the same and that despite similarities, each experience will be unique in its own way. At the same time, this approach helped identify quotes that further expressed the established themes and clusters. As the analysis of each transcript continued, each theme developed further, and more depth was added to what it reflected.

Once all transcripts were analysed, step six was undertaken, and the final clusters were given a title to represent the superordinate themes. The material was organised in a table and outlined the numbers of references and relevant nodes, subordinate and superordinate theme. Please see appendix 30 for an example of how themes and nodes were clustered. At this stage, the supervision team was engaged and was asked to review the analysis and emerging themes to ensure coherence and plausibility of the researcher's interpretation. Throughout the analysis, the researcher kept a reflexive journal to record the researcher's own thoughts and perceptions some of which formed part of the pen portraits.

Prior to completing the final step of the IPA analysis, the researcher developed pen portraits for each participant which present each participant's experience in chronological order and includes details of their sociodemographic characteristics, medical information, experiences, perceptions, and feelings in relation to hospital readmission. The pen portraits also include the researcher's thoughts and comments as these emerged during the analysis of the transcripts. The pen portraits helped support the final narrative of the IPA analysis as they acted as a detailed brief of the experience and associated themes without having to read through the transcript to understand their circumstances and experiences. Each pen portrait brings together all the data collected for each participant from the interview, assessment tools, to the researcher's thoughts and how these fit in a chronological order in an event of hospital readmission.

The seventh and final step was all about developing a narrative to outline the meanings of the experiences shared by participants. To support this process, the final list of themes developed in previous steps was followed as a guide along with the pen portraits which represented an accurate detailed summary of each participant. Each theme is presented separately, and each narrative was developed with illustrative verbatim quotations from the transcripts to support the researcher's interpretation. Whilst developing the narrative, the researcher clearly distinguished between his interpretations and the participant's accounts.

The analysis of Phase 2 included numbers with the main purpose of achieving in-depth interpretation which complements and enhances the narrative. The numbers were used with caution in order to represent the data that emerged from participants' lived experiences and to avoid major analysis pitfalls. The use of numbers is controversial, as it provides a clearer description of the participant sample, more accurate documentation of a 'problem' and a better showcase of complexity. However, the analysis may include over-counting (e.g. numbers side-track the qualitative nature of the analysis), underweight data (e.g. representing data without providing context to the reader) and averaging out (e.g. excluding contradicted data). This analytical strategy could provide a valuable insight of the overall sample and highlight commonalities of the participants' lived experiences of hospital readmission (Sandelowski, 2001; Maxwell, 2010).

4.9 Findings

Phase 2 aimed to explore the experiences of hospital readmission of older people that met the inclusion criteria, through face-to-face interviews, in order to identify the main factors that matter the most to them. This section will first present the results of the assessment tools, followed by the IPA findings, with details of older peoples' experiences of hospital readmission and what has been identified as the main factors that mattered the most to them from their descriptions.

As mentioned earlier, three assessment tools were used for descriptive purposes and although the assessment tools were used for descriptive purposes, they provided context to participants' narratives and helped the researcher gain a better understanding of their (i) every day needs and how those were met, and (ii) the extend of the support required.

The Barthel Index incorporating questions about the six basic human functions was completed for the time period between their two admissions. Following the scoring system (out of 20), six participants scored 16 points and over and four participants between 13 to 15 points. The individual scores are presented in Table 4.4. All participants reported that they felt much better at the time of the interviews as they were more independent and in lesser need of assistance.

Table 4.4: Phase 2 – Barthel Index ADL scores

Participant Number	Sex	Age group	Score out of 20
1	F	75+	14
2	F	70-74	20
3	M	75+	16
4	F	65-69	20
5	M	75+	18
6	F	75+	13
7	F	75+	15
8	F	75+	16
9	F	75+	19
10	F	75+	15

The Jamar hydraulic hand dynamometer was used to measure grip strength. The researcher used the given normative data of average grip strength vs age group, given by (Lafayette Instrument Company Inc, 2004), and the scores are presented in Table 4.5. The participants were categorised based on their age and sex. Eight participants were in the 75+ age group, one in 70-74 and one in 65-69 age group. Two of the participants' dominant hand was weaker than their non-dominant one, due to past medical history (Participants 4 and 5). From the eight female participants, five scored above the average GS and one scored above the average GS for her right hand and below for her left hand. The other two female participants scored below the average scores for both their hands.

Table 4.5: Phase 2 – Grip Strength scores

Participant Number	Sex	Age group	Right	Left
1	F	75+	34	25
2	F	70-74	45	42
3	M	75+	70	65
4	F	65-69	50	52.5*
5	M	75+	75	85*
6	F	75+	51	45
7	F	75+	60	42
8	F	75+	30	25
9	F	75+	50	35
10	F	75+	25	20

Average Grip strength Vs Age										
Age		R	± SD	L	± SD		R	± SD	L	± SD
65-69		91.1	20.6	76.8	19.8		49.6	9.7	41	8.2
70-74	M	75.3	21.5	64.8	18.1	F	49.6	11.7	41.5	10.2
75+		65.7	21.0	55	17.0		42.6	11.0	37.6	8.9

The final assessment tool was the MoCA test, in which all the participants scored between 26 and 30 (above 26 is considered normal). From all 10 participants only two scored all 30 points and one scored 26 points (Table 4.6). The most common issues that participants came across were: (i) visuospatial - drawing, (ii) attention – following the serial seven subtraction from 100 and (iii) delayed recall – recall the five words after five minutes.

The researcher received mixed reactions about this assessment tool, as some participants found it interesting and others were relieved when it was finished. Some participants felt like being back to school and taking an exam. Despite how the participants felt about the assessment tool, all of them wanted to find out how good or bad they scored.

Table 4.6: Phase 2 – MoCA scores

Participant Number	Sex	Age group	MoCA Score out of 30
1	F	75+	30
2	F	70-74	30
3	M	75+	27
4	F	65-69	28
5	M	75+	27
6	F	75+	27
7	F	75+	29
8	F	75+	26
9	F	75+	27
10	F	75+	28

A closer look at the results of the assessment tools offered insight into participants' daily life after a hospital admission experience and what challenges they had to face. When pairing the test results for each participant, it helps make context of how they managed post discharge and what support they had or may have needed. For example, the ADL index presented the functional limitations people experienced and when paired with the Grip Strength test results, it showed participants' overall strength and ability to perform everyday tasks such as mobilising and managing their personal hygiene (i.e. dressing, grooming, bathing, toilet use).

From the interpretative phenomenological analysis of the interviews four superordinate themes emerged, of which three were time related and one was general, with 10 subordinate themes from a total of 35 nodes (Table 4.7).

Table 4.7: Phase 2 – Findings

Superordinate Themes	Subordinate Themes	Nodes
All about me without me	Experiencing the healthcare environment	Healthcare[10]/ Busy[8]/ Food[5]/ Transport[5]/ Sleep[3]
	Perceptions of discharge decisions	Not included[7] / Included[3]/ Not ready[5] /Ready[5]
Fragmented and ad hoc post-discharge support	Daily living and post-discharge challenges	Functional limitation[8]/ Independent[2]
	Continuation of care	Informal care[10]/ Follow-up[9]/ No follow up[1]/ POC[3]/ Rehabilitation centre[1]
	Pathways of hospital readmission	UHS ward[5]/ 999[4]/ Other[4]/ GP[1]/ Ambulance[7]/ Own transport [3]
My readmission experience and what led me back	Greater attention led to better experiences	Attentive care[10]
	Perceived risk factors of hospital readmission	Infection[5]/ Pain[6]/ Breathing difficulties[2]/ Surgical-emphysema[2]/ Fall[2]/ Early discharge[6]/ Poor practice[5]
	Preventability of my readmission	Avoidable[6]/ Inevitable[4]
Segregated health and social services that are detached from people's needs	Causes and effects of faulty integrated care services	Disorganised[8]/ Let down[8]
	All-round care services	Integrated[2]

4.9.1 All about me without me

The superordinate theme 'All about me without me', which was divided into 'Experiencing the healthcare environment' and 'Perceptions of discharge decisions' (Figure 4.2), was mainly referred to the time period of participants' first admission until their first discharge.

Figure 4.2: Phase 2 – All about me without me

```
                    ┌──────────────┐
                    │  All about me │
                    │  without me   │
                    └───────┬──────┘
            ┌───────────────┴───────────────┐
   ┌────────────────┐              ┌──────────────────┐
   │ Experiencing   │              │  Perceptions of  │
   │ the healthcare │              │ discharge        │
   │ environment    │              │ decisions        │
   └────────────────┘              └──────────────────┘

 ┌───────────┐  ┌───────────┐    ┌──────────────┐  ┌───────────┐
 │ Healthcare │  │   Busy    │    │ Not included │  │ Included  │
 │            │  │   Food    │    │              │  │           │
 └───────────┘  └───────────┘    └──────────────┘  └───────────┘

 ┌───────────┐  ┌───────────┐    ┌──────────────┐  ┌───────────┐
 │ Transport  │  │   Sleep   │    │  Not ready   │  │  Ready    │
 └───────────┘  └───────────┘    └──────────────┘  └───────────┘
```
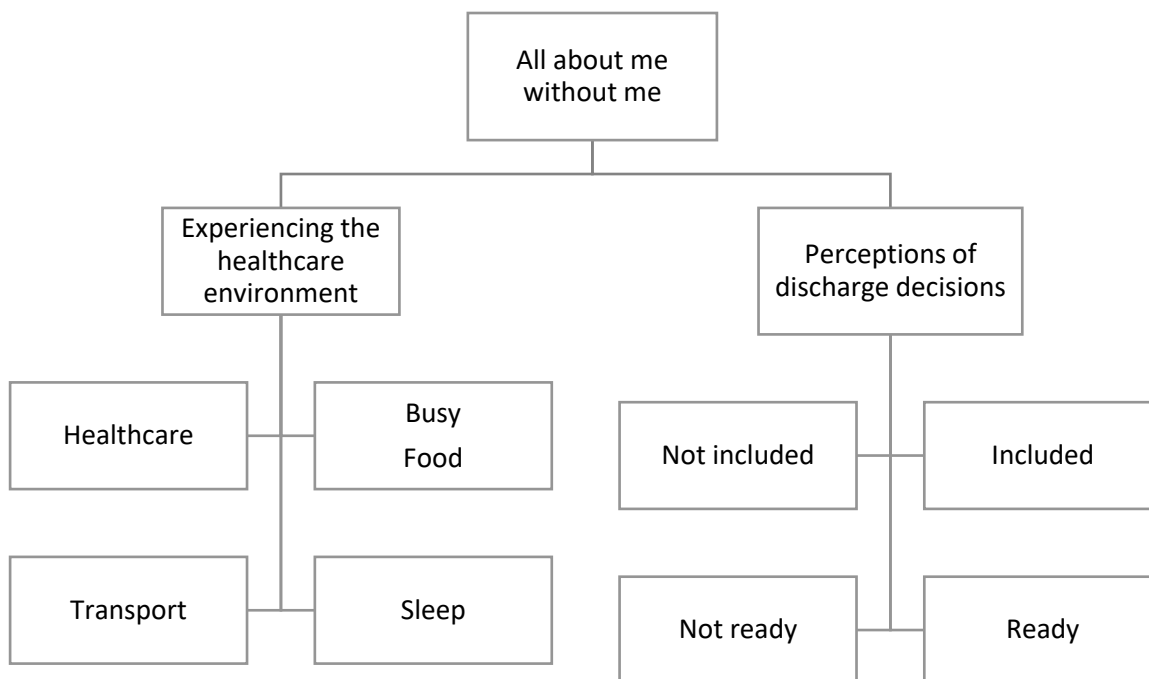
The subordinate theme 'Experiencing the healthcare environment' provided an insight on participants' views on how they experienced their first admission. All 10 participants, were pleased and satisfied with the care they received, taking into account the quality of care, attitude of the staff, the workload in hospital wards and services provided during their stay.

> *"All was successful, absolutely fine, no problems I was made aware of… I can't fought anything they did. It was brilliant, they were all brilliant, and I couldn't say that there is any room for improvement, because they looked me after so well… (P 2F, 70-74 y.o)"*

During their hospital admission participants interacted with other professionals, such as paramedics and kitchen staff. Some participants commented on the transportation service and food, which included a mixture of both positive and negative comments, some participants were satisfied with the services and others were not. For example, there were comments regarding quick or prolonged discharge process, transport arriving on time or being late, and both good and bad comments regarding the food.

"The ambulance crew was perfect, there was very little delay in A&E, X-ray was done very quickly and I was in a ward in what appear in no time at all." (P 3M, 75+ y.o.)

"I was supposed to be discharged on Thursday but the transport that was meant to come at afternoon, it arrived at 9 o'clock at night, so I went into the bed which I was sitting in it all day and went home the next day." (P 5M, 75+ y.o.)

"My bad experience was the food, it was appalling. It was awful, it was tasteless I didn't have much appetite but I knew that it wasn't good." (P 8F, 75+ y.o.)

Despite being pleased with the care received, participants commented on how busy the wards were and eight participants expressed disappointment in relation to this. Some felt that because the wards were busy, the discharge process was rushed or they had to be discharged earlier than they expected or had to be moved to another ward.

"It was possibly the time of the year, I think there were mitigating circumstances for letting me go… but it was alright." (P 2F, 70-74 y.o)

"The level of care I felt that it was very good considering we know our hospitals are short staffed and the available nurses have to spread their time, they work very hard." (P 5M, 75+ y.o.)

"The only thing that I don't agree, was that they kept changing me

wards... I am not sure why but it wasn't just upsetting for me but for

people around you too. The lady opposite me ended up crying because

there wasn't anybody else around to talk with. It upset me, I was quite

crossed. You are not asked if you want to moved, you are just told you

that you are moving." (P 9F, 75+, y.o.)

Further negative experiences described were also how difficult it was for participants to sleep because of the noise or being woken up early in the morning during their stay in hospital.

"I found sleeping in hospital being extremely difficult because I live

alone its very quiet. Also, they wake you up in the morning to take your

blood pressure and as soon you get back to sleep they wake you up to

take your blood sugar level." (P5M, 75+ y.o.)

"The ward was fine, it was noisy, very noisy but apart from that it was

fine. The noise was more or less all day… the people were calling the

nurses and they were chatting all the time." (P 8F, 75+ y.o.)

The second subordinate theme was 'Perceptions of discharge decisions', in which participants shared their views about the process of being discharged. All participants were discharged after medical advice and none of them were self-discharged. Of 10 participants, seven did not feel included in the discharge decision and five out of the seven felt they were not ready to be discharged. Only three participants felt both included and ready to be discharged, whereas no participant felt included in the discharge decision and not ready to be discharged.

"I felt I was ready to go home, I didn't see a problem with going home at

all. They asked me if I thought I was ready to go home and I said yes."

(P 8F, 75+ y.o.)

The participants who did not feel ready to be discharged or were included in the discharge decision described the experience as just being told that they will be discharged, without giving them the opportunity to have a conversation on the subject or to express their concerns.

"I don't know whether they were trying to empty the wards for the weekend or what, but this doctor, I am assuming that he was a doctor, … and he just went round and started to say you can go home… and we were basically all sent home and I could hardly walk … It was the only one we saw and I don't know who he was, I didn't see him again… and two other people including me, were back in in a few days. Probably because you didn't have the chance to say well I don't think I am quite ready to go home…." (P 1F, 75+ y.o.)

Participants expressed their disappointment regarding the consultation process as there was no attention towards how they felt, and their opinions were put aside. When asked, few participants were unaware of who was involved in the decision and only 3 participants mentioned their family/friends present during the discharge process, without specifying their level of involvement.

"I don't know who it was who discharged me, I don't have a clue. Nobody came to me to discuss this, they just say go home, that's it. I haven't been included in the process." (P 6F, 75+ y.o.)

"He just came around said you sat on that chair then you might sit on a chair home so you can go home. Like that. How did I feel? I didn't feel involved. It was a very off the cuff type thing. There was no conversation about it at all…My kids are not living local so it's just me and my husband. They just asked me if I live alone or not. They haven't spoken with my husband about the discharge plan, I just called him to pick me up." (P 10F, 75+ y.o.)

Four participants highlighted that they did not feel ready to go home due to the lack of adequate training and confidence in using mobility equipment or physiotherapy exercises to mobilise safely.

"I said I've been to the bathroom four times, that was my mobility in hospital. I came back from the surgery at night time, the next day I didn't get up … I should have been shown how to use the crutches, because it might be easier to move around with them… I would have thought they would try me with the crutches or even got me up walking more with the frame…'' (P 7F, 75+ y.o.)

A hospital is a complex environment and can have a significant impact on patients' wellbeing, mood, recovery, and quality of care. Hospitals which aim to be patient-friendly, embrace inclusiveness and promote diversity and equality which can lead to more positive outcomes. From the participants' shared stories, there were instances during which they felt scared and questioning themselves on how they would manage after being discharged. At times, they even felt like health professionals were only going through their notes and kept them out of the process without hearing their voices or providing reassurance.

A feeling of uncertainty was common among participants which was stemmed from a variety of reasons. For example, lengthy discharge process created anticipation coupled with anxiety, fear, and low mood. In cases when hospital discharges were cancelled (i.e transport issues) feelings of disappointment or irritation were shared as patients and their social network needed to rearrange their plans. This also created more workload for staff which can add to how busy wards are, disturbing the bed turnover, and resulting in raised costs.

4.9.2 Fragmented and ad hoc post-discharge support

The superordinate theme 'Fragmented and ad hoc post-discharge support', focused on the time period between the first discharge and the participants' hospital readmission, with three subordinate themes: 'Daily living and post-discharge challenges', 'Continuation of care' and 'Pathways of hospital readmission' (Figure 4.3).

Figure 4.3: Phase 2 – Fragmented and ad hoc post-discharge support
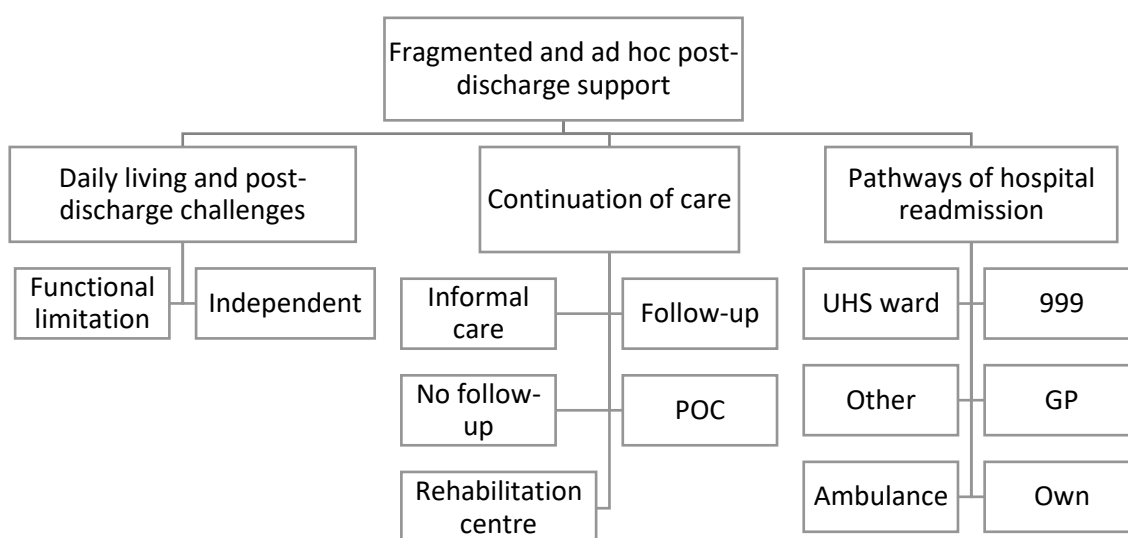
After a period of in-hospital stay or a surgical procedure, it is expected that some assistance might be required during the recovery period. Eight participants reported that they needed assistance with daily activities due to mobility restrictions.

> *"Not very good, bed most of the time hardly moving, couldn't move, very uncomfortable, got bed sores, got very weaken wrists trying to move, because I couldn't move properly." (P 1F, 75+ y.o.)*

There were participants who needed minimal assistance but there were also participants who did not have the opportunity to get back to their normal routine as they were readmitted back to hospital within a very short period of time.

"I was able to do most of my daily activities by my own but I needed a

bit of help. Like getting in and out of bed, washing and drying my legs

and getting dressed as I couldn't bend myself." (P 9F, 75+ y.o.)

"I came home went to bed, used the toilet once during the night and

next day I was readmitted, so I didn't had any chance to wash or do

anything else." (P 10F, 75+ y.o.)

A minority of participants reported that they were able to do most activities of daily living with or without minimal assistance

"When I managed to come home I had a shower as I have a wet room

shower which has a stool in it. It was a very pleasant experience. I didn't

have any difficulty with moving or personal care." (P 5M, 75+ y.o.)

"For about a week after I came home I needed a bit of assistance from

my husband for washing and dressing other than that I was fine. "

(P 8F, 75+ y.o.)

The subordinate theme 'Continuation of care' refers to planned care, which may be organised by health and/or social services. This care might be: (i) outpatient appointment, (ii) visit by district nurse/physiotherapist at home, (iii) home visit for provision of assistance with daily activities with a package of care (POC) or (iv) rehabilitation facility.

Nine participants had a planned follow-up outpatient appointment with their doctor/clinic. Four participants had a planned visit by a district nurse (e.g. wound care or removal of clips) and two had a planned visit by a physiotherapist, all of which were cancelled and rearranged, as the participants were readmitted back to hospital. Three participants had a POC organised for them but were rearranged too. One participant was admitted to a rehabilitation centre as it was decided that regular physiotherapy would be beneficial for him.

"You are joking aren't you… no. In fact I had to beg for physio, they told

me I had to wait for a month until I see my Dr, so when I was readmitted

I phoned Andover and pleased them not to cross me off their books, I

still need help. So I had physio in my admission but nothing between."

(P 4F, 70-74, y.o.)

"No I haven't had at that time (POC) but a representative was supposed

to visit the following week but unfortunately I was readmitted with an

infection." (P 8F, 75+ y.o.)

One important aspect of continuation of care is the role that informal care plays in patients' recovery. During the discharge planning process, informal care is taken into consideration when making decisions. All participants stated that they received 'informal care' from their family and friends. All the participants' responses regarding the assistance they received showed their appreciation towards their family/friends and how much it mattered to them having someone supporting and caring for them. Five participants were living with a partner or children who acted as their informal carers post discharge, two had family temporarily move in with them post discharge, and three had family and friends visit them, however, most had a combination of all three.

The support received by some participants included help with activities of daily living, like washing and dressing.

"For the day I came home I couldn't move, I couldn't do anything, no

food, no showering, no moving… and I couldn't sleep… My husband, he

is pretty good…" (P 6F, 75+, y.o.)

"I was able to do most of my daily activities by my own but I needed a

bit of help. Like getting in and out of bed, washing and drying my legs

and getting dressed as I couldn't bend myself. My daughter and friends

helped me…I had people there all the time, my daughter stayed with me

the first days, my friends stayed for a few days and then my grandson."

(P 9F, 75+, y.o.)

Other received help with instrumental activities of daily living, like shopping or housekeeping.

> *"Well, family made a little bit of shopping for me. I managed to do 1-2*
> *bits for me but obviously I wasn't into doing all the things I was used to*
> *do because I couldn't." (P 2F, 70-74, y.o.)*

Finally, others viewed their informal care as companionship.

> *"My family and friends visited me and I spent time with them."*
> *(P 3M, 75+ y.o.)*

Some participants mentioned that if they did not have this help, they would not have been able to manage on their own.

> *"My daughter was here, I couldn't do it myself. If it wasn't my daughter*
> *around I would be able to do anything. I wouldn't be able to dress or*
> *cook for myself or even use the commode…" (P7F, 75+ y.o.)*

The subordinate theme 'Pathways of hospital readmission' refers to what medical and/or professional advice participants' sought before being readmitted and how they were transported to hospital. Each participant and their carers acted based on the health status and severity when seeking professional advice. Five participants contacted the ward, of whom two were advised that they needed to be readmitted as they had called the day after their discharge. As for the other three, two were advised to attend the A&E or call 999 as they were past the 24-hour mark and the ward could not readmit them. The third participant was told that her symptoms were unrelated to her operation and called another service to seek advice. Two participants sought advice from other health services and were referred to the hospital for readmission. Three participants called 999 and were subsequently readmitted to hospital. The main reasons for seeking advice were gradual or acute pain, signs of infection and breathing difficulties. Readmission ranged from one to 26 days and seven participants were transported to the hospital in an ambulance whereas the other three used their own transportation.

Exploring the participants' patterns of seeking advice, the first point of contact varied with four participants calling the ward first, one calling their GP, two seeking advice from other health services and three contacting 999 straight away. Out of all the participants, only three sought advice from multiple sources before being readmitted. P1 first contacted the ward and then MacMillan nurses as she was getting worse and she was feeling more comfortable talking to them. P2 was advised by the ward to contact her local A&E as she needed to be referred in order to be readmitted and P7 daughter contacted the GP, the ward and then 999 as the patient was discharged more than 24 hours. The other seven participants sought advice from only one source and were readmitted straight away.

"My daughters rang the GP and he said ring the ward. From the ward they said it needs to be 24h to be readmitted, so we called 999 and I was readmitted. The paramedics came over and they examined me everywhere. As soon as they touched me in my groin she said we have to take you in.'' (P 7F, 75+, y.o.)

The transition from a hospital setting to their own home can be stressful for patients and their social network as they no longer have access to continual care, leading to being more reliant on themselves and any available support. Trying to find balance and adjusting to the new normal can be physically, mentally, and emotionally challenging for them. From participants narratives, the of lack of formal support post-discharge which led to relying on friends and family more was an area of concern. Frustration, anxiety, and disappointment are common feelings after losing a sense of freedom when they can't be as independent as before. Participants associated the lack of support with their readmission as they felt that their needs were overlooked. To bridge the gap in formal care, people relied on their social networks to perform everyday tasks. The support from social networks was highly valued and impactful as people relied on them for assistance with ADL's, IADL's or even moving in with them. Furthermore, in most cases it was the informal carers who sought help when patients could not cope at home (i.e. pain, signs of infection etc.).

4.9.3 My readmission experience and what led me back

The superordinate theme 'My readmission experience and what led me back', focused on: (i) how participants experienced their hospital readmission, (ii) if there were any differences from their first admission, (iii) what factors they believe led to their readmission and (iv) if it could have been prevented. The superordinate theme consisted of three subordinate themes: 'Greater attention led to better experiences', 'Perceived risk factors of hospital readmission' and 'Preventability of my readmission' (Figure 4.4).

Figure 4.4: Phase 2 – My readmission experience and what led me back
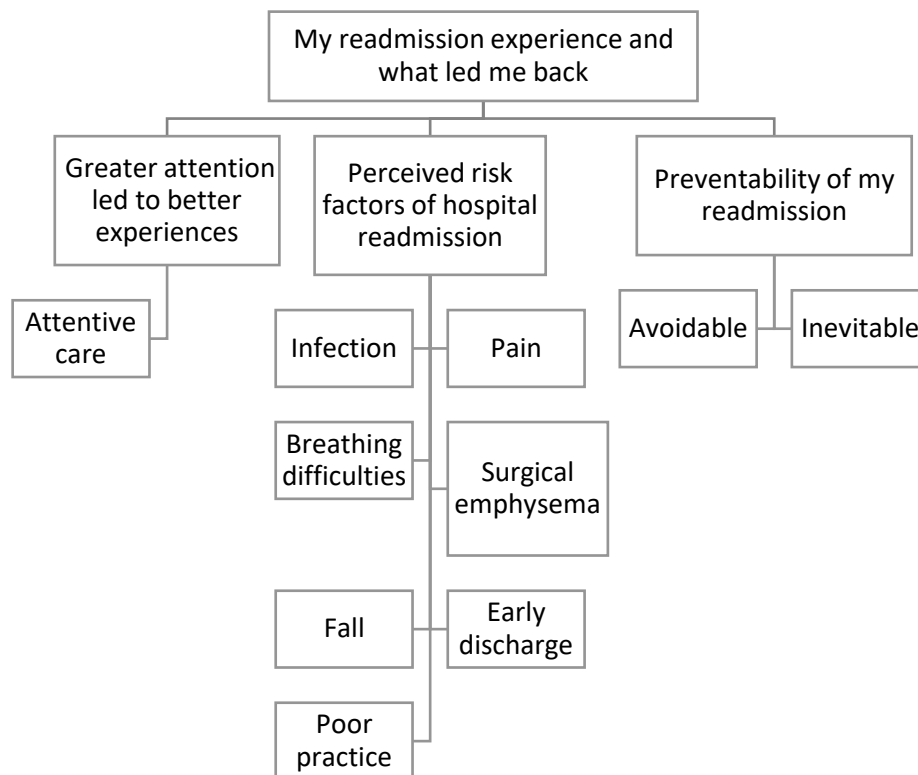
All participants were satisfied with the care they received during their hospital readmission. Half of the participants mentioned that their second discharge was better compared to their first, as they felt more included in their discharge plan and there was better continuation of care plan (e.g. physiotherapy visits, POC) as more discussions took place which made them feel heard.

In addition, few participants mentioned that as inpatients, they felt safer rather than being at home because of their health status which could be attributed to the fact that the hospital provides a 24-hour service which they would not have received in the community.

"…when you are in hospital you might want to go home but in hospital

you feel more secure if you are not well…" (P 1F, 75+ y.o.)

"I think they were a bit quicker the second time. The staff was a bit

more worried this time. I felt more involved this time." (P 6F, 75+, y.o.)

"The discharge process was much better, oh gosh, they told me

everything. They were excellent I can't fought them. They arranged

everything for me in short period of time." (P 7F, 75+, y.o.)

"They sorted me out as best as they could and I was discharged after a

week. Both admissions were very similar… I felt safe while being there, I

thought they knew what they were talk about, I thought they knew

what they were doing. They were explaining everything to me."

(P 8F, 75+ y.o.)

However, not all participants felt safer at the hospital as some felt surprised to be readmitted and disappointed for having to return to hospital.

"For my 2nd admission I was totally not prepared, I didn't even have a

toothbrush with me, because I didn't realize until the doctors suggest

it... This has been a very long road very difficult road, taking a lot of

patience and meeting lots of different people…" (P 5M, 75+ y.o.)

"No, since I got discharge I don't think anything could prevent my

readmission… The worst thing was being admitted during the night and

the pain. Also the disappointment of going back again." (P 10F, 75+, y.o)

The second subordinate theme was 'Perceived risk factors of hospital readmission', which refers to the participants' perspective on what might be the factors that led to their hospital readmission. All participants mentioned medical complications as the main reason that led to their readmission with most mentioning a combination of at least two factors.

Five were readmitted with an infection and four of the five had another factor [fall (P3), pain (P4/ P10), breathing difficulties (P8), and surgical emphysema (P10)] with the symptoms starting at least a week after their discharge or operation. Six were readmitted with pain [infection (P4/ P10), breathing difficulties (P6), fall (P7)] from which four were readmitted with acute pain within two days of their discharge and two with gradual onset pain. The two participants that were readmitted after a fall [infection (P3) and pain (P7)] were also admitted the first time following a fall.

"I would say the fall and the infection…I didn't help by breaking the other hip did I… most of my falls were because of dizzy spells… so I would have them all the time through hospital, no warning. At the beginning I thought it was because I was standing up and I have low blood pressure…" (P 3M, 75+, y.o)

"After a week I was home, one night while I was in bed I was very, very hot and I was breathing very quickly and I had fast pulse and my husband rung the ambulance. I think it was just bad luck, I was told that is possible to get an infection so I might caught something home…"
(P 8F, 75+, y.o.)

"The pain was terrific, d/c too early, not enough physio… first day they walked me to the door my face colour changed and they took me back to the bed, the next day they walked me and then I did the stairs and then they said I can go home, No POC in place and the way I was d/c." (P 9F, 75+, y.o.)

Another factor that was mentioned by six participants was having an early discharge following their first admission. All six participants had an inpatient stay between one to seven days during their first admission, from which only one felt involved and ready to be discharged. Participants felt that they should have stayed longer in hospital as some were still feeling 'too weak' or needed more physiotherapy. They mentioned that a couple more days could have had a different result upon their recovery or even avoidance of their readmission.

"I think was quite unfortunate really, there was circumstances that made me leave probably a little bit too early because I hadn't stop bubbling for long enough… I think another 24h could probably circumvented all of these but it's all it is." (P 2F, 70-74, y.o.)

"My daughter and I believe that I was discharged too early. I think that if I stayed for a couple of days longer, to make sure that I could manage home." (P 9F, 75+, y.o.)

The last 'factor' referred to 'poor practice', in which five participants reported incidents that took place during their experiences. These experiences were about receiving low quality care, delayed care provision and inadequate training involving mobility equipment.

" I was so bloody cold in here I didn't want to get out of bed anyway. The heating wasn't working for all this time and when I got back it didn't work." (P 3M, 75+, y.o)

"I was sent home with one dressing on the wound, which is fine, told to change it after a few days and made a mess of it, so I went to my surgery asking for the same dressing and believe it or not she put a piece of gauze along the wound then iodine gauze then a couple of coverings and top it off with waterproof covering, which the next day find me back in the Nuffield trying to get rid of it, because it was so tight. The nurse that was there said why did she do that?..." (P 4F, 70-74, y.o.)

"I then went to hospital for x-rays and they told me I was luckily I had a bad sprain ankle. They told me the best cure for that, live normally and walk on your ankle and it may be a bit painful but it would come right. It was about three weeks later I had a phone call from my GP, who said to me I have just review your x-ray and you have broken your foot. This was very unwelcome news, and he told me to go to A&E as soon as possible…" (P 5M, 75+, y.o.)

"… They pick me up but I didn't hurt myself. It frightened me and upset

me. When I was at the ward I have never used one of this (frame), they

were watching me but they didn't said that I could leave my leg down,

so I was hopping with my leg straight…" (P 7F, 75+, y.o.)

"The physios were to blame there, because my daughter thought I was

coming out a bit early because I couldn't put my legs in or out of bed.

They actually phoned her without me knowing anything about it and

they said I want her to come and pick me up and they told me what my

daughter said, that she was coming to pick me up. Those words were

never spoken. And I was really crossed. Because have I listen to that

nurse I would have transport home, and that accident might never

happened we don't know…" (P 9F, 75+, y.o.)

The third subordinate theme was 'Preventability of my readmission', which focuses on participants' perception on whether their hospital readmission was 'avoidable' or 'inevitable'. Six participants stated that their hospital readmission could have been prevented by (i) delaying their first discharge one or two days, (ii) providing adequate physiotherapy and (iii) continuation of care after being discharged. The rest of the participants stated that there was not any sort of help or service that could have prevented their hospital readmission, as they had medical complications after they were discharged.

"I would say the timing for my first discharge. No, I think it was just a

question of, you know, those factors and I think another 24h in-hospital

at the time, which to be fair the doctor did suggest', should have been,

would have possibly made all the difference. So, it was just a question of

timing." (P 2F, 70-74, y.o.)

"It could have been prevented really, I think so, if I could have more care

at home really. If I had some carers visiting me, more help and

painkillers I think I could avoid the readmission." (P 6F, 75+, y.o.)

Whether the reasons for hospital readmission are due to medical and/or social issues, it is an event that negatively affects people lives. Listening to participants stories and how the events unfolded prior to their readmission, we can empathise on how stressful such an event is for them and their social network. People shared how they struggled to manage at home, how frightened they were (i.e. fall, pain) or even getting upset for not progressing with their recovery, which reinforces the need to offer better support within the community in order to avoid unnecessary readmissions.

Participants' reflections show a variety of emotions being expressed on being readmitted such as being surprised, shocked, overwhelmed, or relieved to return back to hospital. There were participants who blamed health professionals for not including them in the discharge process or themselves for not doing as much as they should at home. A couple of participants even felt guilty for agreeing to leave hospital earlier because of their desire to go home or because they felt pushed to do so.

An important observation is participants' attitude regarding their two admissions and how the second time was a more positive experience. Despite that the satisfaction and praise towards the health professionals remained the same. The positive feelings were based solely on feeling more involved and having a more personalised care that was tailored to their post-discharge needs.

4.9.4 Segregated health and social services that are detached from people's needs

The superordinate theme 'Segregated health and social services that are detached from people's needs', was explored by asking participants about what the health services, social services and local authorities could do in order to prevent hospital readmissions and if any unattended issues existed. The participants shared their views either from their own lived experience or based on their knowledge. The theme was divided in to two subordinate themes: 'Causes and effects of faulty integrated care services' and 'All-around care services' (Figure 4.5).

Figure 4.5: Phase 2 – Segregated health and social services that are detached from people's needs
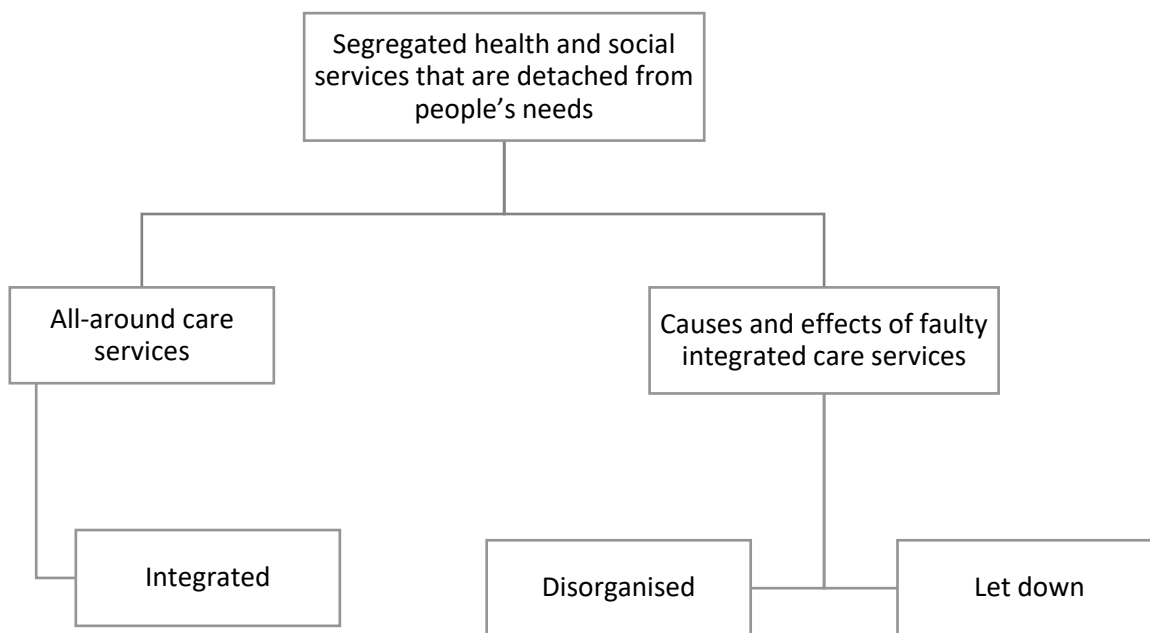
Only two participants found the health and social services to be organised and integrated as they felt this reflected the support they had received during their experiences in and out of hospital.

> *"The services are quite organised because they arrange me a commode,*
> *a walking frame and a visit form community nurse and everything*
> *happened as they said it would. So obviously there is a pretty good*
> *liaison between the hospital and the community, so yes I believe services*
> *are working quite good."(P 8F, 75+, y.o.)*

Most of the participants had a negative impression regarding the health and social services provided, despite being satisfied with the care they received throughout their hospital readmission experience. Eight participants considered health/social services as being 'Disorganised' which was accompanied by a feeling of being 'Let down'. The main issues of disorganisation identified by participants are presented below.

Participants highlighted the lack of communication not only between health and social services but also between patients and professionals as well as amongst professionals which they felt resulted in lengthy d/c processes.

"Slightly bitter I had a hospital appointment last week, my younger

brother organised the transport and they never turned up and they

didn't contact. Since then everything I ding-ding and I am going again

this week and I am promised that the transport will turn up…"

(P 3M, 75+ y.o.)

Participants also described that discharge processes were not only lengthen by the lack of communication but from paperwork, medication, and transport issues.

"They came and they told me I can go home that day but the surgeon

wanted to see me, and I waited all day… you get to the point that you

are not sure if you are going home or not…The whole process didn't

seem too organised, you needed to wait for certain people to say you

can go home… and you don't want to go home to the unknown, so I

didn't know whether I was ok to go home or not, but I was obviously

wasn't." (P 1F, 75+, y.o.)

"I was expecting the transport after lunch but they didn't showed up

until 20:10. The paramedic came up with a chair and she asked me if I

would be able to walk from the wheelchair to the ambulance. Me and

the nurse told her no because I am non weight bearing. She then

apologies and she said I have to aboard the transport as I have a man on

the wheelchair and I cannot take you…" (P 7F, 75+, y.o.)

"We have been waited for ages for my medications and at the end we

went home and my daughter-in-law went over later that day to pick

them up." (P 10F, 75+, y.o.)

A participant reflected on these issues and the disorganised services and felt that her readmission experience cost the NHS money that could have been avoided.

"I shouldn't have been discharged too early, without care in place and the

transport should be at least in the 4 hour slot that they are giving…I just think is a

total waste of money from the health services for things that shouldn't be happening, My early discharge, my readmission, the cancelled transport all these could be avoided. I think that they can do better…." (P 7F, 75+, y.o.)

Regarding feeling 'Let down', the participants expressed feelings of disappointment, loneliness and worries that were not addressed accordingly. Eight participants' comments indicated that they felt being 'side-lined'. Most participants described not being involved in the discharge process and discharge being a one-way conversation. Further to the lack of involvement in decisions, patients highlight lack of reassurance by professionals and lack of patient preparedness.

"I can go only by what I have experienced and from another lady who was really afraid to go home and nobody came to reassured her that she will be ok. I mean I have my husband … some people have nobody, so they are going home to look after themselves and is quite scary if you don't feel alright and I think in some cases to have someone come in and just say you can go home, is a bit daunting… The other one there was nothing, I supposed they just look out the notes and they say you are fine to go." (P 1F, 75+, y.o.)

"Yes, I think they should send me home anyway but not only with paracetamol. That was not good at all, they send me home without any medication, nothing, just paracetamol." (P 6F, 75+, y.o.)

"When I was at the ward I have never used one of this, they were watching me but they didn't said that I could put my leg down, so I am hopping with my leg straight … If I had more physiotherapist and more explanation on how to mobile around I would probably avoid it. When I went in, someone asked me if I can bend my knee, oh yes I can, well is easier to do that because then you don't fall backwards. So if they showed me that probably I wouldn't fallen…" (P 7F, 75+, y.o.)

Finally, participants expressed their disappointment and being let down by the lack of continuation of care between the hospital and community. Participants felt that the lack of support within the community, home visits and limited availability of community health centres had an impact on their recovery.

"The physio, I was release on the 12th and it took 2 weeks for the paperwork even though it's electronic to go across, we've got your referral. That should have been done instantaneously, so you didn't have the break, you have continuously care one-way or another. That I think is necessary instead of having to beg and be told you are not entitled, you don't need it, and you are not getting it, which is basically what I was told." (P 4F, 70-74, y.o.)

"We had a health care place where people could go and they closed it down. So really, you only have your Dr or if you have an accident you go straight to A&E. If you had a health care place you could go there rather than the hospital which is full packed with people...I believe that if the d/c plan of my 2nd admission was done for my 1st, things could be very different. For example, if I had transport, some help in the morning and some physio in place as I had in the 2nd time... who knows."
(P 9F, 75+, y.o.)

4.9.5 Study sample similarities and differences

The in-depth analysis of the interviews and pen portraits has identified patterns within the experiences. Further analysis of these patterns provided an opportunity for higher level understanding of the phenomenon and context which enabled better interpretation of the findings. Although the index reason for admission varied among participants, the analysis identified similarities in certain aspects of the experience which will be presented in this section.

The sample was divided into two groups, elective and emergency admissions. This was chosen to reflect how admissions are categorised in the hospital. The elective admissions group included four participants (P: 2, 4, 9, 10) and the emergency admissions group

included six (P: 1, 3, 5, 6, 7, 8). The analysis of the index reason for admission and the reason for their readmission resulted in seven participants being readmitted for a reason related to their first admission and three being readmitted for the same reason as the first admission.

The first similarity presented in the analysis focused on LoS of the first admission which have been grouped as (i) less than three days, (ii) four to seven days, and (iii) more than eight days. The two participants (P: 6, 10) who had a LoS of less than three days were readmitted a day after being discharged and both participants felt that they were discharged early and were not included in the discharge decision. They had a form of informal care at home and their readmission hospital stay lasted more than a week. However, one had an elective first admission and the other had an emergency admission.

Five participants (P: 1, 2, 4, 7, 9) who had a LoS between four and seven days, of which three had an elective first admission and two had an emergency admission. The three participants whose first admission was elective were discharged between Friday and Sunday. Of the five participants, three were readmitted within a week of their first discharge, four felt that they were discharged early, four felt that they were not involved, and three felt that they were not ready to be discharged.

However, the LoS for their readmission varied between three and 20 days as well as whether their first admission was elective or emergency. Three participants (P: 3, 5, 8) who had a LoS of more than eight days, of which two felt involved and ready to be discharged and were readmitted within a week of their first discharge. Out of the three, two were living alone. All three participants had an extended LoS, however, it varied from seven to 20 days.

Six participants (P: 1, 3, 5, 6, 7, 8) had an emergency admission, five were linked to a fall. Four participants out of six felt not included in the discharge decision and only three felt ready to be discharged. During discharge planning, three participants had a POC in place and one participant was discharged to a rehab facility. Five out of the six participants had been transported to hospital via an ambulance during their first admission and for five participants, someone else had sought help on their behalf. Four participants mentioned

that their readmission was inevitable and four felt let down and noted that the health and social services were disorganised. All six participants spent more than five days in-hospital during their readmission.

Four participants (P: 2, 4, 9, 10) had an elective admission, of whom two had orthopaedic surgery and two had thoracic surgery. All four participants had a LoS of less than a week for their first admission and three had a LoS of eight days during their readmission. Three participants felt that they were not involved in the discharge planning and only two felt that they were ready to be discharged. Three of the four participants were readmitted within a week of their first discharge. None of these participants had a POC in place. For three participants, someone else had sought help on their behalf prior to being readmitted. All four participants felt that their readmission was avoidable and three of them felt that they were discharged early. All four participants felt disappointed and let down by the health and social services.

Three participants (P: 3, 8, 9) were first admitted for Neck of Femur (NOF) surgery, of which two had an emergency admission following a fall and one as an elective admission. Two of the participants were taking between 6 and 10 medication and the third over ten medications. P3 and P8 were discharged after a LoS of 19 and 10 days respectively, with the first participant being discharged to a rehabilitation facility and the second had a POC. Both participants felt that their readmission was inevitable. However, P9 felt that they were discharged early and that the readmission could have been avoided. All three participants received some form of informal care between admissions and someone else sought help on their behalf and they were transported to the hospital in an ambulance.

Two participants (P: 2, 10) had an elective admission, following a General Practitioner referral, for a Video Assisted Thoracoscopic surgery (VATS). Both had a history of lung disease and COPD. Both participants felt that they had been discharged early and that their readmission was avoidable. They had a planned district nurse visit, no POC, and had some form of informal care. Both noticed some swelling which resulted in a surgical emphysema and was the reason for being readmitted.

Although each experience is unique, there are similarities between them as well as differences. Each participant's interpretation of their experience will be different, however, some descriptions exhibit commonalities that can provide a higher level understanding of the phenomenon and context. This in-depth analysis has provided valuable information around reasons for admission and readmission and whether they were related. Despite the type of admission (i.e. elective or emergency) and how prepared patients might have been for their admission, there were similarities on their involvement or readiness to leave the hospital and their satisfaction for the level of care they received.

4.10 Discussion

Phase 2 aimed to explore what older people identify as the main factors for hospital readmission through their own lived experience of hospital readmission. The interviews contributed to a deeper understanding of the main factors for hospital readmission as it explored these factors through the participants' lived experience. The factors people identified to have led to their hospital readmission were medical complications, poor discharge planning, lack of continuation of care, and poor practice. People shared what mattered the most to them and felt not able to express their thoughts and feeling left out. When they felt involved and their needs were addressed, their overall experiences were positively improved.

Participants described their overall experience as being satisfied with the care they received during both stays. Although some noted that they felt more included and had a better discharge plan and more attentive care following their readmission. A negative impression towards the services provided was commonly mentioned and participants indicted the services were disorganised and there was a lack of communication. This further supports existing literature where several reports have highlighted the lack of adequate communication with patients and lack or poor coordination between the care services (Lawrie and Battye, 2012; Retrum et al., 2013; Healthwatch England, 2015; Considine et al., 2020).

During the first admission, the majority of participants felt that they were not included in the discharge decision and/or they were not ready to be discharged. This experience was described as being dismissed which caused feelings of disappointment, being pushed aside and feeling let down. This is consistent with the findings reported in previous studies where similar feelings were mentioned (Dilworth, Higgins and Parker, 2012; Blakey et al., 2017; Considine et al., 2020). Many participants commented on how busy the wards were and not receiving adequate information and some felt that this may have resulted in the discharge process being rushed or having to be discharged earlier than expected. This may further support the suggestion that exceptionally safe transitions to the community are prioritised to be delivered to patients whose health and social care needs are more complex (Baxter *et al.*, 2020).

Recent literature also highlights patients' views on the lack of communication, noting that they felt they did not receive adequate information regarding their condition which was attributed to time pressures or wider organisational issues (Considine *et al.*, 2020). Furthermore, even when patients were medically optimised for discharge, some felt that going home was not safe or that they had inadequate support at home (Hallgren *et al.*, 2015; Healthwatch England, 2015b; Verhaegh *et al.*, 2019). The concept of a shorter length of stay leading to reduction in health care associated infections and better treatment outcomes as benefits in terms of reducing medical costs and optimizing bed turnover rates may not always be clearly explained to patients (Baek *et al.*, 2018).

The present study shows the importance of patient involvement in shared decision making as patients who are not part of this process may not feel ready to be discharged and subsequently returned to hospital due to unmet clinical, social and functional needs or feelings of uncertainty. This builds on existing literature which reports perception of readiness for discharge is associated with hospital readmission (Coffey and McCarthy, 2013; Mabire, Coffey and Weiss, 2015; Howard-Anderson et al., 2016). The present study extends existing knowledge by showing that perception of readiness reflects patients' access to formal/informal support outside of the hospital, functional needs (mobility, personal care, instrumental activities), and access to guidance and information within the community.

Furthermore, readiness for discharge may be influenced by the patients' involvement in the decision (Verhaegh et al., 2019) which is also noted in the findings of this phase as all participants who reported not being ready to be discharged also reported not feeling included in the decision process and no participants that indicated being included stated that they were not ready. One of the main reasons reported for not being ready to be discharged was the lack of adequate training and confidence in using mobility equipment or carrying out physiotherapy exercises to mobilise safely. This shows that supporting the transition to discharge by educating patients in mobilisation and self-care is key to patients' (Lasater and Mchugh, 2016; Yang et al., 2018). This also concurs with findings from the literature that suggest that poor discharge planning is a risk factor for hospital readmission (Witherington, Pirzada and Avery, 2008; Boutwell et al., 2009). Several participants reported ADL limitations during their first discharge and needing assistance due to mobility restrictions which has been strongly associated with hospital readmission (Hoyer et al., 2014; Greysen et al., 2015; Middleton et al., 2019). All participants reported having received 'informal care' from their family and friends and even noted that with the lack of this help they would not have been able to manage on their own. This further adds to the findings that suggest patients rely on informal care after discharge (Dilworth, Higgins and Parker, 2012; Verhaegh et al., 2019; Considine et al., 2020) and even relying on informal carers to be their advocates (Holmås, Monstad and Steskal, 2019).

The question one can raise from this is whether patients, where acting alone or as a result of being encouraged by their informal carers to seek medical advice from the hospital due to the lack of knowledge and perhaps lack of community services. One consideration could be that if community services, such as nurse visits or telephone follow up appointments, were available then readmission may have been prevented (Coffey *et al.*, 2019). This is evident from those that reported being readmitted for pain management or due to functional limitations as some had a package of care in place that did not start due to the patient being readmitted. There is evidence to suggest that follow-up interventions, either through home visits or telephone support, have a positive effect on reducing hospital readmissions (Courtney et al., 2009; Rytter et al., 2010; Legrain et al., 2011; Falvey et al., 2016; Rayan-Gharra et al., 2019). The lack of knowledge of medical conditions or expected side effects may increase insecurities and fear leading a patient and/or their informal carer to seek help from the hospital.

The participants did not identify just a single factor for their readmission instead a combination of inter-related and co-shaping factors was identified, which further builds on the literature that describes readmission as a multifactorial issue (Pedersen, Mark and Uhrenfeldt, 2018). The study findings on the factors that led to hospital readmission further contribute to the existing literature were medical complications as the main factor (Pollock et al., 2015; Stein et al., 2016), with references to pain (Stein et al., 2016; Hallgren and Aslan, 2018; Considine et al., 2020) and infection (Pollock et al., 2015), fall as a secondary factor (Age UK, 2019). Another factor that was mentioned was early discharge following first admission which has been referred to as a risk factor for hospital readmission (Witherington, Pirzada and Avery, 2008; Boutwell et al., 2009) or even a preventative measure if implemented in a safe and timely manner (Steventon et al., 2018).

The findings of this study phase further highlight the importance of comprehensive guidance that supports the delivery of care that is aligned with patients' needs and expectations such as the Framework for Safe, Reliable, and Effective Care (Frankel et., al 2017). The framework focuses on collaboration between care teams, patients, and their families. The methods described in the framework may help address the issues highlighted by participants in this study.

For example, through the leadership and accountability components healthcare organisations may avoid incidents of lack of involvement and communication. These components focus on the importance of communication, shared goals and expectations as well as clearly defined roles and accountability between patients and the care team. Participants in this study highlighted issues of early discharge and lack of inclusion in decision making which may have been better managed if the methods in this framework had been applied. Specifically, if patients and their care teams had clearly defined goals, such as mutually agreed discharge plan, and each had accountability in terms of how to reach it, patients and care teams would have the same expectations on the plan and timing of the discharge whilst enabling patients' involvement in the decision. In turn, this approach may have avoided leading to feelings of being dismissed and needs not being met post discharge.

In addition, the psychological safety component encourages an environment where patients can openly and without judgement express opinions, questions, and concerns which care teams can address accordingly. Participants of this study highlighted occasions where they felt as not being heard and left with unanswered questions, which may affect their readiness to be discharged due to lack of information sharing. Busy wards with heavy workload may lead to a rushed discharge process and incidences of one-way conversations or even patients being afraid to share their thoughts. A care environment where patients' views are heard and acted upon accordingly may prevent adverse health outcomes.

Furthermore, the component of negotiation states that collaborative negotiation should be used whenever possible between all parties as it is a key aspect for achieving shared goals. A starting point for care teams should be a shift from the question: "*What is the matter with you?*" to "*What matters to you?*" and therefore identifying the patients' priorities to offer solutions that promote their health without compromising what matters to them. This approach could have supported participants in this study by including them in discussions, identifying ADL needs, and how their discharge planning could have accommodated them and thus introducing plans that were sustainable and practical to their lifestyles. Importantly, the transparency component can support the above as it highlights the importance of being honest about how organisations are able or not, to meet patients' expectations. For example, during discharge planning care teams could be more transparent and share all the necessary information regarding the post-discharge care and available services in the community and ask whether patients have access to them. Continuity of care could remain uninterrupted as patients may take responsibility to search for the needed help and unnecessary readmissions could be avoided.

An important factor of any research is the trustworthiness of its data. To maintain the trustworthiness of the data, the researcher used various strategies to establish each criterion of trustworthiness. Firstly, the credibility criterion was achieved by following good practice to derive the results and write the conclusions and corroborating with the supervision team throughout the study, on the analysis methods, emerging themes, and interpretation of the results.

To achieve transferability, the concept of thick description was used to present participants' experiences and focusing not only on the experience itself but also on their emotions and social environment to create context and meaning of the experience. To aid this, evocative language was used when writing the findings of the study to paint a picture of patients' experiences and feelings. Dependability was achieved by keeping detailed records of every step of the research process, including a reflexive journal so that the research may be repeated at a different time and yet achieve the same results and interpretations. Finally, confirmability was achieved by maintaining objectivity and avoiding the researcher's views influencing the results. To achieve objectivity, the researcher maintained a reflexive journal and consulted the supervision team throughout to ensure interpretations reflected the participants' meanings and views.

The present study benefited from the use of a PPI group which actively contributed in finalising a user friendly schedule. It was imperative to ensure that participants were comfortable to share their experience. This was achieved by allowing participants to choose the interview setting. Furthermore, the recruitment and interview process allowed participants a gap of at least one week between their discharge and the interview in order to give them time to adjust and reflect on their experience.

Discussing with patients in a hospital setting whilst they may be in a vulnerable state does not give them time to adjust to returning home and reflect on their needs and challenges in and out of hospital. The present study also aimed to address limitations identified in the literature by taking into account issues such as causes and dates of admission, functional and mental assessment for descriptive reasons, and interviewing 10 participants which was a sample size greater than most qualitative studies relating to this area identified in the literature.

Although the present study had various strengths, some limitations were also identified. One of the main limitations was the generalisation of the results which is marginally affected by the small size and diversity (age range, ethnicity and gender) of the sample. However, this limitation may be addressed through the integration of Phase 2 with Phase 3. Another limitation was that participant recruitment was restricted to one hospital and a limited number of specialties, despite the researcher's efforts to widen recruitment.

This problem is inherent to all clinically based research relying on patient participation in an acute hospital trust (Adams, Caffrey and McKevitt, 2015). Despite the researcher's efforts to reach patients from the hospital, the challenges presented in Section 4.4 highlight how patient engagement in research is impacted by hospital workloads and time restrictions. This may further explain why qualitative research on hospital readmission is limited. As a result, this limits what is known in research on patients' experiences and priorities in relation to hospital readmission. This research did not receive any interest from the community even though the researcher tried to engage people via multiple community sources. One reason for this could be that the topic and its inclusion/exclusion criteria were very specific. Another reason could be the lack of communication from professionals as within the hospital patients were able to discuss with nurses and request to speak to the researcher directly. Finally, someone who had recently experienced hospital readmission may have not been engaged or involved with activities within the community at the time of recruitment and may have not accessed the information on this research.

4.11 Conclusion

Research that focuses on the perspectives of patients provides a greater understanding of the phenomenon which may explain and clarify the reasons for readmission. This approach is consistent with providing and delivering quality healthcare and is aligned with nursing values (McCormack et al., 2010; Blakey et al., 2017). Focusing on patients' perspectives in research is important as the majority of research studies on hospital readmission are based on the health data that are routinely collected in hospitals (Horwitz et al., 2015). Relying on statistics alone results in lack of understanding of how older people actually experience readmissions as it precludes an in-depth understanding of the phenomenon (Blakey et al., 2017).

This study added important findings that offer a greater understanding of hospital readmission and others that introduce new matters that have yet to be presented within the literature. As the study was set to take place after patients were discharged from their readmission and once they have returned home, it offers new information from the patients' perspective. Patients highlight how their discharge planning improves when

readmitted as they were more involved in decisions about their care and discharge, received more information, and subsequently felt more ready to be discharged. Patients highlight clinical and non-clinical factors such as Shared Decision Making, ADL needs, functional limitations, lack of training and physiotherapy as important to them and identify these as some of the reasons for their readmission.

This study also offers a greater understanding of patients' perception of readiness for discharge as it shows that it reflects patients' need for formal/informal support to be in-place, addressing functional needs outside of the hospital, and the need for access to guidance and information within the community. Finally, the study highlights how the lack of confidence due to restricted mobility and ability to perform everyday tasks affects patients' recovery and how continuation of care that involves multidisciplinary teams and engages informal carers is seen by patients as a key source of support that may prevent readmission.

The present study supports previous observations that suggest patients felt they were not part of the decisions made about their own care. Most concerns raised focused on discharge planning and the lack of reablement /rehabilitation support and education, especially regarding mobility. This highlights the importance of better processes that focus on motivating and encouraging patients to be independent and providing them with adequate information that eliminate any feelings of doubt or uncertainty about their discharge plan, condition and resources for support. An apparent trend identified was the key role played by informal carers and network members.

Importantly, this study identified that although informal support is highly regarded by patients, on questioned about who was involved in their discharge planning patients did not mention informal carers as being part of it. In part, it could be deduced that informal carers are not seen as integral to the formal discharge process by either patients or professionals as this process can often be seen as the responsibility of professionals. This study though suggests a more formal approach to informal carer involvement in discharge planning that reflects the integral role they have in a patient's recovery at home.

Despite the key interest in moving care out of hospital, it is important to have adequate nursing and social support as informal support may not be available, and it is unlikely that relying on informal carers alone would be sufficient and may pose a risk as highlighted previously. Thus, hospital and out of hospital services require more attention, and better engagement with the functional, social and contextual factors relevant for patients after discharge, as these are currently lacking, disorganised, and/or narrowly focused on cost and symptoms management. To bridge the gap between patient reports and routinely collected data, Phase 2 informs Phase 3 of this study which examined these factors utilising a larger data set.

Chapter 5 Phase 3 – Investigating factors linked to hospital readmissions through clinical data and patient experience

5.1 Introduction

This chapter focusses on Phase 3 which aimed to examine if the factors identified by participants in Phase 2 and their patient profile (sociodemographic information, comorbidities, medication) were reflected in routinely collected data from the University Hospital Southampton (UHS) and investigate the relationship between these factors and hospital readmission. Examining the relationship with hospital readmission may help establish which factors are associated with readmission and of those which predict readmissions it. This chapter will present the methods, ethical considerations and findings. Furthermore, the results will be discussed against existing literature and novel findings will be highlighted.

The literature presented in this study identified the most common risk factors for hospital readmission to be: (i) comorbidities, (ii) functional impairment, (iii) frailty, (iv) polypharmacy, (v) length of stay, and (vi) previous admissions (García-Pérez *et al.*, 2011; Morandi *et al.*, 2014; Craven and Conroy, 2015; Gale, Cooper and Aihie Sayer, 2015; Kahlon *et al.*, 2015; Sganga *et al.*, 2017; Low *et al.*, 2018; Woolford *et al.*, 2021). The World Health Organization describes health as "*a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*" (The World Health Organisation, 2020). This further demonstrates the need for services to engage with patients to collect a variety of data without predominantly collecting medical data.

Phase 2 of this study also identified several risk factors that were drawn from patients' experiences from what they felt contributed to their readmission such as being discharged earlier than expected, not feeling ready to leave the hospital, experiencing complications often due to multimorbidities, not being involved in decisions about their care and discharge, not having sufficient access to support from healthcare professionals, limited access to support and other resources needed to manage an illness out of hospital.

While some of these concerns are recognised in the existing literature, and discussed in Chapter 5, there is lack of sufficient understanding of:

(i)   How unmet functional needs post-discharge impact on hospital readmission.

(ii)   In what way tailored post discharge interventions affect a patient's health trajectory.

(iii)   How informal carers can be better recognised and supported to aid patients' recovery.

Although the importance of these are recognised by the NHS, the current research examined which of these crucial factors identified by patients were routinely collected, the relationship with hospital readmission of both the factors identified in the literature and Phase 2, and identified any gaps.

Risk factors have been described in previous quantitative studies as risk predictive tools and that they help identify patients at risk of emergency readmissions (Hallgren and Aslan, 2018). Studies utilising predictive modelling have mainly used primary clinical data obtained from patients or their health records and administrative data to inform predictive models (Silverstein *et al.*, 2008). Despite the efforts to identify patients with a higher risk of readmission, none of the existing models can accurately predict patients who are more likely to be readmitted (Kahlon *et al.*, 2015). Existing predictive models, regardless of the variation in terms of analyses or techniques, seem to have a moderate performance or remain inconsistent (Kansagara *et al.*, 2011; Zhou *et al.*, 2016; Artetxe, Beristain and Graña, 2018).

The accuracy of existing predictive models may be influenced by missing risk factors that are yet to be identified (Kahlon *et al.*, 2015). It is possible that the accuracy of existing predictive models could be enhanced as potential missing factors might be identified from patients' account of their lived experience of readmission (Shih *et al.*, 2015; Carter *et al.*, 2018). Due to the complexity of hospital readmission, its risk cannot be defined by measures of illness alone and factors that matter the most to patients (socioeconomic and emotional needs) may need to be included as some of these may not be reflected in routine health data.

Efforts to understand readmission has been moving towards a more patient-centred approach by trying to understand hospital experience from people's perspective (Greysen *et al.*, 2017). The present study focused on readmission with the aim to understand what factors matter the most to patients and factors identified in their patient profile (sociodemographic information, comorbidities, medication) and whether these factors are routinely collected. Furthermore, the present study attempted to analyse these factors and their association with readmission. The results of this analysis may inform predictive models as it combines patients' views along with their health records and administrative data.

5.2 Methods

A cross-sectional study design incorporating retrospective analysis of routinely collected data was utilised to examine if factors identified by the participants were reflected in the hospital database and their relationship with readmissions. The rationale for choosing a cross-sectional study using retrospective analysis was guided by the study's research questions and objectives. Undertaking a cross-sectional study has various advantages including: (i) cost-effective, (ii) not time consuming, (iii) easier to prove or disprove assumptions, and (iv) higher volume of variables and data within a fixed time period (Bryman, 2012). Phase 3 began in July 2019 and concluded in December 2021.

5.2.1 Research questions and objective

➢ What factors identified as important by people who have had an experience of hospital readmission are recorded in the routine patient data obtained by the University Hospital Southampton NHS Trust (UHS) database?

➢ What is the relationship between the factors indicated by participants in Phase 2 which are recorded in the UHS database and hospital readmission?

• The objective was to examine through correlation and logistic regression analysis what factors identified by patients were recorded in the UHS database and their relationship with hospital readmission.

5.2.2 Assumptions

Phase 3 was set to test the assumptions presented below which were derived from the finding of the scoping review, Phase 2, and the descriptive statistics of Phase 3. These assumptions guided the analyses in order to answer the research questions and objective of this phase.

1. An increase in age will result in a higher risk of patients being readmitted.
2. Patients with an emergency first admission are more likely to be readmitted.
3. A shorter hospital length of stay will result in a greater probability of patients being readmitted.
4. Patients with 8+ chronic conditions are more likely to have a greater risk of readmission.
5. Patients receiving 5+ medications may have a greater risk of hospital readmission.
6. The higher the discharge alert system, the higher the risk of patients being readmitted.

5.2.3 Validity and reliability

In order to evaluate the methodological rigour and quality of this quantitative research, reliability and validity criteria were applied. The present study sample was selected based on set criteria (i.e. inclusion/exclusion criteria of Phase 2), at a single point of time and associations were examined between the dependent and independent variables. In quantitative research, it is important to evaluate its quality which is most commonly carried out by assessing the validity and reliability of the study.

When considering a study's validity it is key to review two types of validity; internal and external validity. Internal validity refers to the methodological design and execution being free from bias whereas external validity refers to the ability to generalise the results of the study to the wider population. When considering a study's reliability, it is important that the measurements are consistent and in repeated testing, to be able to produce similar results under similar conditions (Bryman, 2012; Heale and Twycross, 2015).

Internal validity was maintained as the sample was chosen from the hospital's data using relevant inclusion and exclusion criteria. As the selection followed the same criteria, selection, participation and attrition bias were not a risk to the internal validity of the study and the sample was representative of the population attending or being referred to UHS.

The data included routinely collected demographic and clinical data based on best practice in line with NHS guidelines. A minor risk that must be considered though is inaccuracies in the data caused by human error during data entry stage in hospital. In relation to external validity, the results of the present study may not be generalisable to the wider population, however, they may apply to a different area and/or location with similar population characteristics to Southampton or other hospitals with similar patient characteristics and volume. Finally, the results may not be generalisable to the post-pandemic period due to the significant changes linked to the COVID-19 pandemic that have greatly impacted the healthcare system and peoples' health/care needs. Furthermore, as the data were drawn at a specific point in time and limited to two months, this is likely to affect generalisability of the results as they are likely to not reflect all readmissions that occur during a year in terms of rate, patients' reasons of admission, age etc. The reliability is also maintained as the data collected were reliable measures collected by experienced health professionals using the same NHS guidelines. According to NHS digital, the Data Services team performs monthly audits on the quality of data to ensure they are robust (Data Services NHS, 2021).

5.3 Ethical considerations

Prior to undertaking Phase 3, ethical approvals were sought and obtained via ERGO (ID: 25487), Integrated Research Application System (IRAS ID: 202824). A substantial amendment was submitted and approved by East of England – Essex Research Ethics Committee (REC: 18/EE/0152) (Appendix 31) and Health Research Authority (HRA) (Appendix 32). No ethical issues were identified as the researcher received secondary anonymised data that confirmed to data protection laws and policies. The considerations around data protection and anonymity are presented below.

5.3.1 Data protection and anonymity

The HRA guidance, stipulates that participant data that are no longer identifiable or that the participant cannot be identified on its own or in combination with other accessible information, are no longer personal data and the Data Protection Act 2018 (DPA) transparency requirement no longer applies. In addition, personal data that have been anonymised are out of the scope of DPA (Health Research Authority, 2018).

This research complied with the HRA's DPA guidance and therefore the researcher did not anticipate receiving any identifiable personal information about any patients. The dataset did not include any identifiable or personal information of patients. In order to maintain anonymity, the process of anonymising personal data was conducted by an analyst who was already working at the hospital. As this process falls within the scope of the DPA, the researcher was not involved in this process.

Once the dataset was created by the data analyst, it was sent to the researcher by secure email. The data file was saved on a university password-protected computer and was deleted from the researcher's email account. Only the researcher and supervisors have access to the data. Data will be stored for a minimum of 10 years in accordance with the University of Southampton Research Data Management Policy.

5.4 Data collection and study sample

The present study utilised data from the UHS database which included primary care or administrative data recorded in the hospital. UHS is a large teaching hospital and undertakes cutting-edge research which amongst many topics also focuses on prevention of disease. Furthermore, patient experience is at the core of UHS' quality and UHS is committed to listening to patients by partnering with the community. The combination of high-quality research on illness prevention and the commitment to listening to patients' views make UHS an appropriate setting for this study. A UHS data analyst extracted the dataset and assigned codes to patients' data that were made available.

For the "readmitted group", the researcher requested that the sample should contain at least 100 cases of readmission: that is, at least 100 patients who were readmitted to hospital within 30 days of their index admission so the risk of confidentiality of personal data was minimised and a maximum of 1000 patients so the dataset could be kept to a manageable size. The overall total sample was calculated using a priori power analysis which indicated the appropriate sample size that would produce results capable of detecting effect size between the groups. The priori power analysis using G*Power 3.1 (Faul *et al.*, 2007) indicated that a sample of 2652 would be sufficient to detect a medium effect size by using 0.8 power, 0.05 alpha, two-tail and Odds ratio of 1.3. Therefore, the proposed sample size of 2708 was determined adequate for detecting an effect on the outcomes of hospital readmission. This was a pragmatic sample taking into account the limited resources available and time commitment required for extracting the data by a data analyst.

The inclusion/exclusion criteria for the sample followed the same criteria as Phase 2 (Table 5.1). This ensured a consistent and cohesive link between the different study phases. The researcher received three separate datasheets of a total of 6789 values that were selected between October and December 2019 which were cleansed as highlighted in Table 5.1 and combined into one dataset. Deaths were removed from the dataset as the study focused on understanding unexpected readmission. Due to the lack of information surrounding the deaths (i.e. place or reason) and how it could affect the results of the study, the researcher and supervisory team decided to omit any deaths from the dataset completely regardless of when these happened. The sample did not include any participants or their data from Phase 2. Of the total remaining values of 2708, 159 had a readmission. For further details of the removed values, please refer to Appendix 33.

Table 5.1: Phase 3 – UHS Dataset

Description	Value
Total values received	6789
Total values removed	2593 duplicate values 586 deaths 902 not meeting inclusion criteria
Total remaining values	2708

The dataset initially contained over 700 different primary diagnosis of admission which were grouped according to the International Classification of Diseases (ICD -10) chapters for ease of analysis. Each chapter groups together several diseases by organ such as respiratory system, circulatory system etc. and the remaining diseases that cannot be allocated to a specific organ are grouped in the remaining chapters. The transformation of this variable resulted in 18 categories in total. The final variables used are presented in Table 5.2 below.

Table 5.2: Phase 3 – UHS Dataset Variables

Variable	Description
Age	Age in years
Gender	Male/ Female
Ethnicity	Ethnic background (British_vs_other)
Postcode prefix	i.e. SO14 (SO_vs_Other)
Admission Ward	Admitting ward logged at the time of admission
Admission Source	Departing destination at the time of admission. For example, the patient was admitted from their usual residence
Admission Method	Method of admission. For example, a patient was referred by their GP or was admitted via Emergency A&E
Admission Type	Emergency or elective or day case admission (Emergency_vs_Other)
Admission Speciality	i.e. under the care of geriatric medicine/ general medicine speciality at the time of admission (GenM_GerM_AE_vs_Other)
ICD-10	ICD-10 chapters
Comorbidities	Number of comorbidities recorded in the system (Eightplus_vs_Other)
Medications	Number of medications recorded in the system (Medmaxfive_vs_other)
Length of stay	Number of inpatient days during admission
Discharge Method	On medical advice or self-discharge
Discharge Destination	Destination after discharge. For example, usual residence
Discharge Day	Discharge day: Monday-Thursday and Friday-Sunday
Discharge Alert system	Alert system classification at the time of discharge: Green/ Amber/ Red/ Black
SCC	Southampton City Council involvement: Y/N
Follow-up	Follow-up care such as healthcare professional visit or outpatient appointment in place: Yes/No
Lives Alone	Living alone: Yes/No

5.5 Analysis

The SPSS software, version 27 (IBM Corp, New York, USA), was used to analyse the dataset and two groups were created; (1) "not readmitted group" incorporating data on patients who were readmitted and those not readmitted and (2) "readmitted group" with data on patients who had been readmitted. The frequencies of each dataset were then analysed and any missing values for each variable were identified. The variables with missing values are presented in Table 5.3. The missing values were replaced with the mean value of each variable. Analysis, as detailed below, followed for each group individually.

Table 5.3: Phase 3 – Missing values

Variable	Total missing values	Percentage
Medications	1184	43.7%
SCC	653	24.1%
Follow up	653	24.1%
Lives alone	526	19.4%

Firstly, descriptive statistics were computed for both groups to examine the data distribution and summarise the sample characteristics. A chi-square analysis for the "all admissions group" followed which was used to examine if there was an association between the dependent variable (readmission) and independent variables (factors). Finally, statistically significant associations ($p < .05$) were tested further using logistic regression analysis, to determine if the dependent variable (readmission) can be predicted from the independent variables.

5.6 Results

Eight factors were identified by participants in Phase 2 of which three were routinely collected in clinical data, three were not, and there was a lack of clarity on two factors as to whether these were routinely collected or not. The factors included in routinely collected data were: (i) sociodemographic information, (ii) comorbidities, (iii) early discharge which is collected in LoS, (iv) reason for readmission which is collected in the form of ICD-10 primary diagnosis, (v) busy wards/professionals which is identified by the discharge alert status, and (vi) admission details (type, method and source).

It is unclear if medication number, lives alone and continuation of care (SCC, follow-up) are routinely collected as although these options are available on the system, several missing values were identified. The factors not routinely collected were: (i) inclusion in discharge planning/treatment, (ii) readiness for discharge, (iii) functional ability, and (iv), informal care. These factors, along with the details of each admission were further examined to identify the relationship with hospital readmission which are presented in further detail in this section.

The readmission rate based on the data from the present study was 5.9% and the average readmission rate for UHS for 2018/19 was 11.37% (University Hospital Southampton NHS Foundation Trust, 2019). Taking into account that the study sample only contained a proportion of data obtained from two divisions over a two month period and only for patients over 65 y.o. who met the study criteria, it is possible that the rate is reflective of the emergency readmission rate for the year.

5.6.1 Descriptive statistics

In this section, the descriptive statistics are presented individually for the three groups: "All admissions", "Not readmitted "and "Readmitted". The full details are presented in Appendix 34. The table 5.4 below presents a summary of the descriptive statistics of each variable per group. Upon reviewing the descriptive statistics of the three groups, it was noted that the "all admissions" group and the "not readmitted" group had very minor differences and thus only the "not readmitted" and "readmitted" groups are presented and discussed in detail in the following sections.

Table 5.4: Phase 3 – Descriptive statistics summary

Variables	"All admissions group" N=2708	"Not readmitted" N=2549	"Readmitted group"- N=159	
			1st	2nd
1. **Age**	78.28 (SD = 7.55)	78.18 (SD = 7.49)	79.85 (SD = 8.40)	
2. **Gender (M/F)**	50.5% / 49.5%	50.8% / 49.2%	45.3% / 54.7%	
3. **Ethnicity**	White British (86%)	White British (85.6%)	White British (92.5%)	
4. **Postcode prefix**	SO (82.3%)	SO (81.4%)	SO (96.2%)	
5. **Admission Ward**	Endoscopy (13.8%)	Endoscopy (14.4%)	Same day emergency (14.5%)	Same day emergency (18.2%)
6. **Admission Source**	Usual residence (95.6%)	Usual residence (95.4%)	Usual residence (98.7%)	Usual residence (97.5%)
7. **Admission Method**	A&E (45.5%)	A&E (44.1%)	A&E (67.9%)	A&E (75.5%)
8. **Admission Type**	Emergency (59.3%)	Emergency (57.9%)	Emergency (81.8%)	Emergency (100%)
9. **Admission Speciality**	General Medicine (21.6%)	General Medicine (21.5%)	General Medicine (22.6%),	Geriatric Medicine (23.3%),
10. **ICD-10**	IX Diseases of the circulatory system (18.9%)	IX Diseases of the circulatory system (19.1%)	X Diseases of the respiratory system (17%)	X Diseases of the respiratory system and XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (respectively 16.4%)
11. **Diagnosis**	Cataract (4.8%)	Cataract (5%)	Unspecified acute lower respiratory infection, COPD and Tendency to fall (respectively at 3.1%)	Fall (5%)
12. **Comorbidities**	8+ (63.2%)	8+ (62.1%)	8+ (81.1%)	8+ (84.9%)
13. **Medications**	6-10 (64.9%)	6 – 10 (66.4%)	6-10 (40.9%)	6-10 (44.7%)
14. **Length of stay**	6.55 days (SD = 13.09)	6.56 (SD = 13.27)	6.37 days (SD = 9.57)	8.42 days (SD=13.82)
15. **Discharge Method**	Medical advice (99.5%)	Medical advice (99.5%)	Medical advice (100%)	Medical advice (100%)
16. **Discharge Destination**	Usual place of residence (92.6%)	Usual place of residence (92.5%)	Usual place of residence (93.1%)	Usual place of residence (91.2%)
17. **Discharge Day**	M-Th (64.6%)	M-Th (64.5%)	M-Th (65.4%)	M-Th (62.3%)
18. **Discharge Alert system**	Red (54.5%)	Red (54.4%)	Red (55.3%)	Red (54.1%)
19. **Southampton City Council**	No (96.2%)	No (96.3%)	No (95%)	No (94.3%)
20. **Follow-up**	No (66.2%)	No (66.7%)	No (58.5%)	Yes (60.4%)
21. **Lives Alone**	No (82.5%)	No (83.2%)	No (69.8%)	No (68.6%)

5.6.1.1 Not readmitted Group

5.6.1.1.1 Demographic characteristics

Out of the sample of 2549, 50.8% were male and 49.2% female, ranging from 66 to 119 years with the average being 78.18 years (SD = 7.49). The age groups 70-74 and 75-79 constituted 24.1% and 23.3% of the overall sample respectively. The sample was predominantly white British (85.6%) with most people living within an SO (Southampton) postcode prefix 81.4%.

5.6.1.1.2 Admission Information

Most patients had an emergency admission (57.9%) followed by day case admissions (30.4%) and elective admissions (11.7%) with the most common methods of admission being emergency A&E (44.1%) or from an elective waiting list (34.2%) and most patients had their usual residence (95.4%) as source of admission. The leading admitting wards were Endoscopy (14.4%), Same day emergency (9.9%), and Clinical decisions A&E (9.5%). The LoS varied from 0-174 days, with an average of 6.56 days (SD = 13.27) and the main LoS groups were 0-3 days (63.6%) and 8+ days (24.3%).

The specialities with the highest reporting values were General Medicine (21.5%), Geriatric Medicine (11.1%), Cardiology (11%), and Ophthalmology (10%) with the main disease classifications being (1) IX Diseases of the circulatory system [I00-I99] at 19.1%, (2) XI Diseases of the digestive system [K00-K93] at 16%, (3) XIX Injury, poisoning and certain other consequences of external causes [S00-T98] at 11.7%, and (4) X Diseases of the respiratory system [J00-J99] at 9.9%.

The leading reasons for admission were cataract with 5%, followed by atherosclerotic heart disease at 2.8%, and lobar pneumonia at 2%. Most patients had 8+ comorbidities representing 62.1% of the overall sample. Comorbidities ranged from two to 10 with an average of 7.87 (SD = 2.59). The reported medications ranged from 1-39 with an average of 7.71 (SD = 3.94) with the leading medication group being that of 6-10 medications (66.4%).

5.6.1.1.3 Discharge Information

The most common discharge days were between Monday and Thursday representing 64.5% of the overall sample with the leading hospital alert status at discharge being Red (54.4%) followed by Black (24.3%). Most discharges followed medical advice (99.5%) with patients mostly being discharged to their usual place of residence (92.5%). Most patients had no follow up care planned (66.7%), were not living alone (83.2%), and the Southampton City Council had no involvement in the discharge process (96.3%).

5.6.1.2 Readmitted Group

The readmitted group represented 5.9% of the overall sample with 159 patients of the 2708 being readmitted within 30 days of being discharged.

5.6.1.2.1 Demographic characteristics

The group of patients with hospital readmission consisted of 54.7% females and 45.3% males, with the majority being white British (92.5%) and living within an SO (Southampton) postcode prefix (96.2%). The average age of the sample was 79.85 years (SD = 8.40), ranging from 66-99 years, with most participants being allocated in the 85+ (31.4%) and 75-79 (22%) age groups.

5.6.1.2.2 Admission information

The type of their first admission was separated into Emergency admissions (81.8%), Elective admissions (10.7%) and Day case admissions (7.5%). The main method of admission was emergency A&E (67.9%) and usual residence (98.7%) as the main source of admission. The wards with the highest percentages of admission were Same day emergency (14.5%), Clinical decisions A&E (12.6%) and Acute surgical unit (11.9%). The LoS of their first admission varied between 0-62 days, with an average stay of 6.37 days (SD = 9.57) and leading LoS groups of 0-3 days (50.9%) and 8+ (26.4%). The main specialities were those of General Medicine (22.6%), Geriatric Medicine (13.2%), A&E (12.6%) and General Surgery (12.6%), with the main disease classifications being (1) X Diseases of the respiratory system [J00-J99] at 17%, (2) IX Diseases of the circulatory system [I00-I99] at 15.7%, (3) XI Diseases of the digestive system [K00-K93] at 15.1%, and (4) XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified [R00-R99]at 11.3%.

The primary diagnoses as the first reason of admission at 3.1% were unspecified acute lower respiratory infection, chronic obstruct pulmonary disease, and tendency to fall respectively. Most patients had 8+ comorbidities which represents 81.1% of the overall sample. Comorbidities ranged from two to ten with an average of 9 (SD = 1.84). The reported medications ranged from 1-38 with an average of 8.06 (SD = 5.85) and the leading medication group being that of 6-10 medications (40.9%).

5.6.1.2.3 Discharge and post-discharge information

All of the discharges followed medical advice (100%), with most being between Monday and Thursday (65.4%) with a discharge destination of usual place of residence (93.1%). The highest reported values of discharge alert status were Red (55.3%) and Black (22%). Most patients had no follow up care planned (58.5%), were not living alone (69.8%), and the Southampton City Council had no involvement in the discharge process (95%). The post discharge time period until their readmission varied between 0-28 days, with an average of 6.84 days (SD = 5.83) and the groups with the highest percentages of LoS were 0-5 days (49.7%) and 6-10 days (27%).

5.6.1.2.4 Readmission information

All patients had an emergency hospital readmission, as per the research study inclusion criteria. Most patients were readmitted through Emergency A&E (75.5%) and almost all of them had their usual place of residence (97.5%) as the source of readmission. The wards with the highest percentages of admission were Same day emergency (18.2%), Acute surgical unit A&E (16.4%), and Clinical decisions A&E (15.1%). The LoS for hospital readmission varied between 0-72 days, with an average of 8.42 days (SD=13.82) and almost half of the sample was under the LoS group of 0-3 days (48.4%).

The main specialities with the highest admission rates were Geriatric Medicine (23.3%), General Medicine (18.9%), General Surgery (12.6%), and A&E (11.3%). The highest recorded values for the main disease classifications were (1) X Diseases of the respiratory system [J00-J99] at 16.4%, (2) XVIII Symptoms, signs and abnormal clinical and laboratory findings, not classified elsewhere [R00-R99] at 16.4%, (3) IX Diseases of the circulatory system [I00-I99] at 15.1%, and (4) XI Diseases of the digestive system [K00-K93] at 13.2%.

The primary diseases of readmission were tendency to fall at 5%, lobar pneumonia at 3.8%, and unspecified acute lower respiratory infection at 3.1%. Most patients were recorded under the group of 8+ comorbidities at 84.9%. Comorbidities ranged from two to nine with an average of 8.42 (SD = 1.41). Medications varied between 1 and 46, with an average of 9.30 medications (SD = 6.43) and most patients were in the medication group of 6-10 (44.7%).

5.6.1.2.5 Readmission discharge information

All discharges followed medical advice (100%), and 62.3% of the sample were discharged between Monday and Thursday. The highest reported discharge destination was their usual place of residence (91.2%) and the highest reported discharge alert status was Red (54.1%) and Black (17.6%). Patients with a follow up care planned represented 60.4% of the sample, 68.6% were not living alone, and for 94.3% the Southampton City Council had no involvement in their discharge process.

5.6.1.2.6 Comparison between first admission and readmission

The majority of patients had an emergency type of admission at their first admission (81.8%) and in line with the study inclusion criteria all of them needed to have an emergency 30-day readmission. The Same day emergency ward remained the leading admitting ward during both admissions, although an increase of 3.7% was noted. The method of admission on both occasions was Emergency A&E, however this increased by 7.6% in readmission and usual residence remained the main source of admission for both. The average LoS increased from 6.37 (SD 9.57) to 8.42 days (SD 13.185) and the leading LoS group of 0-3 days remained approximately 50% in both not readmitted and readmitted groups.

The leading admission speciality changed from General medicine (22.6%) to Geriatric medicine (23.3%) for patients' readmission. The main disease classifications for both were X Diseases of the respiratory system [J00-J99] and XVIII Symptoms, signs and abnormal clinical and laboratory findings had a significant increase of 5.1% in readmission. In the readmitted group, 20.8% had the same reason for readmission as the index reason for admission whereas 79.2% had a different reason.

In the time between the first admission and readmission, the percentage of patients with 8+ comorbidities increased by 3.8%. The average number of medications increased from 8.06 (SD 5.846) to 9.30 (SD 6.429) and the medication group of 6-10 remained first with an increase of 3.6% noted in readmission. There were no noticeable changes in relation to the day of discharge, method and destination. The discharge alert status presented an increase of 9.4% in the green status whereas the others decreased. Living alone and SCC did not change significantly, whereas the follow-up arrangements increased by 18.9%.

5.6.2 Outliers

Boxplots were used to examine the distributions of two variables: age and LoS. Age contained four outliers at the upper end of the scale with a value of 119 which is likely an input error; 17 points from the next highest value. After the cases identified as outliers were removed, the distribution for age was examined again and no outliers were identified. The distribution appeared to be approximately normal which was supported by low skewness and kurtosis values (0.442 and -0.504 respectively). The Histogram and Boxplot for age is presented below in Figure 5.1 and Figure 5.2.

Figure 5.1: Phase 3 – Age histogram
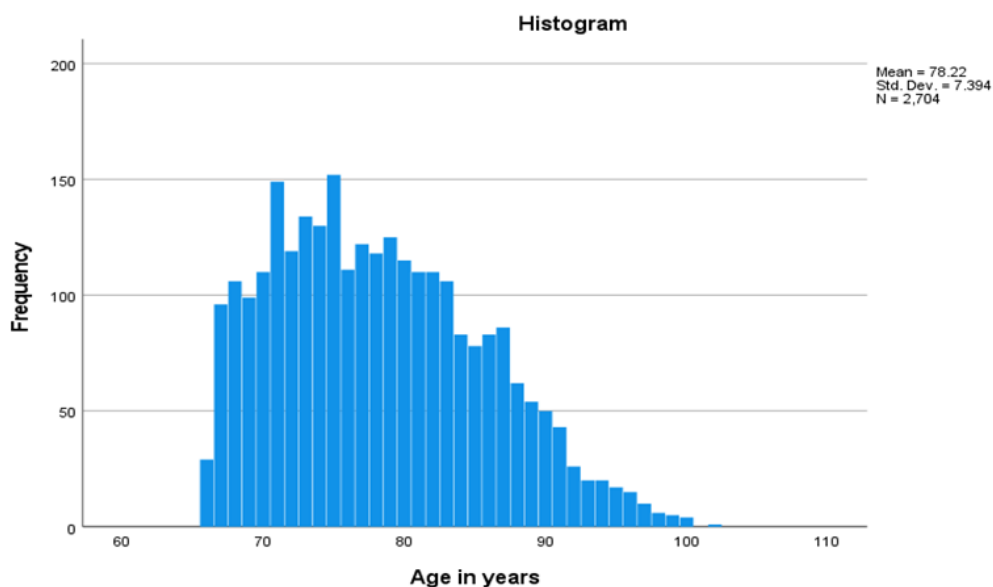
Figure 5.2: Phase 3 – Age Boxplot
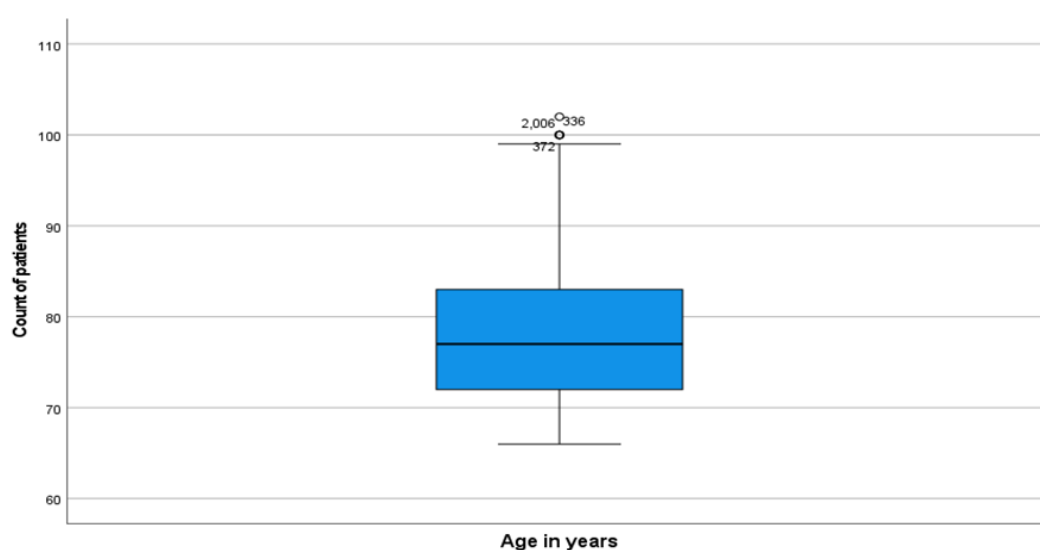
The outliers for LoS were not removed as due to the nature of the variable, the boxplot would continue to show outliers and removing them would significantly minimise the sample size and may affect the generalisation of the data. The variable represents the range of LoS and average time in line with the literature without the outliers being removed.

5.6.3 Chi-square tests

Pearson's chi-square test of independence was utilised to examine the association between independent variables and the dependent variable. This test was chosen as the dependent variable is categorical as well as most of the independent variables. As the dependent variable was dichotomous (Y/N), the independent variables were transformed into binary variables for the purposes of the chi-square tests and details of how and why are presented in Table 5.5 below. To facilitate the analysis, 2x2 tables were generated for all variables except age group, LoS, discharge alert status and admitting ward. The chi-square test of independence showed that 13 variables were significantly associated with hospital readmission ($p<.05$). The full details of the chi-square results are presented in Appendix 35. All assumptions were met (>20%) with the exception of admission ward. The results of the Phi test (ϕ) showed that all associated variables had weak association and negligible or no relationship.

Table 5.5:Phase 3 Binary variables description

Variable	Description
Age	Having reviewed the literature, evidence is divided as to whether the risk of readmission increases with age. On reflection and upon reviewing the descriptive statistics, it was though that creating small categories (i.e. 5 year span for each) offers the ability to determine the association with readmission of each group. Also, a categorical representation of age can be easier to communicate. As such, 5 groups were created which were equally distributed within the sample. This approach helped determine the significance of different age groups with readmission.
Ethnicity	2 groups were created following a careful review of the descriptive statistics. The vast majority of the sample were British (92.5%) so the remaining ethnicities were merged in one to examine if a British or other ethnicity has a relationship with readmission.
Postcode prefix	Following a similar rationale to ethnicity, 2 groups were created for this variable as well. A great majority of the sample live locally (SO 96.2%) and thus other postcodes were grouped together to explore how living location might impact readmission.
Admission Ward	Due to the nature of this variable and the number of wards found in the database (45), creating groups proved challenging as these would have been grouped by speciality which would duplicate the admission speciality variable. Thus, this variable was not transformed.
Admission Source	The transformation of this variable followed a similar rationale to ethnicity and postcode prefix. Following the review of the descriptive statistics, it was noted that that the vast majority (98.7%) of the sample were admitted from their usual residency and thus 2 groups were created that account for usual residence and other.
Admission Method	Following the review of the literature, it was noted that emergency admissions have a higher risk of readmission and therefore, this variable focused on examining 2 groups Emergency including A&E, GP, Consultant and other admission methods.
Admission Type	Following the same rationale as the admission method, 2 groups were created based on the level of urgency (i.e. emergency vs other – elective & days case).
Admission Speciality	On exploring the dataset and descriptive statistics, the specialities with the highest population were grouped together against all others creating 2 groups.
Comorbidities	The literature identifies comorbidities as one of the risk factors of readmission. The vast majority of the sample had a min of 8 comorbidities and a max of 10 (81.1%) and so 2 groups were created (Eightplus_vs_Other)
Medications	Following a similar rationale to comorbidities, 2 groups were created (Medmaxfive_vs_other) as literature has found that polypharmacy is a risk factor h readmission. For the purposes of this study, polypharmacy was considered 6+ medications.
Length of stay	The literature suggests that both short (up to 3 days) or long (8+ days) hospital stays increase the risk of hospital readmission. As such, 3 groups were created to test whether the time of inpatient stay (short, average or long) have an association to hospital readmission.
Follow-up	The nature of the variable was dichotomous and as such 2 groups were created that showed if there was a follow up arrangement was in place or not.
Lives Alone	Similarly to follow-up, the nature of this variable is dichotomous and as such 2 groups were created that showed if people lived alone or not.

Individual chi-square tests of independence were performed to examine the relationship between hospital readmission and the different demographic variables. The relationship between hospital readmission and age group was significant, X^2 (4) = 11,512, (p=.02). People over 85 y.o. were more likely to be readmitted compared to the other age groups (Figure 5.3). The relationship between ethnicity and hospital readmission was also examined which showed significance, X^2 (1) = 5,598, (p=.02). This showed that those categorised as white British were more likely to be readmitted than other ethnic groups (Figure 5.4). Finally, the relationship between hospital readmission and postcode prefix was also significant, X^2 (1) = 22,277, (p<.05), indicating that people living in an area with a postcode prefix of SO were more likely to be readmitted compared to other postcodes (Figure 5.5).

Figure 5.3: Phase 3 – Age groups
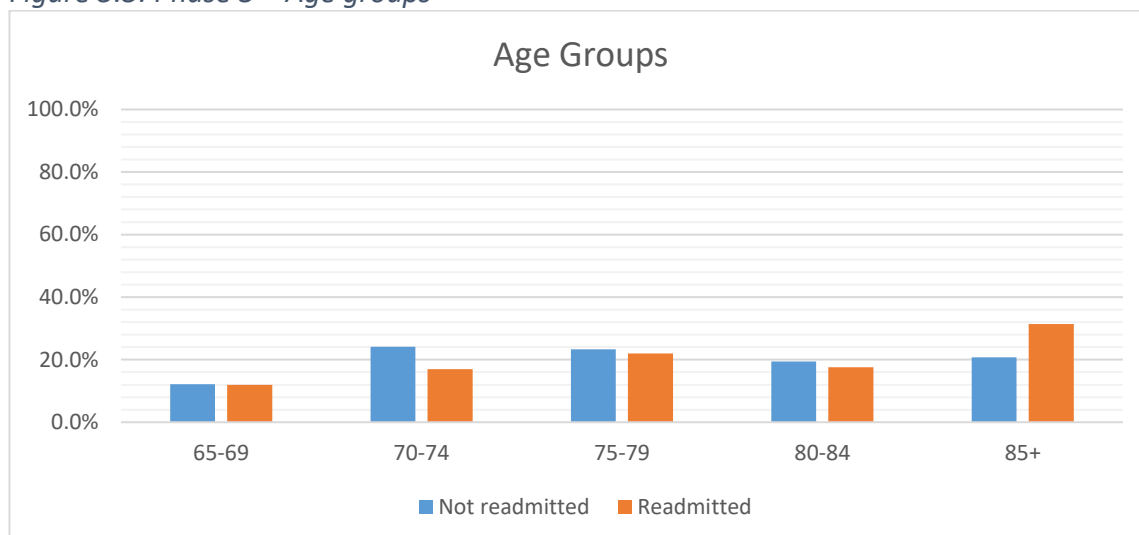
Figure 5.4: Phase 3 – Ethnic groups
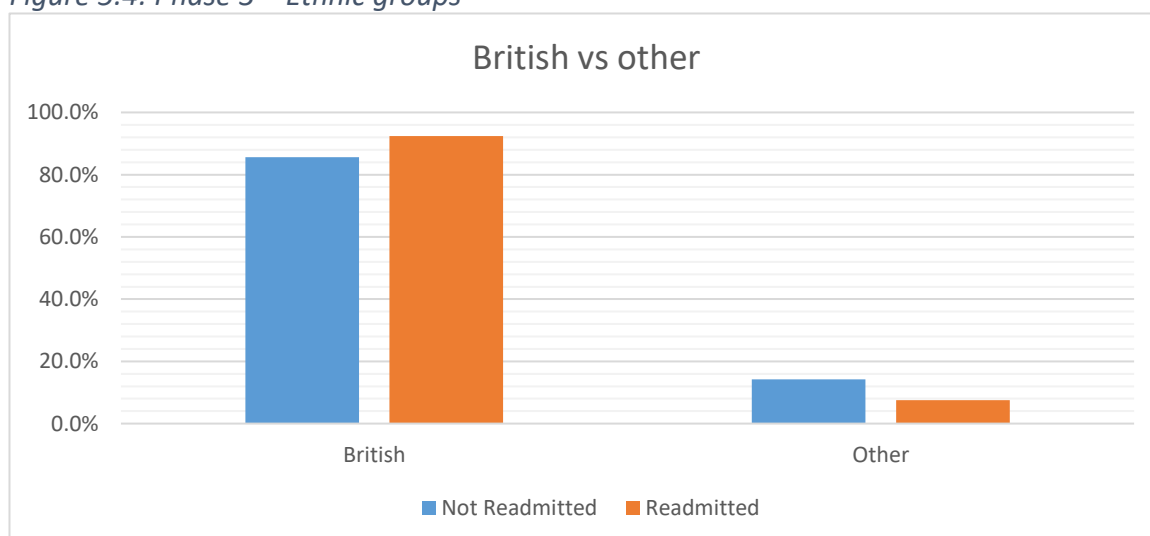
Figure 5.5: Phase 3 – Postcode prefix
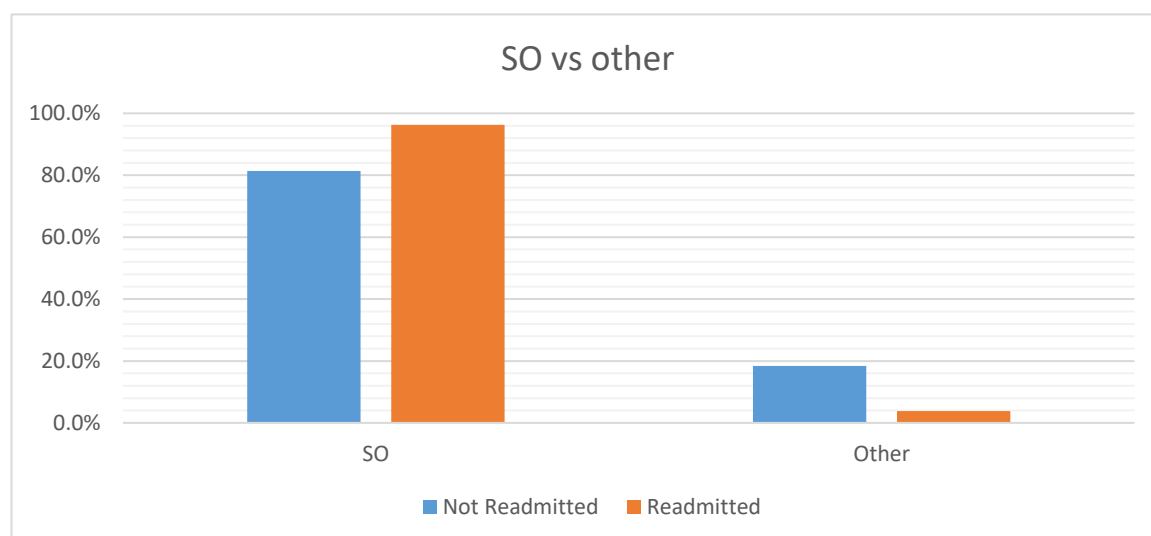
To examine the relationship between hospital readmission and the variables related to the first admission, a chi-square test of independence was utilised. The relationship between hospital readmission and the source of admission was significant, $X^2(1) = 4,028$, (p=.05), suggesting that those who were being admitted from their usual residence were more likely to be readmitted than those being admitted from other sources (Figure 5.6). A significant relationship with the method of admission and type of admission was also identified with $X^2(1) = 40,959$, (p<.05) and $X^2(1) = 35,469$, (p<.05) respectively. This suggests that those who had an emergency admission were more likely to be readmitted compared to those that had an elective admission (Figure 5.7). Furthermore, people whose admission type was linked to emergency were also more likely to be readmitted than those who were admitted electively or for a day case (Figure 5.8). The relationship between hospital readmission and speciality was also significant, $X^2(1) = 3,878$, (p=.05). Although this had a very small difference, people admitted to general medicine, geriatric medicine and A&E were less likely to be readmitted compared to other specialities (Figure 5.9).

Figure 5.6: Phase 3 – Admission Source

Adm source vs other
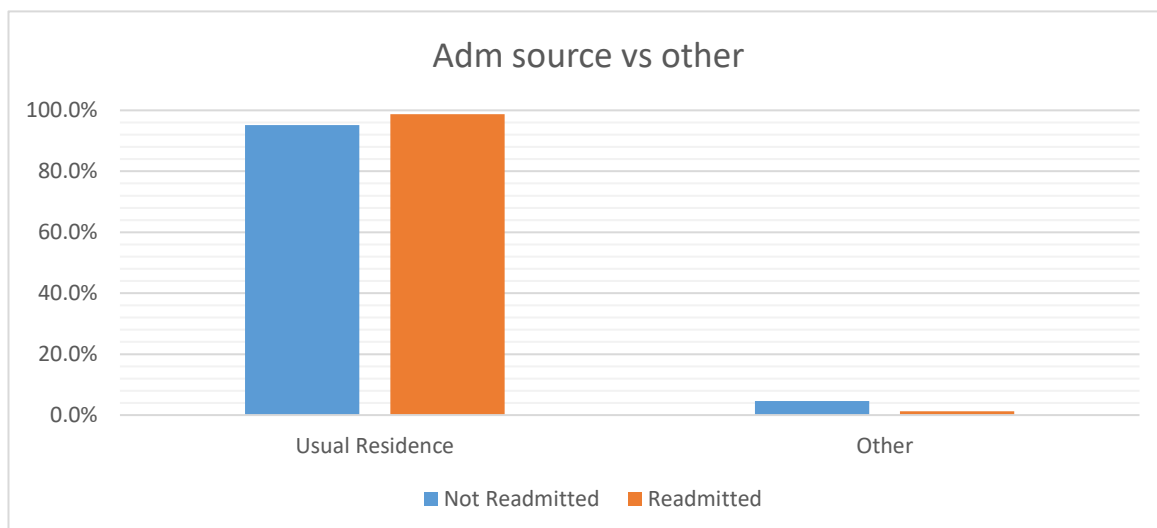
Figure 5.7: Phase 3 – Admission Method

Emergency_AE_GP_Consultant vs other
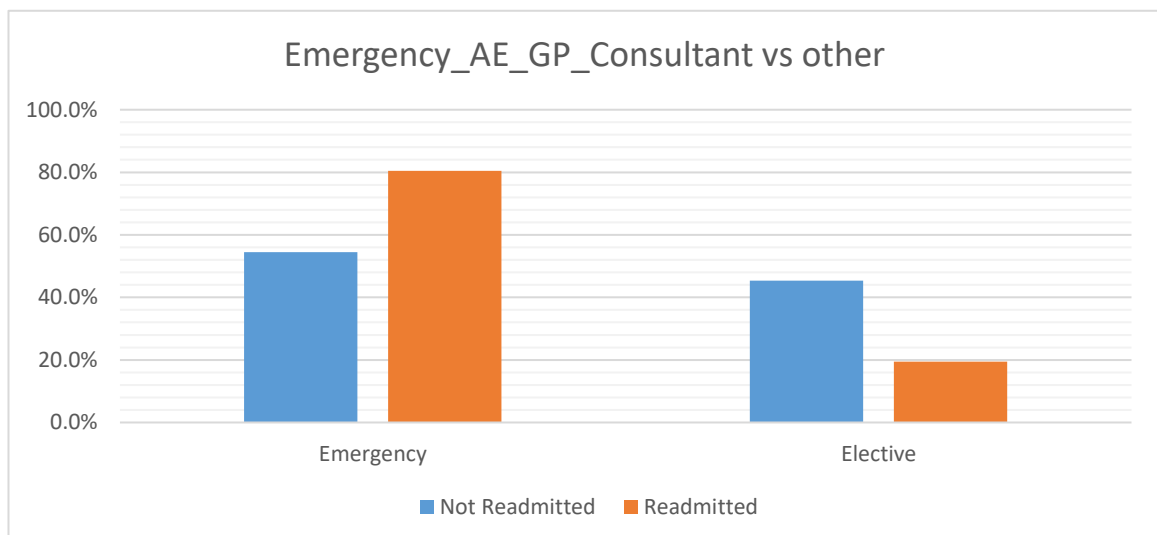
Figure 5.8: Phase 3 – Admission Type

Emergency vs other
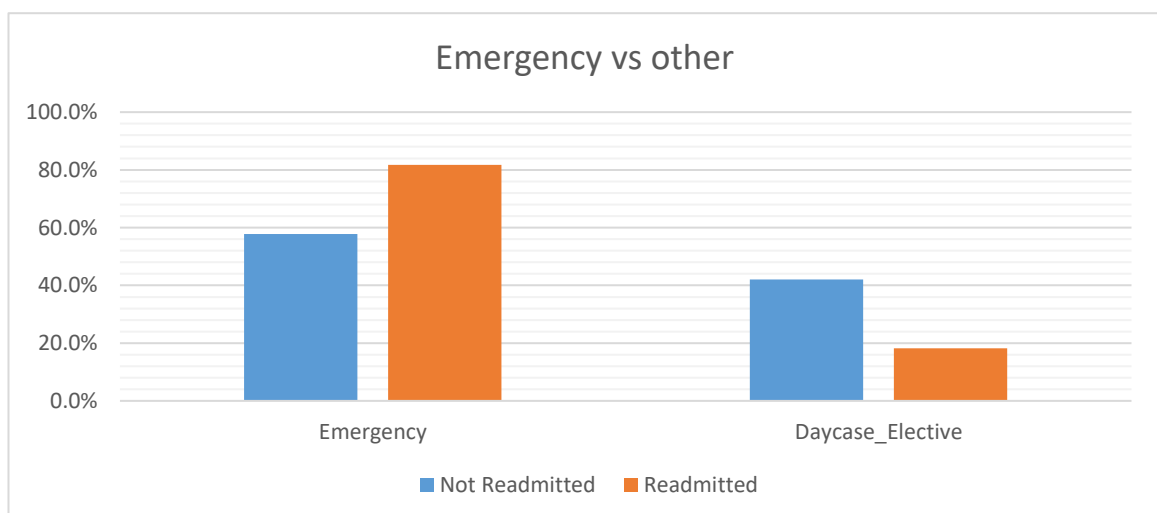
Figure 5.9: Phase 3 – Admission Speciality
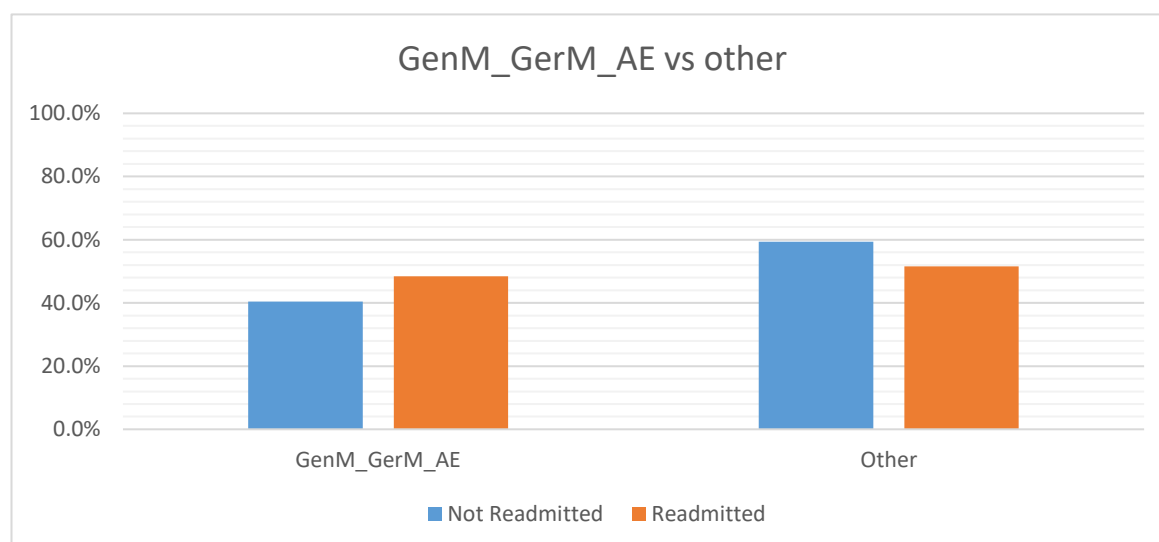
The relationship between hospital readmission and comorbidities was also significant, X^2 (1) = 23,178, (p<.05). People with over eight comorbidities were more likely to be readmitted than those with seven or less (Figure 5.10). Another significant association was that of hospital readmission and medications, X^2 (1) = 19,172, (p<.05), as those prescribed more than six medications were more likely to be readmitted than those who were prescribed less than five medications (Figure 5.11). There was a significant association between hospital readmission and LoS group, X^2 (2) = 16,856, (p<.05). People who stayed in hospital between zero and three days during their first admission were more likely to be readmitted than those that stayed for over four days (Figure 5.12).

The final set of chi-square tests of independence was performed between hospital readmission and the variables related to the first discharge. There was a significant relationship between hospital readmission and follow up, X^2 (1) = 4,395, (p=.04) and also between hospital readmission and living alone, X^2 (1) = 18,586, (p<.05). People who were discharged with no follow up care were more likely to be readmitted (Figure 5.13) and those who did not live alone were more likely to be readmitted (Figure 5.14).

Figure 5.10: Phase 3 – Comorbidities
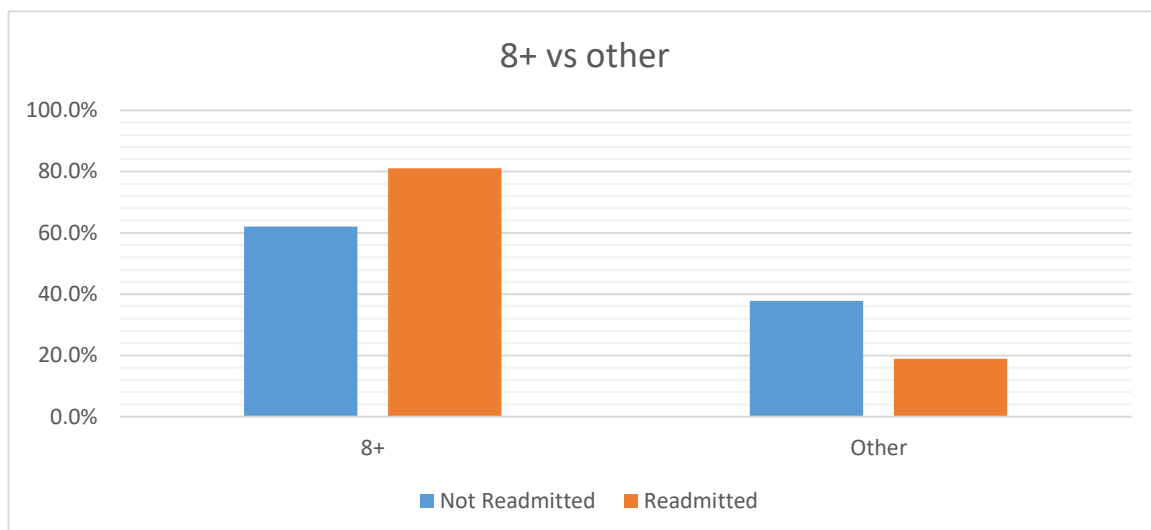
Figure 5.11: Phase 3 – Medication
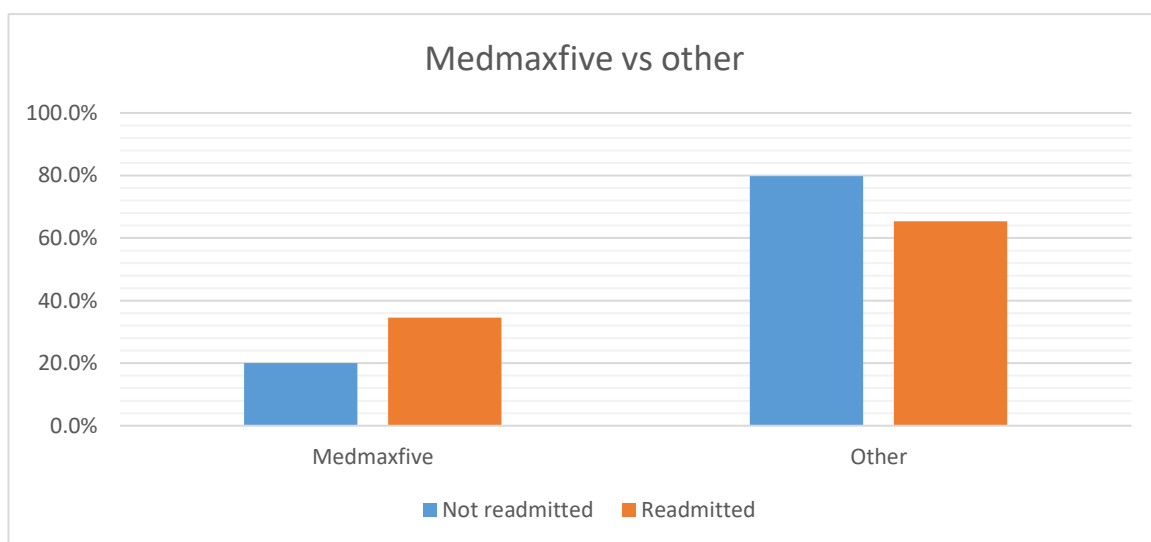
Figure 5.12: Phase 3 – Length of stay

Figure 5.13: Phase 3 – Follow-up
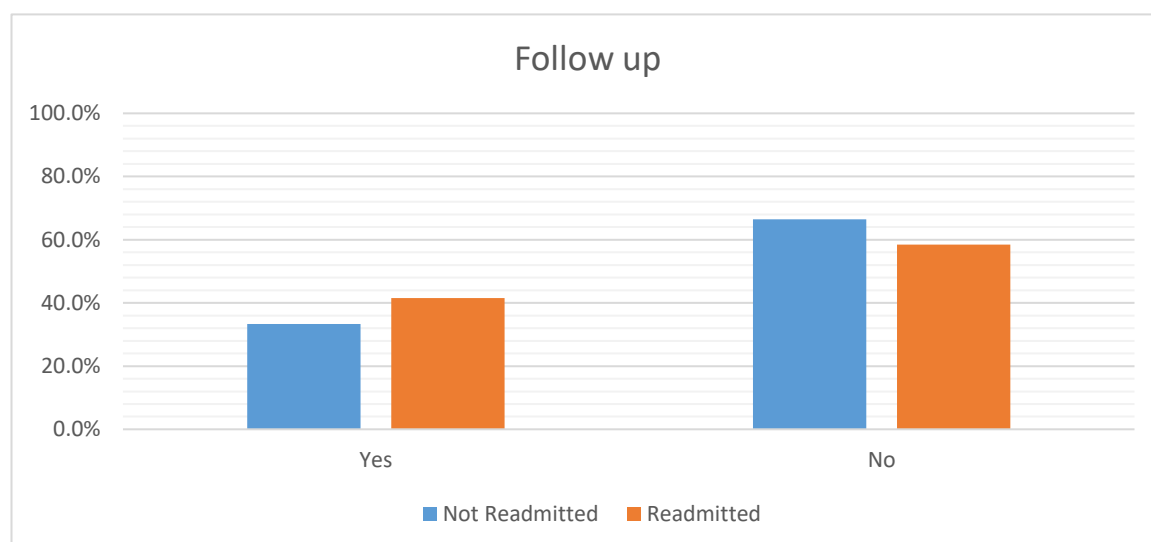
Figure 5.14: Phase 3 – Lives alone
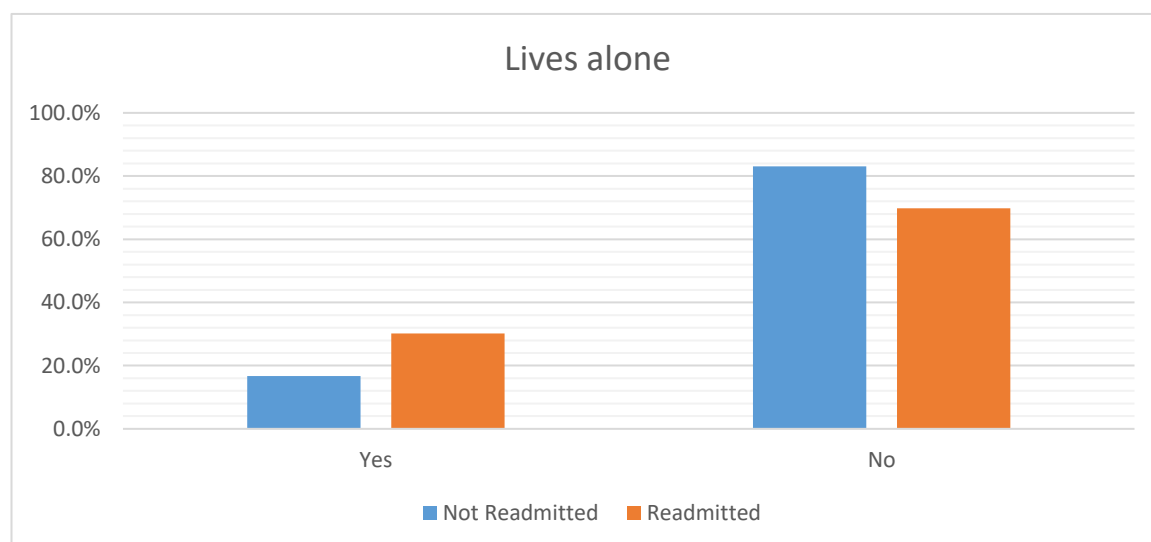
5.6.4 Logistic regression

To identify the factors that predict hospital readmission, a binary logistic regression analysis was conducted with the variables that were significantly associated with hospital readmission; adding age, ethnicity, postcode, type of first admission, speciality, comorbidities, medication, LoS, living alone, follow up into the model. The following two variables were not included in the analysis: (i) source of admission, as over 95% of participants had been admitted from their usual place of residence, and it was not considered diverse enough to help predict readmission and (ii) method of admission, as it measures the same as type of admission and cannot be read separately in logistic regression.

Binary logistic regression indicated that postcode, type of first admission, comorbidities, medication, LoS, living alone, and follow up were significant predictors of hospital readmission whereas age, ethnicity, and speciality were not significant. The Omnibus test showed that the model significantly fitted the data (Chi-Square=100.610, df=10 and p<.05) (Table 5.6). The Nagelkerke R Square indicated that 10.1% of the variance in hospital readmission was accounted for by the predictors (Table 5.7). The Hosmer and Lemeshow test suggested goodness of fit of the model (Chi-Square=6.503, df=8, p=.59) which showed that the model was reliable with a small discrepancy between actual and expected values (Table 5.8). Although the model was able to correctly predict 94.1% of all cases, it should be noted that it had incorrectly classified 159 patients who had a readmission. The model performed better in predicting patients who had not been readmitted as it correctly classified 100% of the 2545 patients who did not have a readmission (Table 5.9). Although the case wise list showed 3 outliers, this was less than 5% of the sample which was insignificant.

Table 5.6: Phase 3 – Omnibus test

Omnibus Tests of Model Coefficients		Chi-square	df	Sig.
Step 1	**Step**	100.610	10	.000
	Block	100.610	10	.000
	Model	100.610	10	.000

Table 5.7: Phase 3 – Model Summary

Model Summary			
Step	**-2 Log likelihood**	**Cox & Snell R Square**	**Nagelkerke R Square**
1	1108.932ᵃ	.037	.101
a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.			

Table 5.8: Phase 3 – Hosmer and Lemeshow test

Hosmer and Lemeshow Test			
Step	**Chi-square**	**df**	**Sig.**
1	6.503	8	.591

Table 5.9: Phase 3 – Classification table

Classification Tableᵃ					
Observed			**Predicted**		
			Readmission		**Percentage Correct**
			NO READMISSION	**READMISSION**	
Step 1	**Readmission**	**NO READMISSION**	2545	0	100.0
		READMISSION	159	0	.0
	Overall Percentage				94.1
a. The cut value is .500					

The variable type of first admission (p<.05), postcode (p=.001), comorbidities (p=.001), and medications (p=.005) were significant predictors at the 1% level and the variables LoS (p=.015), lives alone (p=.028), and follow up (p=.047) were significant predictors at the 5% level. The variables age, ethnicity, and speciality with p values greater than 0.05 were not significant predictors of hospital readmission. The results of the binary logistic regression showed that those living in an SO postcode prefix were 4 times more likely to be readmitted (OR: 4.353, 95% CI: 1.867 – 10.149). The results also showed that people with emergency admissions were 2.5 times more likely to be readmitted (OR: 2.503, 95% CI: 1.581 – 3.964). Furthermore, those with over eight comorbidities were 2 times more likely to be readmitted (OR: 2.024, 95% CI: 1.314 – 3.118) with those prescribed up to 5 medications over 1.5 times more likely to be readmitted (OR: 1.647, 95% CI: 1.158 – 2.340). Another significant result indicated that when the LoS increased by one day, the odds of hospital readmission decreased by 2.1% (OR: 0.979, 95% CI: 0.963 – 0.996). Finally, those living alone were approximately 1.5 times more likely to be readmitted and the same was evident for those that had a follow up care in place after discharge (OR: 1.528, 95% CI: 1.049 – 2.226 and OR: 1.434, 95% CI: 1.004 – 2.049 respectively) (Table 5.10).

Table 5.10: Phase 3 – Logistic Regression Model

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1ᵃ	Age	.009	.011	.622	1	.430	1.009	.987	1.031
	British_vs_other	.224	.316	.502	1	.479	1.251	.673	2.323
	SO_vs_Other	1.471	.432	11.595	1	.001	4.353	1.867	10.149
	Emergency_vs_ Other	.918	.235	15.309	1	.000	2.503	1.581	3.964
	GenM_GerM_AE_ vs_Other	-.120	.185	.420	1	.517	.887	.617	1.275
	Eightplus_vs_ Other	.705	.220	10.231	1	.001	2.024	1.314	3.118
	Medmaxfive_vs_ other	.499	.179	7.727	1	.005	1.647	1.158	2.340
	Length of Stay (Days)	-.021	.009	6.068	1	.014	.979	.963	.996
	Lives_alone	.424	.192	4.892	1	.027	1.528	1.049	2.226
	Followup	.360	.182	3.922	1	.048	1.434	1.004	2.049
	Constant	-6.347	.980	41.922	1	.000	.002		
a. Variable(s) entered on step 1: Age, British_vs_other, SO_vs_Other, Emergency_vs_Other, GenM_GerM_AE_vs_Other, Eightplus_vs_Other, Medmaxfive_vs_other, Length of Stay (Days), Lives_alone, Followup.									

5.7 UHS Inpatient survey ("Share your experience of our care")

The present study noted that some of the factors patients identified in Phase 2 are not routinely collected. UHS uses an inpatient survey aimed at understanding patients' opinions regarding the care they received and their involvement in their care. The patient experience team was contacted to obtain data for 2019, however, the findings of the specific questionnaire were unavailable as UHS had moved to another survey supplier and no longer had access to the data. The questionnaire had changed and questions regarding patients' involvement were introduced in February 2020. This resulted in receiving two datasets. As some of the opinions shared in the surveys include the factors not routinely collected (i.e. inclusion in discharge planning), the results of the surveys were obtained to support this study. The first covered the time period from February 2019 to January 2020 and included a summary of the overall response rates as well the summary of the negative and positive response rates per month. The results presented in Table 5.11 below are across four divisions and 85 wards. The average response rate was very low with only 9.9% of those admitted providing feedback with an average of 97.5% being positive and 0.9% negative.

Table 5.11: Phase 3 – UHS inpatient survey responses

Feb-19 to Jan-20	Response rate	Negative	Positive
Average	9.9%	0.9%	97.5%
Min	8.4%	0.4%	95.7%
Max	13.5%	1.9%	98.6%

The second dataset covered the time period from February 2020 to March 2020. Upon examining the second dataset of those over 65 y.o., there was a total of 188 responses. Of those 188 patients, 50.5% were male, 44.7% female and 40.4% were 65 to 74 y.o. and 59.6% 75 + years. The most notable results showed that 80.9% were extremely likely to recommend the UHS service to family and friends that may require similar care or treatment which suggests a positive view of the care received. Most admissions were emergency or urgent admissions (64.4%) and patients reported positive responses on pain management and confidence and trust of clinical staff. Most patients reported being involved in decisions about their care and treatment (68.1%) as well as decisions about their discharge (79.8%). However, 56.4% reported that they were able to find someone to discuss their worries and fears. The full results are presented in Table 5.12 below.

Table 5.12: Phase 3 – UHS inpatient survey questionnaire

Are you:	Male	50.5%
	Female	44.7%
	Gender neutral	3.7%
	Prefer not say	1%
Age:	65 to 74 years	40.4%
	75 + years	59.6%

Thinking about the service we provide, how likely are you to recommend our service to friends and family if they needed similar care or treatment?	
Extremely likely	80.9%
Likely	15.4%
Neither likely nor unlikely	1.1%
Unlikely	1.1%
Extremely unlikely	0.5%
Don't know	1.1%

Was your admission planned in advance or an emergency?	
Emergency or urgent	64.4%
Waiting list or planned in advance	22.9%
Something else	10.1%
No response	2.7%

Do you think the hospital staff did everything they could to help control your pain?	
Yes	95.7%
No	1.1%
No response	3.2%

Were you involved in decisions about your care and treatment?	
Yes	68.1%
To some extent	18.6%
No	4.8%
I didn't want to be involved	3.7%
No response	4.8%

Other than doctors and nurses, did you have confidence and trust in any other clinical staff treating you (e.g. physiotherapists, speech therapists, pain team, dietitians)?	
Yes	77.1%
I wasn't seen by any other health professionals	13.3%
No	2.7%
No response	6.9%

Did you find someone on the hospital staff to talk to about your worries and fears?	
Yes	56.4%
I didn't have any worries or fears	29.8%
No	9.6%
No response	4.3%

Did you feel you were involved in decisions about your discharge from hospital?	
Yes	79.8%
I didn't want to be involved	3.7%
No	7.4%
No response	9.0%

5.8 Discussion

Phase 3 aimed to address two questions; (i) what factors identified as important by people who had had an experience of hospital readmission are recorded in the routine patient data obtained by the University Hospital Southampton NHS Trust? and (ii) what is the relationship between the factors indicated by participants in Phase 2 and those recorded in the UHS database and hospital readmission? The research questions and objective of this phase were addressed and various risk factors that were identified in Phase 2 were examined. As presented in the results section, several disease related and factors of hospital readmission were identified. Phase 3 identified that the social factors and functional factors highlighted by patients in Phase 2 were not routinely collected. In this section, the main results of this study phase will be discussed in further detail and against existing literature.

The present study highlights that information on patients' involvement in decisions about their discharge and treatment were not routinely collected. The opinions of patients about their involvement is something that is collected on a voluntary basis in the inpatient surveys available; the results of which have been used as supporting data in this study. The UHS inpatient survey aims to collect feedback on patients' involvement in decisions about their care, treatment, and discharge. However, as this is a survey that patients complete on a voluntary basis, the results may not provide an accurate reflection of patients' involvement in these areas as the response rates were very low. Despite the feedback for the overall care received being positive, this may not reflect the views of the wider patient group. The results also indicate positive views regarding patients' involvement in decisions about their care and treatment as well as decisions about their discharge which contradicts existing literature that suggests that when patients describe their experience, they refer to being excluded from decisions about their care, treatment and discharge planning (Dilworth, Higgins and Parker, 2012; Lawrie and Battye, 2012; Healthwatch England, 2015b, 2015a; Blakey *et al.*, 2017; Considine *et al.*, 2020). Importantly, approximately half (56.4%) reported finding someone to discuss their worries and fears which may further contribute to literature that highlights the existence of communication gaps (Lawrie and Battye, 2012; Retrum *et al.*, 2013; Healthwatch

England, 2015a). This phase also focused on examining six assumptions of which three were accepted and three were not accepted.

Null hypothesis accepted:

- Patients with an emergency first admission are more likely to be readmitted.
- A shorter hospital length of stay will result in a greater probability for patients being readmitted.
- Patients with 8+ chronic conditions are more likely to be at a greater risk of readmission.

Null hypothesis not accepted:

- Increase in age will result in a higher risk of patients being readmitted.
- Patients receiving 5+ medications are at a greater risk of hospital readmission compared to those with less.
- The higher the discharge alert system, the higher the risk of patients being readmitted.

The present study showed that gender had no significant association with hospital readmission which supports existing evidence (García-Pérez *et al.*, 2011; Sganga *et al.*, 2017). This also further highlights the divide within the literature were other studies suggest that males were at a higher risk of readmission (Paula *et al.*, 2016; Hallgren and Aslan, 2018; Kadri *et al.*, 2018; Low *et al.*, 2018; Pedersen, Mark and Uhrenfeldt, 2018; Wen *et al.*, 2018). The literature includes conflicting reports on this with some studies suggesting that increasing age was a risk factor (Robinson, Howie-Esquivel and Vlahov, 2012; Craven and Conroy, 2015; Mathew *et al.*, 2016; Ali *et al.*, 2017; Ferré *et al.*, 2019) whereas others providing contradicting evidence (García-Pérez *et al.*, 2011; Sganga *et al.*, 2017).

This has also been the case in the current study which found that age was not a predictor of hospital readmission despite the significant association found in the Chi-square test which suggested that people over 85 y.o. were more likely to be readmitted. An explanation for the higher percentage of older women being readmitted in this study may be that a higher proportion of women live to older ages than men and thus the proportion of women being readmitted may be reflective of this.

The present study found that people living in an SO postcode prefix were 4 times more likely to be readmitted. Although there were no findings specific to Southampton within the literature that add to this, it is likely that this may be an effect of obtaining data from one site only that mostly serves people living in this area. Furthermore, UHS is a major trauma centre so it is likely that people may have been readmitted closer to where they live rather than returning to UHS. This assumption may be highlighted in the descriptive statistics where 81.4% of people in the first admission had an SO postcode prefix which increased to 96.2% at readmission.

This trend might also be in part due to the higher level of deprivation in Southampton compared to the surrounding areas. Southampton is reported as 54th (out of 326) most deprived local authority in the Index of Multiple Deprivation (IMD). Whereas, areas surrounding Southampton are some of the least deprived: Winchester is 293rd, Eastleigh 288th, and Bournemouth, Chichester and Poole 166th. There is evidence that people living in more deprived areas are less likely to be able to draw on formal support (Blane, McLean and Watt, 2015) and are more likely to be readmitted (Hu, Kind and Nerenz, 2018). An association between individual social capital and general and physical health and healthy behaviours has been reported (Emmerling *et al.*, 2019). `Living in poorer areas could lead to more adverse health outcomes due to exposure to unhealthy environments and unhealthy lifestyle (Friebel *et al.*, 2018). One of the factors affecting an individual's level of social capital is their living environment. Older people living alone make up 11,283 households in Southampton which is 10.5% of all households in Southampton (Southampton City Council, 2019). In line with the literature, this study found that living alone is associated with a higher risk of readmission and that people who live alone were approximately 1.5 times more likely to be readmitted (Dilworth, Higgins and Parker, 2012; Royal Voluntary Service, 2014; Pimouguet *et al.*, 2017).

However, during the earlier stages of the study the association found was that people living with others are more likely to be readmitted which may have been a result of the missing values (19.4%) which were replaced by the mean value of the variable and may have had an impact in the analyses conducted. Living in a deprived area and/or alone may further increase older people's risk of hospital readmission which may reflect the findings of this study. This is an important risk factor as research suggests that social isolation and

self-neglect is common among older people and may increase negative health events (Dong and Simon, 2014; Shebehe and Hansson, 2018) including hospital readmission, especially for people living in more deprived areas.

Most patients within the "readmitted group" had an emergency first admission (81.8%) and the study results indicated that emergency admission is associated with higher risk of hospital readmission. The current study found that these patients were 2.5 times more likely to be readmitted which is in agreement with existing literature (Billings *et al.*, 2012; Robinson *et al.*, 2019). As such, the null hypothesis that patients with an emergency first admission are more likely to be readmitted was accepted. Research suggests that there has been an increase of 1.27% from 2012/13 to 2015/16 in patients being readmitted following an emergency admission and a 0.13% decrease following an elective procedure (Friebel *et al.*, 2018). This trend may be explained as patients who are electively admitted may have time to prepare physically and mentally for their admission by gathering information regarding their condition or procedure as well as plan for their post-discharge support. In contrast, a patient admitted via emergency may be overwhelmed by the incident and may not have the time to adjust or plan accordingly. Access to primary healthcare in deprived areas has been found to be lacking (Blane, McLean and Watt, 2015) which further explains the increased use of emergency care in deprived areas (McCormick, Hill and Redding, 2018).

Age UK suggests that the reported increases in readmissions of people with an emergency admission could be an indicator of early discharge (Age UK, 2019a). Many studies have identified the index length of stay of three days and less, or ≥ eight days as one of the major risk factors for hospital readmission (García-Pérez *et al.*, 2011; Morandi *et al.*, 2014; Paula *et al.*, 2016; Ali *et al.*, 2017; Hallgren and Aslan, 2018; Kadri *et al.*, 2018). The average LoS for the "not readmitted group" in this study was higher than the national average of 4.5 days in 2019/20 (Ewbank *et al.*, 2020) with 6.56 days (SD=13.2) and most patients stayed in hospital for 0-3 days (63.6%). For the "readmitted group", the first admission average LoS was 6.37 days (SD=9.57) with most patients staying in hospital for 0-3 days (50.9%). In terms of their readmission, an increase was noted within their average LoS increasing to 8.42 days (SD=13.82) and their hospital stay decreasing for those staying 0-3 days (48.4%).

The results indicate that when the LoS of the first admission increased by one day, the odds of hospital readmission decreased by 2.1% which results in the null hypothesis that a shorter hospital stay will result in a greater probability of patients being readmitted accepted. 37.7% of patients had a hospital readmission within the first three days of their discharge. This could support existing literature which suggests that the first three days after a discharge from hospital is the highest risk period for an unplanned hospital readmission with one in 10 readmissions occurring one day after discharge (Considine *et al.*, 2018; Hallgren and Aslan, 2018).

However, it is also important to note that advancements in healthcare delivery have led to a decrease in length of stay in hospital for a large number of patients, with the average time spent as inpatient decreasing from 8.4 days in 1998/99 to 4.5 in 2018/19 (Ewbank *et al.*, 2020). The concept of a shorter length of stay does not only lead to reduction in health care associated infections and better treatment outcomes, it also benefits the system in terms of reducing medical costs and optimizing bed turnover rates (Baek *et al.*, 2018).

The UK National Health Service (NHS) has been lauded globally for delivering a high standard of patient care, free at the point of need. However, concerns have been raised over the ability of the NHS to cope with the rising demands on health and social care due to the ageing population, increasing prevalence of multimorbidity and higher levels of frailty (Wittenberg, Hu and Comas-Herrera, 2012; Age UK, 2019a; Aggarwal, Woolford and Patel, 2020).

Two of the most well-known risk factors associated with hospital readmission are comorbidities and polypharmacy (Wong *et al.*, 2011; Morandi *et al.*, 2014; Picker *et al.*, 2015; Cassell *et al.*, 2018; Pereira *et al.*, 2021b). The reasons for hospital readmission are often related to underlying chronic conditions as the management/treatment of one condition may affect another (Aggarwal, Woolford and Patel, 2020; Pereira *et al.*, 2021b). Comorbidities have been associated with polypharmacy, both of which have been related to hospital readmission (Picker *et al.*, 2015; Pereira *et al.*, 2021b).

Patients in "not readmitted group" with 8+ comorbidities represented 62.1% of the overall sample and the leading medication group was that of 6-10 medications (66.4%) with an average of 7.71 medications. Patients in the "readmitted group" with 8+ comorbidities represented 81.1% of the overall sample which increased to 84.9% on their readmission. Patients with 8+ comorbidities were 2 times more likely to be readmitted than those with fewer conditions, which results in the null hypothesis being accepted that those with 8+ chronic conditions are more likely to be at a greater risk of readmission.

The average number of medications increased from 8.06 to 9.30 and the medication group of 6-10 remained first with an increase of 3.8% noted in the "readmitted group". The results suggest that those prescribed up to 5 medications were over 1.5 times more likely to be readmitted which results in the null hypothesis that patients taking 6+ medications had a greater risk of hospital readmission compared to those with a lower number of medications not being accepted. An explanation could be the replacement with the mean value for a large amount of missing data (43.7%) hence, this result may not be accurate and reflective of the sample.

Furthermore, the chi-square test showed that those prescribed more than six medications were more likely to be readmitted than those who were prescribed less than five medications which is different to the results from the logistic regression. However, this study lacks evidence to suggest which conditions and what combinations patients had as well as what medication types were taken which may have more adverse outcomes after discharge and subsequently lead to readmission.

Long-term health conditions are an increasing challenge for the health care system as they are linked to 70% of inpatient hospital admissions and 70% of the NHS current healthcare expenditure (Aggarwal, Woolford and Patel, 2020). The healthcare system is not equipped to manage comorbidities simultaneously as it is currently optimised on the treatment of single diseases (Kingston *et al.*, 2018; Woolford *et al.*, 2021). In the present study, the main disease classification of the "readmitted group" for both admissions was "*X Diseases of the respiratory system*" J00-J99].

However, as the literature suggests the index reason of admission differs from the reason for readmission, although they may be related (Hughes and Witham, 2018; Brunner-La Rocca et al., 2020). This is further supported by the results showing that in the readmitted group, 20.8% had the same reason for readmission as the index admission whereas 79.2% had a different reason. The primary diagnoses as the first reason for admission in the "readmitted group" were unspecified acute lower respiratory infection, chronic obstruct pulmonary disease, and tendency to fall. Whereas, the primary diseases of readmission were tendency to fall followed by lobar pneumonia, and unspecified acute lower respiratory infection.

Although, the results of this study concur with existing literature in terms of the leading reasons for readmission, the reason for admission had no significant association with hospital readmission. Current literature suggests that a history of falls has been associated with functional decline at 30 days, in-hospital complications and hospital readmission (Kronzer et al., 2016; Hallgren and Aslan, 2018; Lee et al., 2018) which is not supported by the findings of this study even though fall was the predominant reason for hospital readmission.

When looking at ways of reducing hospital readmission, research suggests that even a simple intervention such as a community nurse contact after discharge could help reduce 30-day hospital readmission rates (Vernon et al., 2019). Many studies have showed that follow-up interventions had a positive effect on hospital readmission reduction (Courtney et al., 2009; Rytter et al., 2010; Legrain et al., 2011; Falvey et al., 2016; Rayan-Gharra et al., 2019). In the present study, most patients who had a readmission had no follow up care planned (58.5%) during their first discharge which significantly changed after their readmission as 60.4% were discharged with follow up care in place. Those with a follow up care in place after discharge were approximately 1.5 times more likely to be readmitted which contradicts existing literature. An explanation for this could be the fact that patients who are identified in need of continuity of care outside of a hospital setting may have increased needs or more adverse outcomes that could result in readmission. Furthermore, the timing of the follow up care is unknown and therefore, it is unclear if this had taken place prior to being readmitted.

For example, the current research had 37.7% of patients who had a hospital readmission within the first three days of their discharge and 49.7% of the overall sample readmitted within the first five days of discharge. Hence, it is likely that the follow up care did not take place prior to being readmitted. Importantly, this variable was obtained in the form of yes/no rather than detailing the exact form of follow-up care (e.g. outpatient appointment, home visit) put in place which prevents further exploration into specific interventions.

When taking into consideration the poor access to primary healthcare in deprived areas, it could be argued that similar issues exist in terms of access to other services such as support from social services. This could be explained based on the high demand for these services in deprived areas which may result in extended lead times resulting in a patient being readmitted. However, as discussed earlier, the vast majority of patients in the present study had been readmitted within the first five days of discharge so it is likely that the follow up care did not take place prior to being readmitted. Although, it is important to note that there was a proportion of missing data (24.1%) which could impact the accuracy of the findings.

Research suggests that when bed occupancy increased by 1% there was an associated increase in the discharge rate (0.49%) and hospital readmission (0.011%) and these results were more pronounced for older patients which may be linked with ineffective discharge planning (Friebel *et al.*, 2019). In addition, older people are at greater risk of hospital readmission when they are discharged from the hospital at times of high bed occupancy (Blom *et al.*, 2015; Friebel *et al.*, 2019). It is likely that the additional pressure to make beds available due to high bed occupancy results in some patients being discharged sooner and although their study did not provide further evidence on this, they consider that this may be due to successful prioritisation of early discharge for less vulnerable patients (Friebel *et al.*, 2018).

Phase 3 also attempted to identify if early discharge during periods of high bed occupancy led to readmission. To examine this, data on the NHS developed Operational Pressures Escalation Levels (OPEL 2018) were collected. This system was developed to maintain patient safety and deliver of high quality care and decides a hospital's alert status twice daily based on the bed and staffing levels and ED admissions. The most significant status is "Black" which suggests that there are no available beds, no expected discharges, and ED is full. The "Red" alert follows suggesting that there is high pressure in operations and challenges in supply and demand (University Hospital Southampton NHS Foundation Trust, 2019).

In the present study, the highest reported values of alert status upon patients' first and second discharge were Red and Black (Appendix 36). The results of this study did not support the assumption that the higher the discharge alert system, the higher the risk of patients being readmitted. This could be due to the alert status highlighting various variables that could have an impact (i.e., bed occupancy, staff levels, ED status) rather than a consistent measure. This may have prevented identifying a pattern as it is unclear what variable may have affected the given status for each occasion.

The current study has several strengths including using clinical data that were consistently collected using standard practices which provided the ability to examine the phenomenon of hospital readmission using statistical analysis to draw conclusions on demographics, group comparisons and factors that lead to readmission. However, some limitations were also identified. The main limitations were the fact that the data collected were from a sample collected from one hospital site and was not specific for this type of research. Furthermore, as UHS is a major trauma centre, it is likely that some patients may have been readmitted to other hospitals which would not have been reflected in the data collected for this study. These limitations affect the ability to generalise the results to the wider population. The generalisability of the results may also be affected as the data were obtained from a period prior to the COVID-19 pandemic and these results may not reflect the healthcare system post-pandemic due to the significant changes seen. Further limitations could be seen in the volume of missing data. Finally, human error cannot be eliminated so inaccuracies may be present in the data.

5.9 Conclusion

This study identified that several factors of hospital readmission that mattered to participants from Phase 2 were routinely collected, however, there was a lack of data relating to patient involvement in their discharge planning/treatment, readiness for discharge, functional limitations, and informal care. Moreover, data from the present study suggest that there is a gap in the data collected in regard to medication number, living alone and continuation of care (SCC, follow-up) as although these are available on the system, they don't appear to be routinely collected for all patients. Patient involvement is measured on a voluntary basis in the form of patient experience surveys, however, the completion rate is very low and therefore, may not reflect the views of most patients. It is also key to mention that patients' records do not highlight readmissions as each admission is individually recorded. This may in itself be a further limitation of the system that may need to be addressed.

The present study attempted to analyse factors that matter the most to patients from Phase 2 and their association to readmission. The results of this study support existing literature showing that the index reason of admission differs from the readmission reason (Hughes and Witham, 2018; Brunner-La Rocca *et al.*, 2020). Other risk factors within the literature are those suggesting emergency admissions (Billings *et al.*, 2012; Robinson *et al.*, 2019), comorbidities, polypharmacy (Picker *et al.*, 2015; Pereira *et al.*, 2021b) and shorter LoS during first admission (Dobrzanska and Newell, 2006; Horney *et al.*, 2017; Hallgren and Aslan, 2018) which the current study supports as well. The NHS has increased its focus on data quality which is used to improve its services (Data Services NHS, 2021). Several of these factors would contribute to providing a holistic approach in relation to patient care and particularly post-discharge care, which could contribute to the avoidance of hospital readmission. Appropriate discharge planning and continuity of care play a significant role in patients' health improvement and avoidance of adverse outcomes. 'Poor' discharge planning is considered a risk factor for hospital readmission (Hesselink *et al.*, 2014). The NHS acknowledges the importance of good discharge planning from patient involvement to the provision of integrated services post discharge (NHS, 2019b).

A good discharge plan should have a holistic view of patients discharge needs (i.e., functional ability), living arrangements, and living area. The findings were in agreement with the literature regarding the patient-level factors (such as comorbidities, LoS) that put a patient at higher risk of readmission as well as community-level factors (such as living alone, postcode, follow-up care). However, of the factors identified by patients, not all are routinely collected which further supports views that the accuracy of existing prediction models may be influenced by missing risk factors that have yet to be identified (Kahlon *et al.*, 2015) and that existing predictive models remain inconsistent (Kansagara *et al.*, 2011; Zhou *et al.*, 2016; Artetxe, Beristain and Graña, 2018).

To understand such a complex phenomenon, it is important to use both qualitative and quantitative methods to interpret risk factors as both offer a unique perspective into hospital readmission. Most existing approaches relevant to understanding the risk of readmission are disease focused and lack input from patients in terms of their views on functional, socioeconomic, and emotional needs. One method alone cannot provide a holistic understanding of hospital readmission. Exploring readmission from the patients' experiences offers a deeper understanding that routinely collected data may not capture. Using only routinely collected data offers a one-dimensional view of hospital readmission as viewed from a clinical point of view. It is therefore important to understand hospital readmission as captured by clinical data and interpret them from the patients' point of view as well as further examining factors that are identified by patients not reflected in clinical data which was achieved through the present study.

Chapter 6 Discussion

6.1 Introduction

A discussion of the results of the three interconnected phases and how they help address the research questions of this mixed method study is presented in this chapter. Furthermore, the results will be discussed in relation to existing literature, with specific focus on bridging current gaps in the evidence, highlighting new findings, relevant recommendations and the implications for clinical practice. As highlighted in previous chapters, there are concerns regarding the ability of the NHS to cope with the rising care demands resulting from an increasingly ageing population and the increasing prevalence of multimorbidity and frailty (Wittenberg, Hu and Comas-Herrera, 2012; Age UK, 2019b; Woolford *et al.*, 2021). These concerns stem from the increase in hospital admissions, bed availability, staff shortage and delivery of high quality care. Further added to these challenges is the higher hospital readmissions, with rates increasing from 12.5% in 2013-14 to 13.8% in 2017-18 (Li *et al.*, 2014; Blakey *et al.*, 2017; Friebel *et al.*, 2018; NHS, 2019b).

Literature on hospital readmission is heavily influenced by quantitative studies and there is limited knowledge drawn from qualitative studies that shed light into older people's narratives and experiences of readmission. Hearing the voices and 'what matters most' to patients who may have had this experience is more likely to lead to effective solutions and improvement of patient-centred care delivery (Lawrie and Battye, 2012; People and Communities Board and National Voices, 2016). Understanding how readmission is experienced from the users' perspective is vital in informing what difficulties they are facing; what their unmet needs are; and how the health care system could evolve to address these issues.

The present study aimed to explore factors that matter most to older people who may have had an experience of readmission and examine whether these factors were integrated into routinely collected hospital data. This mixed method study used an exploratory design, in which the results of the qualitative component informed the quantitative phase (Creswell and Plano Clark, 2006).

The qualitative phase enabled the researcher to engage with older people and ask open questions that empowered them to share their experiences. The factors identified were further examined in the quantitative phase to understand how these were reflected in routinely collected health care data. Overall, the current study focused on understanding hospital readmission with patient-centred care in mind and in line with the latest NHS strategy and it may help (i) inform services aimed at preventing readmissions, (ii) improve patient experience, (iii) provide a better understanding of patients' needs and (iv) inform existing predictive models of hospital readmission.

6.2 Phases 1, 2 & 3

As detailed in earlier chapters, this study comprised of three interconnected phases: each informing the next phase. Phase 1 included a PPI group of 10 volunteers, who were seen as an advisory group helping with the design and finalization of the interview schedule. The involvement of the PPI group ensured that the interview schedule that was used in Phase 2 was relevant to the target group, user-friendly, appropriate, clear and cohesive (Hanley, Bradburn and Barnes, 2004; INVOLVE, 2012). This was followed by Phase 2 which used the final interview schedule to explore the lived experiences of older people who had had a hospital readmission and what factors, processes, and relationships mattered the most to them.

Phase 2 used the IPA approach as it provided a greater understanding of hospital readmission as it looks to understand the events from the participants' point of view and allows the researchers to interpret the participants' accounts (Smith and Osborn, 2008; Larkin and Thompson, 2011; Alase, 2017). In accordance with the established inclusion/ exclusion criteria of this study, the participant recruitment resulted in 10 participants being studied in phase 2. Face-to-face interviews were mutually agreed, at least one week after participants' discharge, in order to provide participants time for adjustment and reflection on their experience. The research question *"What do older people identify as the main factors for hospital readmission through their own lived experience of hospital readmission?"* was answered and a number of factors for hospital readmission that mattered the most to the participants were identified. Phase 2 informed the final quantitative study.

Phase 3 utilised a cross-sectional design and involved a retrospective analysis of routinely collected primary care data and administrative data to examine if the main factors identified by the participants in Phase 2 were reflected in the UHS database and their relationship with hospital readmissions. Table 6.1 below presents a summary of the factors identified in Phase 2 and how these reflected in the data obtained in Phase 3. Phase 3 focused on answering the questions; *"What factors identified as important by people who have had an experience of hospital readmission are recorded in the routine patient data obtained by the University Hospital Southampton NHS Trust (UHS) database?" and "What is the relationship between the factors indicated by participants in Phase 2 which are recorded in the UHS database and hospital readmission?".* To ensure a consistent and cohesive link between Phase 2 and 3, the same inclusion/exclusion criteria were followed.

Table 6.1: Phase 2 & 3 – Summary of factors

Phase 2 – Findings (Sep 2018 – Jul 2019)	Phase 3- UHS data (Oct – Dec 2019)
Sociodemographic	
Age/ Gender/ Ethnicity/ Postcode prefix/ Lives alone	Age/ Gender/ Ethnicity/ Postcode prefix/ Lives alone
All about me without me	
Experiencing the healthcare environment: Healthcare/Food, Transport, Sleep/ Comorbidities/ Medications/ Busy	Admission: Type of admission (Emergency/Elective)/ Ward, Method, Source/ Speciality/ Diagnosis/ Comorbidities /Medication/ LoS/ UHS Inpatients survey
Perceptions of discharge decisions: Early discharge/ Included- Not included/ Ready- Not ready for d/c	Discharge: Day, Alert system, Method, Destination/ UHS Inpatients survey
Fragmented and ad hoc post-discharge support	
Daily living and post-discharge challenges: Functional limitation/ Independent	Not routinely collected
Continuation of care: Informal care/ Follow-up- No follow up/ SCC involvement/ Rehabilitation centre	Not routinely collected Outpatient appointment/ Healthcare professional visit/ Southampton City Council
Pathways of hospital readmission: UHS ward/ 999/ Other/ GP/ Ambulance/ Own transport	Not routinely collected Post discharge LoS
My readmission experience and what led me back	
Greater attention led to better experiences: Attentive care	Readmission: Type of admission/ Ward, Method, Source/ Speciality/ Comorbidities/ Medication/ Day/ Alert system, Method, Destination
Perceived risk factors of hospital readmission: Infection/ Pain/ Breathing difficulties/ Surgical emphysema/ Fall/ early d/c/ Poor practice	Diagnosis/ LoS
Preventability of my readmission: Avoidable/ Inevitable	Not routinely collected
Segregated health and social services that are detached from people's needs	
Causes and effects of faulty integrated care services: Disorganised/ Let down	Not routinely collected
All-round care services: Integrated:	Not routinely collected
Key: included in UHS Inpatients survey/ Not routinely collected	

6.3 Discussion of the results

Firstly, this study showed the importance of patient perception of readiness and how it should be included in discharge planning as it reflects their formal/informal support needs and functional needs outside of the hospital and need for access to guidance and information within the community. Secondly, it found that non-clinical factors related to patients' everyday contexts and access to formal and informal support are likely to be at least as important as clinical indicators for readmission. However, unlike the latter, these are only discursively recognised as valuable, but are not included in normal practice, and such data is not routinely collected. Thirdly, the study offers insight into some of the mechanisms through which individual level and area-based inequalities may shape readmissions. Finally, continuation of care that involves multidisciplinary teams and engages informal carers is seen by patients as a key source of support that may prevent readmission.

The study's varied methodology enabled each Phase to offer unique and valuable insight in terms of answering the key questions. This research started with an advisory group offering their opinion at Phase 1 in order to finalise the interview schedule during which some concerns associated with the topic of hospital readmission were raised. Phase 2 focused on patients' voice in relation to hospital readmission, the factors they felt led to it, and how each impacted on their experience. These factors and their relationship with hospital readmission were further examined in Phase 3, along with associated factors noted in the wider literature, and identified which factors were routinely collected or not. This section will discuss the findings of all three Phases and how they each interacted with the next Phase. Phase 1 engaged people over 65 y.o. and discussed the design of the interview schedule of Phase 2. Even though the members of this advisory group did not have direct experience of hospital readmission, a few had experience as friends and/or family of someone who had a readmission. Their feedback helped finalise an interview schedule that enabled people to share their experiences from which four superordinate themes emerged (Chapter 4, Section 4.9). The emerging themes consisted of several factors developed from the patient profile (sociodemographic information, comorbidities, medication) and lived experiences were included in the data request to UHS.

The key findings of Phase 2 indicated that readiness for discharge and involvement in decisions were very important factors of readmission for patients and many noted that their readmission may have been avoided if these formed part of their experience. However, the multifactorial nature of the phenomenon suggests that a complex web of factors and incidences make it difficult to clearly define its main risk factors. For example, many patients felt that if they had stayed more in hospital, it may have prevented their readmission. Phase 3 found that when the hospital stay increases, the risk of readmission decreased which supports patients' feelings towards early discharge and its impact towards readmission.

The short duration of inpatient stays and limited interaction with healthcare professionals could potentially create an overwhelming situation for patients. Whether the short stay results from good clinical practice or hospital pressures, it can affect patients' involvement and readiness. This situation can lead to patients lacking adequate time to reflect on the events and leaving them with unanswered questions or insufficient time to plan for the next steps after their discharge.

Furthermore, Phase 3 results highlighted risk factors related to patients' health status like type of admission, comorbidities and polypharmacy, which are linked to post-discharge needs and short/long term care. In Phase 2, participants centred the interviews around the issues and challenges they came across as well as their unmet needs throughout their experience. Participants talked about the importance of continuation of care and how it could alter their experience especially if the right care was in place at the right time. For example, patients that are emergently admitted and have a poor discharge plan that does not consider their needs and worries and lacks a strong continuum of care, could possibly disregard important aspects of their recovery and could expose them to a higher risk of being readmitted. Although Phase 3 indicated that patients with a planned follow-up care plan had a higher risk of being readmitted, it is unclear what was the type of care (e.g home visit) and what impact it may have had if it had taken place prior to being readmitted This lack of clarity prevents us from having more conclusive results.

Finally, patients strongly felt that one of the most important elements in their recovery was the support from their social networks. These findings can also be deduced from the results of Phase 3 which found that people living alone were more likely to be readmitted than those living with someone. This also shows how important the support of social networks can be in a patient's recovery. Both phases show the importance of patient-centred care that addresses patients' needs (medical, social etc.) in the road for recovery.

As highlighted in Chapter 5, Section 5.6, not all factors could be obtained as some were subjective views of patients whereas others were not routinely collected. In Chapter 6, the factors from Phases 2 and 3 will be presented in two categories: those routinely collected (sociodemographic information, comorbidities, LoS, ICD-10 primary diagnosis, discharge alert status, and admission details) and those not routinely collected (medication number, living alone, continuation of care, inclusion in discharge planning/treatment, readiness for discharge, functional ability, and informal care).

6.3.1 Routinely collected data

6.3.1.1 Sociodemographic information

Increasing age is one of the factors with conflicting reports being identified within the literature with several studies supporting it as a risk factor for hospital readmission (Robinson, Howie-Esquivel and Vlahov, 2012; Craven and Conroy, 2015; Mathew *et al.*, 2016; Ali *et al.*, 2017; Ferré *et al.*, 2019) and others suggesting that it is not (García-Pérez *et al.*, 2011; Sganga *et al.*, 2017). The present study indicated that although a significant association exists between age and hospital readmission, age was not a predictor of readmission as highlighted by the logistic regression analysis. However, it is important to note that in both Phase 2 & 3 the majority of readmitted patients were over 75 y.o. and the mean age was similar at 77 y.o. and 79.8 y.o. respectively. Furthermore, no participants in Phase 2 identified age as a risk factor of their readmission.

Similarly, gender is another factor with conflicting reports in the literature. Some studies suggest that men are at higher risk of hospital readmission (Paula *et al.*, 2016; Hallgren and Aslan, 2018; Kadri *et al.*, 2018; Low *et al.*, 2018; Pedersen, Mark and Uhrenfeldt, 2018; Wen *et al.*, 2018). However, this was not supported in the current study along with several other studies within the literature (García-Pérez *et al.*, 2011; Sganga *et al.*, 2017).

Both phases had a higher percentage of women with hospital readmission which may be explained either based on Southampton's population demographics or by women having a higher life expectancy than men (Southampton City Council, 2021).

A significant predictor of hospital readmission was the postcode and specifically people living in an SO postcode prefix were 4 times more likely to be readmitted. Although there have been no findings within the literature specific to Southampton that could explain this result, it could be concluded that this may reflect findings from previous research that suggest that low neighbourhood socioeconomic status is associated with hospital readmission (Shebehe and Hansson, 2018) as well as people living in deprived areas adopting unhealthy behaviours that lead to adverse outcomes; including hospital readmission (Friebel *et al.*, 2018) and having poor access to primary care (Blane, McLean and Watt, 2015).

This conclusion was drawn from Southampton's IMD which is reported to be the 54th most deprived local authority and has 41 of its 148 neighbourhoods in the 20% most deprived nationally (Southampton City Council, 2019, 2021). According to the Southampton City Council, deprivation and health inequalities exist in Southampton. The Council reports that "*there is a social gradient in health – the lower a person's social position, the worse his or her health*" (Southampton City Council, 2019). The present study could not expand on the postcode and its relationship to readmission as only the postcode prefix was collected to ensure anonymity.

6.3.1.2 Admission details

Another indicator of Southampton's IMD is the high number of emergency admissions (i.e. 12.9% for 65+ y.o.) which is significantly worse than England's average (i.e. 11.4% for 65+ y.o.) (Care Quality Commission, 2019). Research suggests that deprived areas have poor access to primary care which increases the use of emergency care (Blane, McLean and Watt, 2015; McCormick, Hill and Redding, 2018). The highest rates of emergency admissions exist amongst the most deprived areas which the council considers to be an indicator of failures to prevent illness and to provide planned care (Southampton City Council, 2019). It could be argued that the higher number of bed occupancy rates may result in pressures to balance bed turnover rates with admission rates which may result in

shorter LoS or poor discharge planning as discussed later in this Chapter (Friebel *et al.*, 2019). Figure 6.1, is a map highlighting deprivation across the city and emergency care use amongst the most deprived areas.

Figure 6.1: Maps of deprived areas and urgent care usage of Southampton
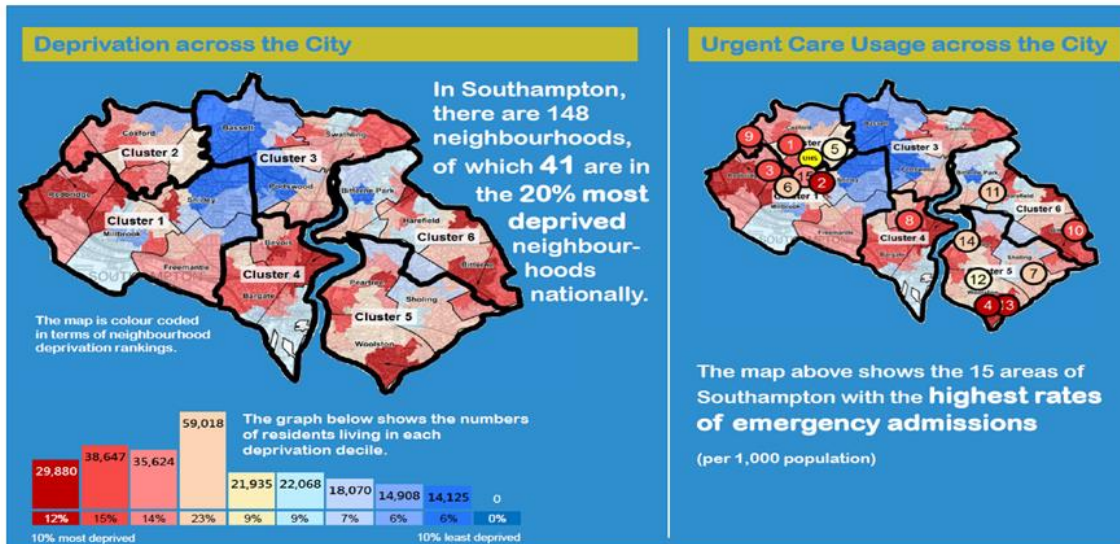
*Adapted from: Southampton City Council (2019) Transforming health and care outcomes for the people of Southampton.

The present study found that an emergency first admission was a significant predictor of readmission with people being 2.5 times more likely to be readmitted. Although participants in Phase 2 did not identify this as a risk factor, the majority had an emergency first admission. The only references made to emergency and elective admissions was that patients were more prepared for their admission and the duration of their hospital stay when they had an elective admission.

This trend may be explained as patients who have a planned admission may have time to prepare physically and mentally for their admission by gathering information regarding their condition or procedure as well as plan their post-discharge support. In contrast, those who have an emergency admission may be overwhelmed by the incident and may not have the time to adjust or plan accordingly. NHS best practice suggests that discharge planning should start as early as practically possible as more time planning for it would capture patients' needs without anything being overlooked. This would also enable patients to be aware of what their discharge would look like as early as possible and allow them and their social network to prepare for their care needs post-discharge (Nelson and Rosenthal, 2015; NHS, 2019a).

6.3.1.3 Primary diagnosis

Hospital readmission has been linked to several conditions, diseases, and procedures (Park *et al.*, 2014; Kahlon *et al.*, 2015; Pollock *et al.*, 2015; Lasater and Mchugh, 2016). However, this study did not find an association between the patient's primary diagnosis and hospital readmission which resulted in the variable being omitted from the regression analysis. Despite the lack of evidence regarding the association between readmission and specific conditions, the current study found that the reasons for admission and readmission differed for the majority of patients in both phases as suggested by other researchers (Hughes and Witham, 2018; Brunner-La Rocca *et al.*, 2020).

Hospital readmission could happen for a variety of reasons and not entirely as a result of medical complications. Literature suggests that readmission is often related to underlying chronic conditions rather the reason for first admission, as well as, people's needs not being met post-discharge (e.g. social admissions) due to poor continuation of care (Greysen *et al.*, 2014; Coffey *et al.*, 2019; Aggarwal, Woolford and Patel, 2020; Pereira *et al.*, 2021b). For better understanding of the risk of hospital readmission, a more comprehensive approach to patients' needs (physical, mental and social) should be adopted.

6.3.1.4 Comorbidities

Comorbidities have been widely associated with hospital readmission within the literature (Low *et al.*, 2018; Brunner-La Rocca *et al.*, 2020; Pereira *et al.*, 2021a). Similarly, this study found that people with 8+ comorbidities were twice as likely to be readmitted. In the event of a hospital admission (elective or emergency) patients with chronic illness need a holistic approach which takes into consideration their reason for admission as well as their comorbidities. Treating the acute reason of admission may affect other conditions and may lead to adverse outcomes as well as hospital readmission. A noticeable difference between the two phases is that most participants in Phase 2 had up to five comorbidities whereas in Phase 3 most had over eight comorbidities.

6.3.1.5 LoS

A well-known factor associated with hospital readmission within the literature is LoS, and studies suggest that the index length of stay of three days and less, or ≥ eight days increases the risk of readmission (García-Pérez et al., 2011; Morandi et al., 2014; Paula et al., 2016; Ali et al., 2017; Hallgren and Aslan, 2018; Kadri et al., 2018). The present study noted this trend as half of the sample in Phase 2 stayed either three days or less or over eight days. Interestingly, in Phase 3, 50.9% of the readmitted group had a LoS of less than three days and another 26.4% over eight days. When the LoS increased by one day, the odds of hospital readmission decreased by 2.1%.

Notably, few participants in Phase 2 characterised LoS or early discharge, as one of the factors that led to their readmission and commented on how they could have had a different outcome had they stayed a day longer. This shows that LoS is critical both from a clinical and patient perspective. When assessing the impact of LoS on hospital readmission, it is important to bear in mind healthcare advancements over the years that have led to the reduction of inpatient stay; including hospital infection prevention and improved treatment outcomes (Baek *et al.*, 2018; Ewbank *et al.*, 2020) as well as hospital management optimisation including improved bed turnover rate and reduction in costs (Baek *et al.*, 2018).

Despite that, patients' narratives in Phase 2 characterised their discharge as early, lacking readiness to return home, and a risk factor of their readmission which may highlight that discharge planning was not fully optimised. Even when patients are medically optimised for discharge, poor communication or other social factors may hinder their feelings of readiness. In fact, patients are at a higher risk of readmission within the first three days of their discharge with one in 10 readmissions (within 28 days) occurring the day after (Considine *et al.*, 2018, 2020; Hallgren and Aslan, 2018).

In the present study, the majority of participants in Phase 2 were readmitted after seven days or less and in Phase 3, the average post-discharge LoS was 6.84 days and 49.7% were readmitted after five days or less. In Southampton, some reporting periods (Q3 2018/19) had 11% of readmissions occurring in the first seven days; a percentage significantly worse than England's average of 8% (Care Quality Commission, 2019). For context, in the

same reporting period, the percentage of emergency readmissions within 30 days of discharge was 23% in Southampton and 19% average in England (Care Quality Commission, 2019).

6.3.1.6 Discharge alert status

An important factor that mattered to participants in Phase 2 was how busy the wards and healthcare professionals were and that this led to their discharge being early and/or rushed and at times, not knowing who discharged them. Patients also attributed, to an extent, the lack of communication to high workload of staff. Research shows that being discharged during periods of high bed occupancy puts older people at a greater risk of readmission (Blom *et al.*, 2015; Friebel *et al.*, 2019).

This has not been supported by the clinical data collected in Phase 3, although it is highlighted in patients' views in Phase 2. As discussed in (Chapter 5, Section 5.8), the discharge alert status was collected to examine how a busy hospital may impact on hospital readmission. However, this variable had its limitations as it highlights a collection of different elements including bed occupancy, staff levels and ED status and each impacts the alert status, so it is not a consistent measure.

Having individual records of each element affecting the alert status at that point in time would provide a more accurate and clearer indication of what impacts hospital readmission which would in turn help adopt appropriate measures to prevent it. Despite the alert status not being identified as a risk factor in Phase 3, it is worth mentioning that for the 'readmitted group' there was an increase of 9.4% of the Green discharge alert status whereas the others decreased in the second discharge.

6.3.2 Data not routinely collected

6.3.2.1 Medications

The routine recording of patients' medications was not established from the data received from UHS as there were several missing values in the dataset which resulted in the use of the mean value in the analysis; a limitation that has been previously highlighted. People taking less than 5 medications were at a higher risk of readmission which contradicts existing literature which suggests that taking over 6 medications is a risk factor for readmission (Picker *et al.*, 2015; Pereira *et al.*, 2021a). Although information on medications, which were collected as part of the patient profile in Phase 2, had not been identified as a risk factor as none of the participants mentioned them. It is interesting to note that the divide between those prescribed under five and over six medications was equal. The increasingly ageing population and projected increase in people living with comorbidities and subsequently the increase in polypharmacy, results in a more complex management of care. Accurate records of patients' medications (type and number) has value in more efficient and effective care provision in and out of hospital (Vernon *et al.*, 2019; Pereira *et al.*, 2021a).

6.3.2.2 Functional ability

Several factors have been identified as not routinely collected with functional ability being one of them. Information on patients' functional ability is sometimes recorded by nursing staff and therapy team in patients' notes. Functional decline has been widely linked to hospital readmission (Hoyer *et al.*, 2014; Craven and Conroy, 2015; Greysen *et al.*, 2015; Middleton *et al.*, 2019).

More importantly, functional ability has been found to be a strong predictor of hospital readmission, however, it is overlooked (Shih *et al.*, 2015). Functional decline can occur following an event of hospitalisation and as a result, people can find ADL or a return to their pre-hospital daily routine challenging (Courtney *et al.*, 2011). Functional ability is therefore an important aspect of discharge planning that should be taken into consideration prior to a patient leaving the hospital as unmet ADL needs post discharge are linked to higher risk of readmission (DePalma *et al.*, 2013; Greysen *et al.*, 2014).

This has also been highlighted in the present study specifically in Phase 2. Many participants provided details of functional limitations that they had experienced after their first discharge. The most notable were needing assistance with daily activities due to mobility restrictions and the requirement for physiotherapy and training using mobility equipment. Many participants described their experiences around functional limitations with specific focus on seeking independence and not having to rely on others.

The routine use of functional information from tools such as the ADL index or Grip Strength, could offer more personalised care support during the discharge planning process as they can inform care requirements. These tools can offer key information on patients' in-hospital and post-discharge functional status and clinical progression (DePalma *et al.*, 2013; Hoyer *et al.*, 2014) as well as be used as an overall indicator of health and as a biomarker of future health status (Bohannon, 2019; Woolford *et al.*, 2021).

6.3.2.3 Continuation of care

A key element of holistic patient-centred care is the continuation of care beyond hospital stay. Continuity of care can be ensured through various ways including home visits, telephone support, outpatient appointments, and interim placements in rehabilitation centres or care/nursing homes. For older people, this could be vital as it may help facilitate better health outcomes (Steeman *et al.*, 2006; Damiani *et al.*, 2009) and can even have a positive effect in terms of reducing hospital readmission (Courtney *et al.*, 2009; Rytter *et al.*, 2010; Legrain *et al.*, 2011; Falvey *et al.*, 2016; Rayan-Gharra *et al.*, 2019).

NHS recognises the importance of this and has increased its funding towards primary and community care (NHS, 2019b). NHS' position on continuity of care is also reflected in this study as most participants in Phase 2 had formal planned follow-up care in place (Section 4.9.2). Phase 2 may also highlight how the provision of these services may be lacking in relation to timely and organised administration as all arrangements had to be cancelled because patients were readmitted prior to any appointments taking place.

However, in Phase 3, majority of patients in the 'not readmitted group' were discharged without any follow-up arrangements being put in place. Interestingly, an increase of 18.9% in follow-up arrangements was noted in the readmitted group during their second discharge. On one hand, this could suggest that the dissemination of continuation of care arrangements targets those in need of it, however, on the other, it could suggest that there is scarcity of these provisions within the community. It could be argued that the latter could be the case as 58.5% of patients in the readmitted group in Phase 3 did not have any follow-up care in place prior to being readmitted.

In contradiction to existing literature, it was found that those that had follow up care in place after discharge were approximately 1.5 times more likely to be readmitted. As mentioned, this could suggest that patients who are identified as requiring continued care may have increased needs or more adverse outcomes that may result in admission to hospital. The present study was unable to determine which one is the case as the timing of the follow up care arrangements of Phase 3 were unknown and therefore, the impact of the timing, type, and frequency of these provisions on hospital readmission could not be examined.

Patients need for continuity of care was evident from participants' narratives in Phase 2 as many expressed how they found some form of formal care a necessity. Participants highlighted how their second discharge experience was better as they felt that the continuity of their care was more appropriate as it addressed their needs. It was also interesting to hear that some participants felt more secure being in the hospital which may affect patients' behaviours prior to being readmitted.

This can be a result of feelings of insecurity and vulnerability due to the lack of 24-hour care in the community and/or the absence of informal support they may be able to rely on if needed. Locally, this potential gap within the community has been recognised and future improvements move away from a deficit model to an integrated person-centred care that is locally coordinated (Southampton City Council, 2019).

6.3.2.4 Living alone

An important social factor for readmission is living alone, however, this information is not routinely collected. It was noted that people who live alone were approximately 1.5 times more likely to be readmitted which supports findings from existing literature (Dilworth, Higgins and Parker, 2012; Royal Voluntary Service, 2014; Pimouguet et al., 2017). However, it is also important to note that using the chi-square test the study found that people living with others were more likely to be readmitted. This contradiction in the two analyses may be a result of the missing data (19.4%). What has been interesting in this research, was that even though participants in Phase 1 had not experienced hospital readmission, they described readmission as a panicky situation, dreadful or even scary. The reasons behind these thoughts were drawn from people living alone and how they would handle this situation. This shows how the thought of being alone following hospitalisation concerns people even before they experience it.

Participants in Phase 2 did not mention living alone as a risk factor, though, it is important to take into consideration that the participants who were living alone prior to being hospitalised had family temporarily move in with them or had family and friends visit them daily. It is also noteworthy to mention that although no participants highlighted being alone or living alone to be a factor leading to their readmission, they had commented on how they would not have been able to manage on their own. This further highlights the importance of formal and informal care.

6.3.2.5 Informal care

The vital role that informal carers play in terms of patients' wellbeing and recovery is well established (Dilworth, Higgins and Parker, 2012; Verhaegh et al., 2019; Considine et al., 2020). Informal care can take many forms such as keeping company, assisting with personal hygiene, monitoring medication or even being an advocate of patients' decisions (Holmås, Monstad and Steskal, 2019). One of the topics of discussion with the PPI advisory group was about the need for carer involvement in care plans and the need for carers to be heard. In Phase 2, it was clear how grateful the participants were for their informal carer. Some participants even mentioned that without informal care they would not have been able to manage on their own.

The NHS strategic plan in supporting people to age well recognises the central role informal carers have and this is reflected in the plan to improve the recognition and support they receive (NHS, 2019b). Despite its important role and it being taken under consideration during discharge planning, informal care and the availability of carers is not routinely collected. Not monitoring data around this leaves a gap in understanding the magnitude of informal care use and may obscure the level of need for support within the community. In addition, it is worth mentioning that a large proportion of informal carers also have care needs that may not be addressed when they are looking after someone else which may increase the use of emergency care.

6.3.2.6 Patient involvement

The NHS actively promotes patient-centred care, integration of services, and encourages patients to be involved and have control over their care. However, the current study observed that patient involvement, readiness for discharge, discharge planning, and continuity of care were still lacking. Although these findings were drawn from a relatively small sample, many of them are also highlighted in the UHS inpatient survey and in a large scale survey conducted by the NHS involving 137 NHS trusts and a total of 73,015 people (Care Quality Commission, 2021). Although the response rate for the UHS survey was 9.9% and 46% for the NHS survey, the value and quality of data received from patients' accounts is unquestionable. NHS is committed to patients shaping its services and has recognised that their experiences deliver invaluable insight into the quality of healthcare services (NHS, 2019b; Care Quality Commission, 2021).

Upon exploring patient experience in Phase 2, a common theme was the satisfaction of patients regarding the care they received during their hospital stay, a notion that was also shared in the NHS patient survey as 40% of patients rated their overall experience as "10 out of 10". Phase 1 participants made remarks about whether a person that had a bad experience during their first admission or in the past may lead to not wanting to return. This is an important observation as patients who report high satisfaction with services are less likely to be readmitted (Carter *et al.*, 2018).

In addition, having an emergency admission has been associated with poorer overall experience (Care Quality Commission, 2021), which may reflect in people having a bad experience as they were not expecting to be hospitalised. Notably, the NHS survey found that 87% of patients had not been asked to share their views on the quality of their care during their stay. Another shared opinion was around busyness. Participants in phase 2 felt that at times, healthcare professionals were very busy which had an impact on their experience. In a question regarding staffing availability in the NHS survey, 38% of respondents stated that there were not enough nurses available either "never" or "sometimes". Staff shortages lead to poor staff responsiveness which in turn is associated with higher levels of readmission (Yang *et al.*, 2018).

Lack of staff availability also highlighted issues around communication and information sharing. These issues were evident both during the stay in hospital and at discharge. Many participants in Phase 2 indicated that their worries had not been addressed, they felt "side-lined" and pushed aside rather than being involved in decisions about their care and discharge. However, some participants acknowledged that professionals were under pressure due to staff shortages and time constraints. Similarly, both surveys highlight the lack of patient involvement with the most notable findings being 30% of respondents stating that before leaving hospital they were not given any information on what they should or should not do after leaving hospital and 15% were given too little data about their condition or treatment in the NHS survey (Care Quality Commission, 2021).

Interestingly, one fifth of patients reported being told different things when speaking to multiple professionals at times and 10% stated that it always happened. This further highlights gaps in communication between healthcare professionals and patients which may impact on hospital readmission as research suggests that patients reporting good communication by service providers are less likely to be readmitted (Carter *et al.*, 2018). It was concerning to note that few patients did not know who discharged them and most were not involved in the decision and did not feel they were ready to be discharged. Interestingly, patients did not regard informal carers as part of the formal discharge planning process when asked who was involved even though they felt informal carers were integral to their recovery.

Patients not being given the opportunity to share their views and feelings relating to their discharge or unable to raise their concerns undermines patient-centred care. This was also observed in the NHS inpatient survey with important findings such as one fifth suggesting that staff did not involve them in discharge decisions. Importantly, 21% highlighted that their family or home situation was not considered at discharge planning (Care Quality Commission, 2021). These issues contribute to poor discharge planning which in turn leads to lack of continuity of care or unsuccessful post-discharge interventions. The questions in the NHS survey about post-discharge support showed that 21% of people mentioned not receiving enough support from health and social care services to aid their recovery or manage their condition. It is interesting to note that one fifth of respondents stated that they were not told who to contact after leaving hospital, if they had worries about their condition or treatment. These reports further highlight the fragmented and disorganised services that participants referred to in Phase 2. Knowing who to contact after being discharged can reduce the risk of emergency readmission as well as increase the ability of a patient to manage their recovery (Care Quality Commission, 2021). Participants in Phase 2 further highlighted the importance of this as most had contacted various healthcare providers for support prior to being readmitted.

Overall, the current study has highlighted how patients' experiences may not be reflected in routinely collected data and thus, the system may be lacking insight from its main users regarding the quality and issues linked to its services. Positive patient experience may help reduce readmission (Carter *et al.*, 2018) so it is important that their voices are not silenced when it comes to matters relating to hospitalisation, discharge processes, and post discharge support. Patient involvement in care enables good communication between patients and healthcare professionals which in turn helps in addressing patients' needs and concerns. Healthcare settings prioritise patients' medical needs and thus, involving patients would shift focus on functional, social, and medical needs. For this to be successful, integration and good communication between services is imperative. For example, some of the data not routinely collected within hospital are often collected at primary care level. Improved information sharing between services could enable hospitals to have a holistic picture of the patient being treated and vice versa, continuity of care is strengthened and the gap between primary and secondary care addressed.

Another important aspect of patient involvement is shared decision making between patients and healthcare professionals. When decisions about care, discharge, and post-discharge matters are shared, they are more likely to be effective. Even more important is the involvement of social networks as it is likely that they act as an extension to health and social services as patients rely on them for support. The involvement of social networks in health and social care creates strong continuation of care which may help reduce the need for readmission. It is vital that the system can deliver care that is tailored to personal circumstances and therefore, the routine collection of information such as, functional ability, informal support, and continuation of care needs will be imperative in delivering a holistic patient-centred intervention that positively enables patients to recover within the community and reduces the risk of being readmitted.

6.3.3 Framework for Safe, Reliable, and Effective Care

The findings of this study can also be explained through the Framework of Safe, Reliable, and Effective care as this model supports continuous systematic improvement as a shared responsibility to achieve high standards of quality care and patient safety. At its core, the model focuses on engagement of patients and family, and it is surrounded by culture and learning system, two interdependent domains that aim to achieve clinical excellence (Frankel A, 2017). For example, organisations should not be focusing on blaming mistakes but rather focus on learning from them and introduce improvements which create a culture that is open, positive, and inclusive. A culture that promotes continuous learning aligns with NHS' values and "just culture" (NHS England, 2018).

The two domains share the leadership component and view leaders at all levels and focusing more on listening and addressing concerns rather than doing the talking. Formal and informal leaders within an organisation are seen as key to cultivate a culture and learning system centred on safety and reliability. However, in an integrated care system, this approach goes beyond individual organisations as leadership across all services should be coordinated and focused on the shared goal of working together to achieve the best possible outcomes for patients. This study has showed the negative impression of patients towards services, as they consider them segregated, despite being satisfied with the care they received. Strong leadership should exist across multidisciplinary teams facilitating open communication amongst professionals as well as with patients.

To engage and facilitate stronger communication links, professionals and patients must feel safe to share their concerns and opinions which can be achieved through the concept of psychological safety as presented in the framework by Frankel (2017). Through the framework, this can be achieved through regular coaching and feedback within care teams. Also, it is equally important that patients can freely ask questions and raise concerns, which are addressed accordingly. This study highlights a lack of psychological safety with several occasions where patients in Phase 2 felt that they were not listened to, which is also reflected in the NHS survey (Care Quality Commission, 2021). Psychological safety is an area that requires further improvement, where the organisations should view open communication as an expectation and at the same time work to balance how a heavy workload might be limiting the time professionals have to openly communicate and listen to patients' views, as well as coordinating with other services.

Importantly, encouraging accountability leads to a higher likelihood of success, as this component guides care teams and patients to work together on agreed shared goals. Through shared goals and clearly defined roles and expectations, organisations can achieve an environment which is fair for everyone, as long as individuals accept responsibility for their actions. For example, in this study, early discharge is identified as a risk factor for hospital readmission. Despite patients being medically fit for discharge, their personal views or other health/social aspects may have not been taken into account and resulted in their readmission. This cultural shift reinforces organisational dynamics and Shared Decision Making which is vital for establishing patient centred care.

This study also highlighted the importance of multidisciplinary teams working to achieve what is best for the patient both in the hospital and in the community. The components of teamwork and communication and negotiation support the idea of collaboration between all stakeholders (healthcare professionals, patients and social network) as it may lead to better identification of clinical, functional, and social needs through a shared understanding of them and finding the best solutions possible. This collaboration embraces what matters to patients, and it may tackle issues like: (i) feelings of exclusion, (ii) discharge unreadiness, (iii) poor communication and (iv) lack of continuation of care.

Furthermore, by being transparent on how expectations may or may not be met and sharing information of their options and on community resources, patients can seek to access support whilst understanding the system's limitations. For example, understanding patients' expectations on readiness and what goals need to be reached to feel ready can support a more sustainable discharge plan. In addition, open communication would enable patients to share their unfiltered feelings on formal/informal and functional needs outside of the hospital which organisations can address and respond to accordingly. These conversations can facilitate transparency on how some of these needs may not be met by healthcare services but may be addressed by community services or volunteering organisations. This can empower patients to seek appropriate support within the community and may prevent readmission.

When organisations are transparent regarding their capabilities, limitations, and challenges with patients, this facilitates open and honest discussions which help build a relationship of trust. Issues that affect clinical effectiveness such as discharge delays (i.e. prolonged processes, transport delays) found in this study challenge the system's efficiency and reliability so it is important that the system learns from its strengths and weakness to support continuous improvement.

Through improvement and measurement, organisations can become more effective and efficient by identifying issues within its processes and resolving them accordingly. This study has highlighted various issues with discharge processes and how patients did not feel heard or ready to be discharged. By adopting the ideas of this framework, one can see how the discharge process needs further improvement and how the user experience input is key to identifying and resolving the gaps that matter to them (such as readiness for discharge, functional limitations etc.).

Finally, the continuous learning component relates to the vast amount of data collected and how they could inform practices when analysed in full. The way data is processed evolves as technology evolves and by adopting new methodologies, one can reveal previously missed insights. Such methodologies include data cleansing, artificial intelligence, and predictive modelling. It is equally important that processed data are presented in a way that can be read and understood by diverse groups.

For example, the collection of feedback from patients and their families has significantly low response rates nationally which suggests that perhaps new ways of collecting, presenting, and using such valuable data should be explored. Furthermore, the way this type of data is used is important regardless of the lack of high responsiveness, as data should not only be collected for descriptive purposes but should be acted on and inform decision making.

6.4 Limitations

The researcher acknowledges that this study had its limitations. One of the main limitations is the ability to generalise findings which is marginally affected by the relatively small size and heterogeneity (age range, ethnicity and gender) of the sample in all three Phases. Furthermore, holding the interviews in Phase 2 a week after discharge created a limitation as participants who had initially shown interest in participating were either no longer able to continue or lost interest. Another limitation may be that participant recruitment in Phase 2 and the data collection in Phase 3 involved one site only. However, this problem is inherent in all clinically based research relying on patient participation in an acute hospital trust. The final limitation is the link between the different phases of this research. The three phases were conducted at different time periods over two years. Phase 2 & 3 were of a limited time period and could have benefitted from collecting the data in the same timeframe and over a longer time period.

6.5 Recommendations for clinical practice and future research

Qualitative studies and inpatient surveys have collected data that are not routine and thus offer a far more in-depth insight into patients' thoughts and feelings. The need for collecting, analysing, and interpreting qualitative data could be absorbed by existing patient experience teams in a more focused and targeted approach. Most common feelings are those of not being heard and included in decisions about their care and most importantly, their discharge planning. This not only impacts patients' views on their in-hospital stay but also their ability to recover successfully within the community.

The present study has identified that insufficient and/or poor resources lead patients to feeling insecure and sometimes seeking the reassurance of 24-hour care. Furthermore, patients seek involvement at the earlier stages of their care as well as in decisions about returning home. Patients feel that it is as important to feel ready to return home and that they are involved in those decisions. Future research should investigate routinely embedding patient readiness in discharge decisions and ensuring that patients' needs are fully addressed even during periods of high demand and organisational pressures.

A suggestion would be to use a tool such as the Readiness for Hospital Discharge Scale (RHDS) to evaluate how ready a patient is to return home (Weiss *et al.*, 2019). This tool addresses various elements of readiness such as functional, emotional, personal care, and medical needs, important contacts and resources, community services, and support needed. Using a tool that engages the patient in voicing how ready they are to go home could offer patients' reassurance of their involvement, improve the quality of care, and give professionals a tool that highlights when a patient is not ready to be discharged so their concerns can be addressed.

In addition, when patients are involved and receive good communication and information sharing (such as useful contact numbers and patient leaflets), they are more ready to go home. This also gives patients the opportunity to resolve concerns and have their questions answered, leaving them with more confidence and feeling more secure about returning home and outside of 24-hour care. Voluntary organisations would be another source of support to patients and they could be more involved in healthcare settings to offer information on their services. At the same time, healthcare professionals can direct patients to these organisations accordingly. A key source of support for most patients both in and out of hospital is informal care.

Patients rely on informal carers for many things including covering their basic needs or even advocating for them. At the moment, informal care is not routinely monitored and therefore healthcare professionals fail to fully understand patients' support networks. Furthermore, as this study has highlighted, patients themselves do not identify carers as part of the formal processes such as discharge planning. To improve this, discharge plans could become carer-friendly by identifying a patient's carer and social network (if they

have one) and adjust discharge plans accordingly. This may also involve developing awareness of healthcare professionals as to how informal support is structured and how it can (or cannot) be mobilised and under what circumstances. For example, identifying if there is a main carer (e.g., a partner or co-habiting child), if the carer is able to cope with the patient's condition and care needs post-discharge, if there is network support available where there is no main carer, and offering training or advice on safe transfer or personal care etc.

Discharge plans and decisions also focus on interventions post-discharge with research on continuation of care and successful follow up interventions still being an area that requires improvement. Although there is evidence that suggests that follow up interventions have a positive effect in terms of reducing hospital readmission, this study found that those that had a follow up care plan in place were more likely to be readmitted. This may be due to such interventions being very successful in identifying patients in need and with lack of adequate out of hospital support, thus preventing poor health outcomes, and/or offering types of support that are inadequate or insufficient to addressing the needs and priorities of patients.

However, this research found that most interventions did not take place as patients had been readmitted to hospital. With most readmissions taking place within the first seven days of discharge, it raises the question regarding the timing of interventions and whether these occurring earlier might provide patients with the support required in the community and thus, prevent readmission. However, it is important to bear in mind that not all readmissions are preventable. A recommendation could be to ask patients and their carers as part of the discharge plan if they would like to receive a phone call within two days of going home. An intervention like this might provide the opportunity to resolve issues or questions that had not arisen during hospital stay. A question emerging from this intervention is whether it would give reassurance and address preventable readmissions. Future research on continuation of care could include timing, frequency, and types of follow up interventions as well as the availability of informal care so that it fully explores which interventions could be successful and when they should occur to maximise their effectiveness.

However, it is not feasible for all patients to have an intervention post-discharge. The NHS is also mindful of this and suggests not just treating acute single events but also focusing on preventive care with recommendations aimed at improving primary care (NHS, 2019b). With an ageing population and the increase in multimorbidity and frailty, addressing needs at all levels of care will become more prudent. Various research findings have shown that existing tools such as grip strength, ADL, Frailty Index, and CGA offer valuable information that complement the delivery of high-quality care, enhance discharge plans, and enable more personalised care.

The routine collection of data using these tools would match the integrated care model principles as well as follow research suggestions of these tools highlighting clinical progression (DePalma *et al.*, 2013; Hoyer *et al.*, 2014), overall health, and biomarker of future health status (Bohannon, 2019; Woolford *et al.*, 2021). Future research could explore how including these tools in primary and secondary care might impact on patient experiences, discharge planning, and hospital readmission.

Another area that requires further research is the effect discharge alert status has on hospital readmission. As highlighted in the current study, the alert status is affected by various variables such as bed occupancy, staff levels, ED status hence this research was unable to detect any trends. Future research could explore each variable independently or in combination, to establish which variables affect hospital readmission and their impact. The results of any such research would offer important insight on how hospital operations impact on readmission so that appropriate interventions could be designed to address those scenarios when they occur.

Research has focused on developing predictive models that are drawn by researchers and practitioners. Most clinical data on which predictive models are based on, do not capture subjective data that matter the most to patients. Patients, healthcare professionals, and researchers working together to develop predictive models that focus on identifying patients at risk of preventable readmissions may be of benefit to the wider system (Steventon and Billings, 2017) especially when considering the poor performance and inconsistency of models predicting readmission (Kansagara *et al.*, 2011; Zhou *et al.*, 2016; Artetxe, Beristain and Graña, 2018).

Patients' records clearly identify factors that matter to them that are not routinely collected such as readiness for discharge, functional ability, continuity of care, and social factors. The impact these factors have on a patient's wellbeing and recovery is undoubtedly identified in their narratives. This shows that the system could evolve and start routinely collecting not only clinical data but functional and self-reported data for a more comprehensive approach to care.

6.6 Reflection

As a nurse, I have always had an interest in the care of older people and wanted my research to be a forum where their experiences would be shared. Upon exploring the literature, I came to the realisation that hospital readmission was an area with relatively limited research that focused on what matters to older people. Clinically, my awareness of readmission was not very extensive, and my thoughts were that most readmissions were due to medical reasons. This notion was a result of inexperience and being a newly qualified nurse. This view quickly changed, however with more experience within the NHS, I became more acquainted with the procedures and different pathways and had a better understanding of how I could provide high quality care to older people.

Once I started my research, I felt that my role was dual. Although my focal role was that of researcher, I still retained my clinical commitment as a nurse when it came to insider knowledge. However, as this was self-funded research, I had to ensure that my role would not get confused and that it would be purely academic rather than clinical. The PPI phase offered the first chance to engage with older people as a researcher and ensured that my background as a nurse would not affect discussions with participants. I found this phase very helpful and insightful, and I was pleased to have open discussions with people on their views about my questionnaire, research, and hospital readmission.

Moving on to Phase 2, I experienced many challenges. The most notable challenge was recruiting participants. Recruiting from a variety of wards was important to attract patients from different specialities that met the inclusion/exclusion criteria and without creating further staff pressures. Despite being able to reach an agreement with many wards and discussing my research with many colleagues, identifying patients was a

challenge due to heavy workload. Upon realising that my recruitment was slow, I was pleased to engage and work with a Consultant Physician and Geriatrician who was keen to support my research. When interviewing participants, I felt their gratitude towards staff as well as their family and friends for supporting them. I was also impressed by the determination for independence and despite experiencing difficulties, many maintained their positive thinking and attitude. However, it was disappointing to hear that some participants felt disrespected in a way and pushed aside. As a nurse, I always try to promote good communication with my patients and ensuring that I give time to listen to their concerns and answer their questions. So, listening to experiences where the quality of care was not necessarily meeting the standards of NHS was a bit upsetting.

Phase 3 posed several challenges. The biggest challenge was obtaining data for my research which I started working on from 2017. Unfortunately, I was unable to obtain data from the Hampshire Health Record Database as the agreement with the University of Southampton had been revoked and was under revision. Later, I was informed that there was no capacity within the University to extract data for me and I could contact NHS Commissioning Support Unit South, but it would need funding which was not an option for me. As a result, I had to work independently to secure data via the University Hospital of Southampton. Talking with various people within the hospital, I managed to receive data in April 2021. Receiving data from the hospital only rather than the whole of Hampshire (GPs and hospitals) had a significant impact on my research and resulted in limitations around the generalisability of my study findings as data were drawn from one hospital only rather than the whole of Hampshire (community and hospitals).

Prior to receiving the data, I had met with two statisticians to plan my analysis. Upon receiving the data, I experienced challenges and delays with statistical support as those I had met with were no longer available. This had an impact on my timeframe as well as confidence in my analysis. As this was my first quantitative research, I was keen on having statistical support through the University to ensure that my analysis and interpretation was appropriate. I worked on the analyses myself and once a statistician became available, I met with them to ensure that my approach was correct.

Overall, my study has helped me to understand more about hospital readmission from the patient perspective. Furthermore, I had the opportunity to discuss with patients once they had left the hospital which is something I don't normally experience as a nurse working within a large acute hospital trust. As a researcher, I have learned about the challenges of qualitative and quantitative research.

With this in mind, I would be more prepared for any future studies as I would be able to use this experience and make provisions for the challenges I encountered so far. From a personal point of view, I gained a deeper appreciation of multitasking and juggling multiple projects as whilst I was working on my research and having to resolve its challenges, I was simultaneously studying for the taught components of my DClinP course, continuing professional development (online courses and face-to face) and later working through the pandemic.

6.7 Conclusion

The present research study focused on exploring the factors that matter most to older people who may have had an experience of readmission and examine whether these factors were integrated into routinely collected hospital data. A patient-centred approach was maintained throughout the study from its design stage by involving a PPI group as advisors, the inclusion of people who shared their lived experience of hospital readmission, to the conclusion of Phase 3 where what mattered most to patients in relation to readmission was examined through clinical data.

The findings of the present study may help inform services aimed at preventing readmission and improve patients' experience by addressing their in-hospital and post discharge needs. Hospital readmission is not entirely due to medical complications, it may be due to social reasons or a combination of both. A strong link between community and hospitals could potentially help reduce hospital readmission rates through care continuum. Sharing information/data within services and health professionals could optimise care delivery and improve discharge planning. In addition, the collection of variety of data from multiple sources including patients and family's feedback could enhance existing predictive models.

This study has made a unique contribution to the literature by establishing patients' views on what leads to their readmission and whether these are routinely collected in clinical data. Patients identify early discharge from their first admission, lack of adequate communication and involvement, poor discharge planning, and inadequate post-discharge support and interventions as risk factors of hospital readmission. The most notable comments from patients, however, were those highlighting feeling dismissed and not being included or ready to be discharged. Notably, Phase 2 identified that the patients that reported not being involved also felt not ready to be discharged which further highlights the importance of involvement as it contributes to patients' readiness to return home.

Informal care, where it was available and accessible to people, played a pivotal role in relation to most patients' recovery. Older people felt that without it, they would not have been able to manage on their own. Health and social services were seen by patients as disorganised, fragmented, and lacking communication with patients. This study also identified risk factors of hospital readmission from clinical data. The postcode, type of admission, patient's comorbidities, medication, LoS, living alone, and follow up care predicted hospital readmission. As a result, the null hypotheses in Phase 3 that emergency admissions, shorter LoS, and living with 8 chronic conditions increase the risk of hospital readmission were all accepted.

Overall, research suggests that early readmissions may be preventable as they may be a result of poor discharge planning and poor communication (Shih *et al.*, 2015). With the present study identifying that the majority of readmissions occurred within the first seven days of discharge and highlighting the issues around patient involvement in discharge plans and lack of support within the community, the question rises on how many of these readmissions could have been prevented through good communication, adequate discharge planning and community support. This study suggests improving on personalised care by accounting for patients' readiness to be discharged and incorporating carers in discharge planning, making this process both patient and carer friendly.

Functional ability has been another key point of this research as the lack of routine data around this limit personalisation of secondary and primary care. Assessment tools that routinely evaluate functional ability may improve care practices for short/long term. This study has also identified future research requirements on continuation of care effectiveness based on time, type, and frequency as well as how functional ability data could impact on patient experiences, discharge planning, and hospital readmission. Finally, more research is needed on D/C alert as the different variables affecting its status could individually affect hospital readmission. For example, a red alert might be set whilst bed occupancy is average but staff levels low.

Patients are in need of involvement and having a voice on matters of their own care, treatment, and community support and this is evident not only from this research, but also from other inpatient surveys. Patient involvement is fundamental in ensuring that healthcare reflects their needs and that they have a voice in shaping the support that is provided (People and Communities Board and National Voices, 2016).

This study also suggests that health professionals across the multidisciplinary team should endeavour to establish and maintain communication channels, better understand readiness for discharge as related to people's access to out of hospital resources, services and formal and informal support, and promote continuation of care outside the hospital as a key to patients' recovery and avoidance of hospital readmission. However, it is equally important that patients share responsibility regarding their own health and work collaboratively with the relevant services. Therefore, communication of what is available and access to resources by patients should improve to enable patients to be more involved in matters about their health in and out of hospital. This research highlights the importance of Shared Decision Making and personalised support care planning to maintain independence of older people, as well as preserving their right to feel valued.

Appendices

Appendix 1: Scoping review eligibility criteria

Eligibility Criteria	Details
Language	The review included publications written in English.
Publication topic	The review included publications identifying risk factors or relevant issues on the topic of hospital readmission such as perception, interventions, prevention, predictive modelling.
Study design	All study designs were considered.
Participant characteristics	The participants included in studies to be over 18. Interpretation of findings focused on references to older people.
Access	Only studies with full access from Southampton Library were included.
Publication status	Published.
Year of publication	2010 onwards.

Appendix 2: Scoping review flowchart
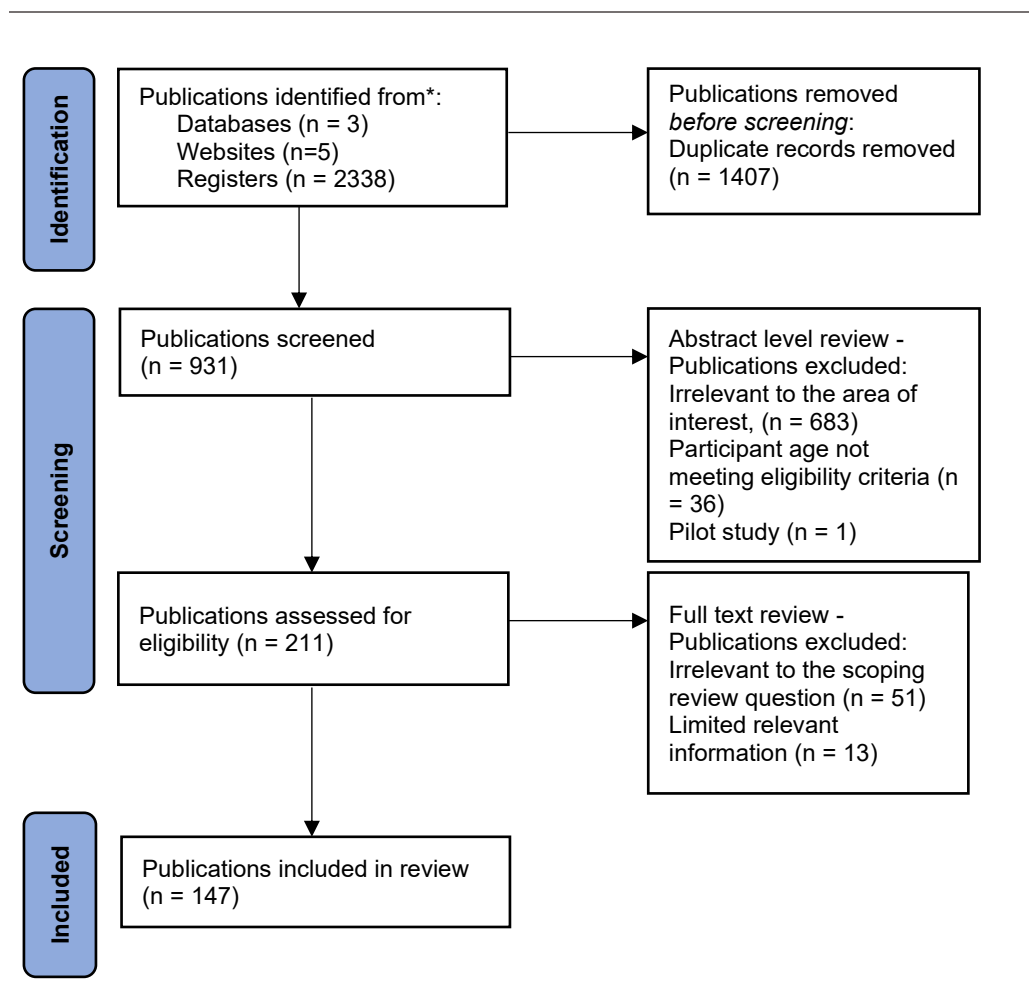
Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

*Keywords used to identify publications:

Older people OR aged OR elder AND Hospital readmission AND Factors OR Perception OR Experience OR Discharge Planning OR Intervention OR prediction

Appendix 3: Charting table

Reference	Aim	Study design and sample	Results	Strengths	Limitations
Abu et al., (2018)	To explore the factors that negatively/positively influence care transitions following an unplanned hospitalization from the perspective of healthcare providers.	Qualitative study Thematic analysis N: 12 face-to-face interviews and 3 telephone interviews USA	• Three themes focused on factors within the discharging healthcare facility: untailored and overloaded patient discharge information, timing of the post-discharge care conversation, provider-to-patient and provider-to-provider miscommunication. • The other three themes were related to external factors including caregiver involvement, having a safe and stable housing environment, and access to healthcare and community resources. • Providers discussed how these factors positively/negatively influence the hospital-to-home transition.	Three researchers. The study identifies factors within and outside the discharging healthcare facility that influence care transitions, ultimately affect patient-centred outcomes and provider satisfaction with delivered care.	Given the qualitative research design used in this study, findings are primarily exploratory and do not provide conclusive evidence on the care transition process. Participants - Female=12 Possibility of social desirability bias with providers being more likely to provide positive feedback.
AgeUK, (2019b)	This factsheet is a collection of statistics on ageing and later life.	Compiled by Age UK from publicly available sources of research and statistics.	• Over half (54%) of older people have at least 2 chronic conditions. • The proportion of people with multi-morbidities among those aged 65-74 is 46%. This proportion increases to 69% among those aged 85+. • Multi-morbidity increases the likelihood of hospital admission, length of stay and likelihood of readmission, raises healthcare costs, reduces quality of life, and increases dependency, polypharmacy and mortality.	By 2030, one in five people in the UK will be aged 65 or over, 6.8% will be aged 75+ and 3.2% will be aged 85+ The 85+ age group is the fastest growing	Not intended to be a fully comprehensive compendium.
AgeUK, (2016)	Discharge delays causes: Patient choice? Problems with social care, Lack of access/ delays to NHS services, Challenges within hospitals , Avoidable admissions	Briefing 1.75 million bed-days were lost from January to December in 2015, an increase of 28.4 per cent compared to 2014	• The on-going crisis in social care funding continues to make a major contribution to poor performance in discharging older people from hospital. • Coordinated care in the community may avoid many admissions or readmissions to hospital. • Hospitals are not sufficiently well designed and organised to deliver optimal care for older people living with frailty. • Poor communication and inadequate access to key services, such as intermediate care, often lead to delays in discharge. • Improving practices and delivering high quality, and more cost-efficient, care around discharge of older people from hospital requires a joined-up approach across health and social care.	An informative briefing about discharging older people from hospitals Included case studies.	A wide approach on the issue, however it doesn't include in-depth approach.

Aggarwal, Woolford And Harnish (2020)	To give an up-to-date account of the recognition and management of multi-morbidity and polypharmacy in the older person.	Narrative review 2 databases 70 articles	• They are complex and interrelated concepts in the care of older people that require early detection and patient-centred shared decision making underpinned by multi-disciplinary team-led comprehensive geriatric assessment (CGA) across all health and social care settings. • Personalised care plans need to remain responsive and adaptable to the needs and wishes of the patient, enabling the individual to maintain their independence.	The literature review included articles from 2003-2020. Scale for the Assessment of Narrative Review Articles	Does not included information about the participants characteristics of the selected articles. Lack of discussion section.
Alberecht et al., (2014)	To quantify the risk of 30-day unplanned hospital readmission among adults age ≥65 with depressive symptoms.	Quantitative study Prospective cohort study Log-binomial regression model N=750 Australia	• Prevalence of depressive symptoms was 19% and incidence of 30-day unplanned hospital readmission was 19%. • Depressive symptoms were not significantly associated with hospital readmission. Although not associated with hospital readmission, depressive symptoms are associated with other poor outcomes and may be under-diagnosed among hospitalized older adults.	Followed-up by phone at three time points (5, 15, and 31 days) post-discharge. Large sample size.	Patients with greater depressive symptoms may have been less likely to enrol in the study. Observed effect size (20% increased risk) was smaller than has been reported.
Aldridge And Hughes (2016)	Research taken under New Policy Institute	Data from the Family Resources Survey 2013/14 UK	At least 5.3 million informal carers in the UK Care roles are wide-ranging in terms of how much of their time is spent providing care and who they support. The most common arrangement was for carers to provide support to parents who were not living with them (33%). 36% of carers live in a household that receives a disability benefit. 2.1 million informal carers are in poverty in the UK.	The survey data consider the extent of informal care provided in the UK, both in terms of the number of people that are providing care and the amount of care that they provide. Valuable information regarding informal caring.	Lacks methodology, methods and discussion section.
Ali et al., (2017)	To determine whether patient-related predictors of all-cause, surgical, and RTT readmission after THA differ and which predictors are most significant.	Quantitative study Multiple multilevel logistic regression analysis. N= 514 455 UK	• All-cause readmissions (5.9%), surgical readmissions(3.2%), and RTT readmissions(0.8%); • 54.1% of readmissions were for surgical causes. • Many patient-related risk factors for surgical and RTT readmission differ from those for all-cause readmission despite the latter being the only measure in widespread use.	Large sample size. The largest reported study of readmission after THA. The first to determine factors associated with surgical readmission and the subset of these resulting in RTT.	Use of an administrative database with heterogeneity in coding accuracy. Did not assess the effect of hospital- and surgeon related factors such as hospital volume, location, and level of

					experience.
					HES database does not include details regarding cases such like hospital records.
Al-Maqbali et al., (2014)	To examine studies on discharge planning for elderly patients with hip fractures and related practice, taking into consideration the complexity of health needs of these patients and the effect on the progress of their treatment intervention.	Systematic review 6 databases 7 articles	• This review indicates that discharge planning appears to result in a small reduction in readmission rates and mortality rates. • It shows a small impact on increasing the level of functional and mental states. Ultimately, improvement of the physical and psychosocial status of elderly patients with hip fracture will be enhanced. • The studies introduced a variety of models for discharge planning. However, the elements of the planning tended to involve patient education, counselling, and follow-up after discharge. • The findings of the studies suggested that discharge planning interventions resulted in a slight improvement in patient outcomes.	Critical appraisal of the studies included in the review. The studies discussed demonstrate that comprehensive, multidisciplinary discharge planning can improve the quality of life and functional recovery after hip fracture.	Identified literature from 2005-2012. limitations on the studies' design, which may have led to bias, have been noted.
Andreasen et al., (2015)	To explore how frail elderly patients experience daily life 1 week after discharge from an acute admission.	Qualitative study Interpretive description Interviews N= 14 Denmark	• Four main categories were identified: ''The system,'' ''Keeping a social life,'' ''Being in everyday life,'' and ''Handling everyday life.'' • These categories affected the way the frail elderly experienced daily life and these elements resulted in a general feeling of well-being or non-well-being. • The transition to home was experienced as unsafe and troublesome especially for the more frail participants, whereas the less frail experienced this less.	The findings contribute to important knowledge about the experiences right after discharge and these should be taken into consideration when elderly are discharged after an acute admission.	Frailty was measured using a self -reporting screening tool. Single-sited recruitment. Small sample size.
Artetxe et al., (2018)	To give an overview of prediction models for hospital readmission, describe the data analysis methods and algorithms used for building the models, and synthesize their results.	Systematic review 2 databases N= 77 studies	• 52 studies used logistic regression or other regression techniques as the main method. • Ten studies used survival analysis for model construction, while 14 used machine learning techniques for classification, of which decision tree-based methods and SVM were the most utilized algorithms. Among these, only four studies reported the use of any class imbalance addressing technique, of which resampling is the most frequent (75%). • The performance of the models varied significantly among studies, with Area Under the ROC Curve (AUC) values in the ranges between 0.54 and 0.92.	This thorough review was mainly focused on model performance description and comparison to assess the suitability of the models for clinical or administrative use.. The study concludes that readmission risk prediction is a complex problem by nature, with many inherent limitations.	The study searched only 2 databases. It is possible that related articles may have been overlooked.
Baek et. al., (2018)	The purpose of this study was to determine which factors are associated with length of hospital stay, based on	Quantitative study Patients were analysed according to the following three	• 55% (25,228) of inpatients were discharged within 4 days. • The department of rehabilitation medicine (RH) had the highest average LOS at 15.9 days.	The better understanding of the factors associating with the LOS and progressive improvements	One site recruitment. Data from 2013.

	electronic health records, in order to manage hospital stay more efficiently.	categories: descriptive and exploratory analysis, process pattern analysis using process mining techniques, and statistical analysis and prediction of LOS. N= 53,965 subjects	• Of all the conditions diagnosed over 250 times, diagnoses of I63.8 (cerebral infarction, middle cerebral artery), I63.9 (infarction of middle cerebral artery territory) and I21.9 (myocardial infarction) were associated with the longest average hospital stay and high standard deviation. Patients with these conditions were also more likely to be transferred to the RH department for rehabilitation. • A range of variables, such as transfer, discharge delay time, operation frequency, frequency of diagnosis, severity, bed grade, and insurance type was significantly correlated with the LOS.	in processing and monitoring may allow more efficient management of the LOS of inpatients. Comprehensive methods of analysis framework.	Data analysis was largely confined to the main hospitalization events of the EHR system; the general characteristics of the individual patients and the hospital's environmental factors were not considered in the analysis.
Baig et al., (2018)	Focused on the evaluation of LACE index and PARR.	Quantitative study Retrospective cohort study Receiver Operating Characteristics analysis N= 180,118 New Zealand	• 12.5% were readmitted in 30-days. • The LACE index achieved an Area Under the Curve (AUC) score of 0.658 in predicting 30-day readmissions. The optimal cut-off for the LACE index is a score of 7 or more with sensitivity of 0.752 and specificity of 0.564. • The PARR algorithm achieved an AUC score of 0.628 in predicting 30-day readmissions. The optimal cut-off for the PARR index is a score of 0.34 or more with sensitivity of 0.714 and specificity of 0.542.	Large sample size from 3 hospitals. The study shows how ineffective the two risk of hospital models are when applied to the New Zealand population and local context readmission.	The study doesn't mentioned participants characteristics or from where the data were extracted. Discussion section lacks depth, comparison with literature, limitation section and criticism.
Baillie et al., (2013)	To develop and implement an automated prediction model integrated into our health system's EHR that identifies on admission patients at high risk for readmission within 30 days of discharge.	Quantitative study Retrospective cohort study Automated risk flag integrated into the HER/ predictive models N= 120,396 USA	• 14.4% readmissions. • Using retrospective data, a single risk factor, ≥2 inpatient admissions in the past 12 months, was found to have the best balance of sensitivity (40%), positive predictive value (31%), and proportion of patients flagged (18%), with a c-statistic of 0.62. • Sensitivity (39%), positive predictive value (30%), proportion of patients flagged (18%) and c-statistic (0.61) during the 12-month period after implementation of the risk flag were similar. T • There was no evidence for an effect of the intervention on 30-day all-cause and 7-day unplanned readmission rates in the 12-month period after implementation.	Data from 3 hospitals. Systematic review to identify factors. The first study examining the impact of providing readmission risk assessment for a general population of hospitalized patients on readmission rates. Large sample size.	Data from 2009-2012 The impact of the risk flag on provider behaviour is uncertain. Did not capture readmissions to hospitals outside of our healthcare system.
Batty (2010)	To determine the effectiveness of complex interventions in	Systematic review 4 databases N= 13 studies	• What works in reducing admissions is not one, but a combination of components, underpinned by the delivery of interventions by established, integrated health and social care teams.	Multi-disciplinary teams that are trained and/or experienced in delivering a clearly defined	The review took place from 2000 to 2009.

	reducing hospital admission rates in older people.		• The most effective models in preventing older people being admitted to hospital are provided by established, integrated teams in the patient's home. However, cost effectiveness must be considered if effective interventions are to be delivered to a growing population of older people.	model of intervention appear to have more successful outcomes.	Disease specific studies were excluded. Grey literature was not searched. One author.
Baxter et al., (2020)	To explore staff perceptions of how high performing general practice and hospital specialty teams deliver safe transitional care to older people as they transition from hospital to home.	Qualitative study Thematic analysis Focus groups/ interviews / Pen-portrait approach N=157 staff UK	• Across healthcare contexts, staff perceived three key themes to facilitate safe transitions of care: knowing the patient, knowing each other, and bridging gaps in the system. • Transitions appeared to be safest when all three themes were in place. However, staff faced various challenges in doing these three things particularly when crossing boundaries between settings. Due to pressures and constraints, staff generally felt they were only able to attempt to overcome these challenges when delivering care to patients with particularly complex transitional care needs.	multidisciplinary staff perspectives 6-general practices and 4 hospital specialties that demonstrated exceptionally low or reducing readmission rates over time. 4 community teams that worked into or with these high-performing teams	In terms of the trustworthiness, the credibility of findings can be questioned. The findings may have lacked transferability and confirmability.
Bellon et al., (2019)	To compare rates of 30- and 90-day hospital readmissions and observation or emergency department (ED) returns of older adults.	Quantitative study Retrospective cohort study Multivariable logistic regression N= HT program (1,900) and controls (1,300) USA	• The adjusted odds of 30-day readmission was 0.31 and of 90-day readmission was 0.47. • At medium risk of readmission in HT who received a team visit, the adjusted odds of 30-day readmission was 0.29. • At high risk of readmission in HT who received a team visit, the adjusted odds of 30-day observation or ED return was 1.90	HT is a care transitions program aimed at preventing readmission that identifies older adults at risk of readmission using a robust inclusion algorithm; deploys a multidisciplinary care team. The model includes clinical functional, and social factors. Large sample size.	Participants were not randomized to the intervention, introducing selection bias. It does not compare program implementation costs with the cost savings of reduced healthcare use.
Beseler et al., (2014)	To assess the clinical effectiveness of grip strength as a tool for the assessment of muscle strength and thus as a predictive measure of gait recovery of hospitalized frail elderly patients.	Quantitative study Prospective study Simple comparisons and mixed models of multiple ordinal regression. N= 50 Spain	• The sample presented generalized weakness in scapular and pelvic muscle. • Mean hand grip values were similar: 11.98 kg right hand; 11.70 kg left hand. • After treatment, there was a statistically significant for scapular waist strength, pelvic waist strength and walking ability. • A statistically significant relationship was found between the grip and walking ability post-treatment. • The confounding variables showed no statistical significance in the results. Grip strength is associated with walking ability in hospitalized frail elderly.	The originality of the study to demonstrate the usefulness of a single measurement system for frail elderly inpatient, whose physical and cognitive conditions make it quite difficult assessing physical function.	Loss of patients due to various reasons, reducing statistical power. Small sample size. One site recruitment.

Billing et al., (2012)	To develop an algorithm for identifying inpatients at high risk of re-admission to a National Health Service (NHS) hospital in England within 30 days of discharge using information that can either be obtained from hospital information systems or from the patient and their notes.	Quantitative study Retrospective cohort study Logistic regression analysis N= 576868 UK	• The algorithm produces a 'risk score' ranging (0–1) for each admitted patient, and the percentage of patients with a re-admission within 30 days and the mean re-admission costs of all patients are provided for 20 risk bands. • At a risk score threshold of 0.5, the positive predictive value (ie, percentage of inpatients identified as high risk who were subsequently re-admitted within 30 days) was 59.2% representing 5.4% of all inpatients who would be re-admitted within 30 days (sensitivity). The area under the receiver operating characteristic curve was 0.70.	Large sample size. The model has been purposely designed to use only a few variables that might be entered from computerised information, or at the bedside.	The model has low sensitivity which means high risk patients are rare. Data used from 2008-2009. It was developed using HES data, but it is intended to be used by hospitals using either a combination of PAS data and SUS data or patient self-reported information, which may affect the accuracy of the model.
Blakey et al. (2017)	To explore the experience of readmissions to hospital from the perspective of older adults.	Systematic review 3 databases 6 articles	• Experience during initial hospital stay distinguished by exclusion (Feeling powerless; Feeling disregarded; Perception of readiness for discharge); • Patients experience uncertainty following discharge (Perception that community-based services are not available or adequate; Perception that hospital is the only safe place; Difficulty in adapting to a "new normal"). • A cycle of exclusion exists during the initial hospital stay and beyond.	One strength of this study lies in the consistent thematic findings despite heterogeneity between studies. This review adds strength to the argument around the need to deliver holistic person-centred care and to value the nursing time and skill dedicated to this.	Interviews took place in a hospital setting, not a setting of the participants choosing. There is a lack of noticeable diverse voices and a lack of data from the UK is apparent. Only half of the selected articles wholly focused on the patient experience, the others incorporated views from caregivers and health professionals.
Blom et al., (2015)	To investigate the association between inpatient bed	Quantitative study	• 9.9 % unplanned readmission within 30 days.	Large sample size	Several patient factors, inter-hospital

	occupancy at the time of hospital discharge and the 30-day readmission rate.	Retrospective cohort study Multivariate models N= 32,811 Sweden	• The proportion of readmissions was 9.0 % for occupancy levels of <95 % at the patient's discharge, 10.2 % for 95–100 % occupancy, 10.8 % for 100–105 % occupancy, and 10.5 % for >105 % occupancy. • Multivariate models; show that the readmission was 1.11 for patients discharged at 95–100 % occupancy, 1.17 (at 100–105 % occupancy, and 1.15 at >105 % occupancy. • Results indicate that patients discharged from inpatient wards at times of high inpatient bed occupancy experience an increased risk of unplanned readmission within 30 days of discharge.	Study period covered 2 years. An interesting approach on a very serious issue, that affects patients satisfaction, costs, bed turnovers and staff workload.	variation, and specific interventions have been suggested to affect readmission rates. Many of these were not adjusted for, since they are unavailable. Limited predictive ability of the multivariable models.
Boge et al., (2018)	To develop and validate a survey instrument feasible for measuring quality (+65 years) related to the discharge process based on elderly patients' experiences.	Quantitative study cross–sectional study design Survey N=270 Norway	• The exploratory factor analysis resulted in a 10-item instrument consisting of three factors explaining 63.5% of the total variance. • The Cronbach's α were satisfactory (>70). Overall intraclass correlation was 0.76. • A moderate Spearman correlation (rho = 0.54, p <0.01) was found between the total mean DICARES score and total mean score of the Nordic Patient Experiences Questionnaire. • The total mean DICARES score was inversely associated with the quality indicator based on readmissions.	Literature lacks validated instruments that particularly measure quality in the hospital discharge process. Systematic literature search - 5 databases DICARES was based on 16 items identified by literature reviews.	One site recruitment. Homogenous sample. Only 498 (38%) met the inclusion criteria and the most vulnerable patients were therefore not included in this study.
Bohannon (2019)	To provide an up-to-date, thorough, and balanced synopsis of research addressing grip strength as a biomarker of current and future medical status.	Narrative review	• Several authors have recommended grip strength as a "useful indicator for overall health, "a vital sign and as a biomarker of health status. • Evidence is also provided for a predictive link between grip strength/ all-cause/disease specific/ mortality/ future function/ bone mineral density/ fractures/ cognition/ depression/problems associated with hospitalization.	The review provides adequate evidence to support the use of grip strength as an explanatory or predictive biomarker of specific outcomes. The routine use of grip strength can be recommended as a stand-alone measurement for identifying older adults at risk of poor health status.	Narrative rather than a systematic review. No description of methodology and methods used.
Borkenhagen et al., (2018)	To assess the degree to which self-reported symptoms predict unplanned readmission or emergency department (ED) care within 30 days of high-risk,	Quantitative study Retrospective cohort study.	• 51 participants returning to the hospital within 30 days of discharge, 13 had ED visits, and 38 were readmitted.	This study reinforces the critical need to include self-reported outcomes and symptoms in any comorbidity risk assessment.	Single site recruitment.

	elderly adults enrolled in a posthospitalization care transition program (CTP).	Cox proportional hazards models N= 230 USA	• Age, sex, and CCI were not significantly different between returning and non returning participants, but returning participants were significantly more likely to report shortness of breath, anxiety, depression and drowsiness. • ESAS score was also a significant predictor of hospital return	The first time that the ESAS, as a total score or as individual component symptoms, has been used to predict risk of returning to the hospital.	The area under the ROC curve (0.626) is moderate at best, with a fairly low positive predictive value.
Brentt and Coffey, (2013)	To examine patient's perception of their readiness for discharge post hip fracture and to establish whether relationships existed between patient's perception of their readiness for discharge and demographic variables.	Quantitative study Descriptive and correlational Design Questionnaire N=50 Ireland	• Hip fracture patients have a lower perception of readiness than other medical-surgical groups. The mean perception of readiness for discharge of hip fracture patients was 6.677 (SD 0.123) compared to medical-surgical patients 8.1 (SD 1.3)	Improvements in the discharge preparation of hip fracture patients and nursing knowledge is needed so that patients feel adequately prepared for discharge and what comes next.	Small sample size. One site recruitment. An in-depth exploration of readiness or patient experiences post discharge was not possible.
Brunner-La Rocca *et al.*, (2020)	The pattern of readmissions is very complex, but poorly understood for multiple chronic diseases.	Quantitative study Retrospective cohort study Logistic regression N=21 tertiary hospitals (8 USA, 5 UK, 4 Australia, 4 Europe)	• Of 4,901,584 admissions, 866,502 (17.7%) were due to the 12 chronic conditions. • Reasons for readmission were due to another chronic condition in 10% to 35% of the cases, leaving 30% to 70% due to reasons other than the original 12 conditions (most commonly, treatment related complications and infections).	Interventions to reduce readmissions should therefore focus not only on the primary condition but on a holistic consideration of all the patient's comorbidities. Multiple site recruitment. Large sample size.	Excluded short-term emergency admissions with LoS less than two nights and no surgery. Used administrative data, capturing only what was coded. Readmission to a different hospital could not be recorded.
Carter et al.,(2018)	To examine associations between patient perceptions of care during index hospital admission and 30-day readmission.	Quantitative study Prospective cohort study Survey Bivariate analyses/ Multivariable models N= 846 USA	• 23.8% were readmitted within 30 days • Participants reporting high satisfaction and good provider communication were less likely to be readmitted. • Rates of readmission were increased among participants stating they were very likely to be readmitted though this association was not statistically significant. • Participants reporting doctors 'always listened to them carefully' were less likely to be readmitted	Incorporating patient-reported measures during index hospitalisations may improve readmission prediction. Data from 2 hospital for a period of 4 years. Large sample size.	Not possible to track readmissions to other health systems which may have resulted in an underestimation of readmissions. Healthier user bias, with patients that were sickest being unable to

				This study collected data of patient-perceived likelihood of readmission at the time of index admission.	complete the survey, may have resulted in under-representation of patients with even higher rates of medical complexity.
Casalini et al., (2017)	To propose an easy predictive model for the risk of rehospitalization, built from hospital administrative data, in order to prevent repeated admissions and to improve transitional care.	Quantitative study Cohort study Descriptive statistics/ Multiple logistic regression/ Kaplan-Meier curves N= 4132 Italy	• 21.1% had a readmission. • The significant variables included in the predictive model were: age, number of admissions, number of diagnoses and presence of cancer diagnosis.	The model was determined using exclusively patients' discharge forms and information. This model seems to effectively predict readmissions using a reduced set of data; the model could, therefore, be easily applied in clinical practice.	The number of admissions has been normalized assuming that the trend of readmissions is linear. Single site recruitment. Data collected only for one year.
Cassell. et al., (2018)	To describe the epidemiology of multimorbidity in adults in England and quantify associations between multimorbidity and health service utilisation.	Quantitative study Retrospective cohort study Negative binomial regression N=403,985 England	• 27.2% of the patients involved in the study had multimorbidity. • The most prevalent conditions were hypertension (18.2%), depression or anxiety (10.3%), and chronic pain (10.1%). • The prevalence of multimorbidity was higher in females than males and among those with lower socioeconomic status. • Multimorbidity was strongly associated with health service utilisation. Patients with multimorbidity accounted for 52.9% of GP consultations, 78.7% of prescriptions, and 56.1% of hospital admissions.	Population multi-morbidity prevalence is estimated to increase, the proportion with 4+ diseases almost doubling. An up-to-date and comprehensive description of the epidemiology of multimorbidity and health service utilisation.	With real clinical data, there may be systematic differences in both the type and frequency of diagnostic labels that GPs and general practice staff document in a patient's medical record. All GP consultations, prescriptions, and hospitalisations were weighted equally as measures of health service utilisation.
Causey-Upton et al., (2019)	The purpose of this article is to review discharge readiness following TKR surgery and discuss factors that are known	Systematic review	• While many persons experience positive outcomes following TKR, some individuals experience complications and other negative results such as falls and hospital re-admission.	Description of factors related to patients readiness for discharge after TKR.	Not included how many articles were identified.

	to impact preparedness for discharge.		• Readiness for discharge after TKR has been defined in the literature related to pain control, knee ROM, walking distance, and ability to climb stairs. • This limited definition of discharge preparation following TKR may not capture all aspects of function and other factors that impact patient perceptions of readiness for discharge.		Lack of description of databases used, analysis and synthesis.
Chow and Wong, (2014)	To examine the effects of a nurse-led case management programme for hospital-discharged older adults with co-morbidities.	Quantitative study Randomized controlled trial Chi square test and Kruskal–Wallis test/ ANOVA N= 281 Hong Kong	• The two intervention groups had lower readmission rates than the control group. • Patients in the two study arms had significantly better self-rated health and self-efficacy. • There was significant difference between the groups in the physical composite score, but no significant difference in mental component score in SF-36 scale.	No similar study has been conducted using three arms comparisons on older patients having chronic diseases. Older patients suffering from multiple chronic diseases are more frequent users for medical and nursing care.	Data were collected from 2010–2012. Patients who consented to participate in the study might be more health conscious.
Coffey and McCarthy (2013)	To examine older patients' perception of their readiness for discharge from hospital to home.	Quantitative study Descriptive and correlational design Multivariate logistic regression analyses N=335 Ireland	• ¼ of the sample was readmitted. • Family support had increased, yet a minimal increase in formal services was found. • At discharge, differences in readiness existed between the younger and older • old. • Significant relationships existed between lower perception of readiness at discharge and increased use of informal and formal support post-discharge. • Lower perception of readiness had a significant relationship with readmission in the older old.	Perceptions of readiness reflect the patient's reality and may be significant to discharge preparation and arrangements for support. In the context of discharge planning, older patients' perception of their readiness should be included with other measurable indicators of discharge preparedness. Data were collected at two time periods, firstly, in the hospital at the time of discharge and then, by telephone survey at 6 weeks.	An in-depth exploration of readiness or patient experiences post discharge was not possible. The generalisability of results is limited, as data were collected from a convenience sample at one hospital site
Coffey et al., (2019)	To examine the evidence for interventions in acute hospitals including (i) hospital-patient discharge to home, community services or other settings, (ii) hospital discharge to another care setting, and (iii) reduction	Systematic Review 6 databases N= 94 articles	• Mixed results were found regarding the effectiveness of many types of interventions. • Interventions exclusively delivered in the acute hospital pre-discharge and those involving education were most common but their effectiveness was limited in avoiding (re)admission. • Post-discharge interventions exclusively delivered at home reduced hospital stay and contributed to patient satisfaction.	The databases were search from 2005-18. 3 reviewers.	The search was confined to publications in English. Data were heterogeneous, meaning that a meta-

	or prevention of inappropriate hospital (re)admissions.		• The most effective interventions to avoid inappropriate re-admission to hospital and promote early discharge included integrated systems between hospital and the community care, multidisciplinary service provision, individualization of services, discharge planning initiated in hospital and specialist follow-up.	Each study was appraised using the Crowe Critical Appraisal Tool. A multidisciplinary team conducted this review.	analysis was not possible to conduct within the scope of this review.
Conroy et al., (2011)	Many frail older people who attend acute hospital settings and who are discharged home within short periods (up to 72 h) have poor outcomes. This review assessed the role of comprehensive geriatric assessment (CGA) for such people.	Systematic review 11 databases N= five trials	• There was no clear evidence of benefit for CGA interventions in this population in terms of mortality or readmissions or for subsequent institutionalisation, functional ability, quality-of-life or cognition.	Frail older people discharged from acute hospitals within 72 h have poor outcomes. CGA can improve outcomes for frail older people in acute care settings.	Few trials have been carried out and their overall quality was poor. Searched only for randomised controlled trials.
Conroy et al., (2013)	To identify reasons contributing to hospital readmission and potential interventions that might help the prevention of them.	Qualitative study Descriptive research and telephone interviews Thematic analysis N=50 UK	• Fifty patients with a mean age 82.2 years, 46% male, 9% from their own home, 50% with cognitive impairment, mean 5.2 co-morbidities, mean 6.5 medications and median Rockwoood frailty score 5. • Sixty-four percent of the readmissions were related to the index admission, the majority medical in nature (69%) of which 86% were potentially preventable.	Large sample size. Highlighting the importance of follow-up multidisciplinary care. CGA as a prevention measure	Participants over 70 years old. One site recruitment. Identified various risk factors but lacks in depth exploration of participants experiences.
Considine et al., (2018)	The aim of this study was to explore the reasons for unplanned hospital readmissions ≤1 day of acute care discharge, and determine what proportion of such unplanned hospital readmissions were potentially preventable.	Quantitative study Retrospective cohort study Binary logistic regression Phase 1: 170 readmissions ≤1 day and 1358 readmissions between 2 and 28 days were compared Australia	• Pain was the most common reason for readmission. Advanced age, significant comorbidities and social isolation did not feature in patients with an unplanned readmission ≤1 day. • One quarter of patients were discharged on a Friday or weekend, one quarter of readmissions occurred on a weekend, and pain was the most common reason for readmission raising issues about access to services and weekend discharge planning.	Large sample size. no published studies focusing on unplanned hospital readmissions within the first days of discharge even though one in ten unplanned hospital readmissions occur within one day of discharge.	Could not include readmissions to other health services. There may be patient and system factors that are not reflected in these data sources. Organisational and medical record data do not provide detailed information about health care

					provider characteristics and there is emerging evidence of hospital factors that contribute to readmissions independent of patient factors. Single health service recruitment.
Considine et al., (2020)	Understand from a patient and carer perspective: (1) what features of the discharge process could be improved to avoid early unplanned hospital readmission (2) what elements of discharge planning could have enhanced the discharge experience.	Qualitative research Thematic analysis Interviews 3 hospitals N=30, (23 patients only; 6 patient and carer dyads; 1 carer) Australia	• Five themes were constructed: 'experiences of care', 'hearing and being heard', 'what's wrong with me', 'not just about me' and 'all about going home'. • Features of the discharge process that could be improved to potentially avoid early unplanned hospital readmission were better communication, optimal clinical care including ensuring readiness for discharge and shared decision-making regarding discharge timing and goals on returning home. • The study findings highlight the complexities of the discharge process and the importance of effective communication, shared decision-making and carer engagement in optimising hospital discharge and reducing early unplanned hospital readmissions.	Multidisciplinary nature of the research team. Study interviews and analysis were conducted by 3 researchers. Large sample size. Multiple site recruitment. One of the first studies to explore patients experiences of hospital readmission. Highlighted the main problems of poor discharge planning from users perspectives (feeling exclusion, inadequate communication, wider organisational issues).	The study design prevents for further in-depth exploration of the phenomenon. Positive response bias, as the interviews took place during admission. Length of interviews was average 10.6 minutes. Participants mean age was low.
Courtney et al. (2011)	To evaluate innovative transitional care strategies to reduce unplanned readmissions and improve functional status, independence, and psycho-social well-being of community-based older people at risk of readmission.	Quantitative study Study protocol Randomised controlled trial Bivariate analysis/ Cox proportional hazards regression mode N:328	• Randomised into one of four groups: the usual care control group, the exercise and in-home/telephone follow-up intervention group, the exercise only intervention group, or the in-home/telephone follow-up only intervention group. • Primary outcomes are emergency hospital readmissions and health service use, functional status, psychosocial well-being and cost effectiveness.	There are few trials to demonstrate effective models of transitional care to prevent emergency readmissions, loss of functional ability and independence following an acute hospital admission.	Study protocol.

		Australia		1-, 3- and 6-month post discharge follow up.	
Craven and Conroy (2015)	The majority of hospital in-patients are older people, and many of these are at increased risk of readmission, which can be an adverse outcome for the patient. Currently there is poor understanding as to how best to reduce the risk of readmission.	Systematic review 3 databases 9 reviews	• 2 addressed risk factors for readmission and 7 addressed interventions. • It is possible to identify older people at risk of readmission using well-established risk factors; discharge planning, post-discharge support and nutritional interventions appear to be effective in reducing readmission. • Combined interventions appear to be more effective than isolated interventions.	Comprehensive systematic review. Effective intervention will need to be implemented using robust infrastructure, communication, coordination and continuity of information.	Search limited from 2008-2013. Included only reviews not individual studies nor disease specific interventions.
Damery et al., (2017)	To assess how well the LACE index and its constituent elements predict 30-day hospital readmission, and to determine whether other combinations of clinical or sociodemographic variables may enhance prognostic capability.	Quantitative study Retrospective cohort study Univariate and binary logistic regression N= 91 922 patient episodes UK	• 7.7% readmission rate • Increasing LACE score and each of its individual components were independent predictors • of readmission (AUC) 0.773. • A LACE score of 11 was most effective at distinguishing between higher and lower risk patients. However, only 25% of readmission episodes occurred in the higher scoring group. • A model combining A&E visits and hospital episodes per patient in the previous year was more effective at predicting readmission.	A split sample design allowed model development and statistical testing to be undertaken in one-half of the data set, and the results were validated in a representative sample of inpatient episodes from a directly comparable population. 4 models were constructed to assess potential predictors. Large sample size.	One site recruitment. Could not identify cases that they may have been readmitted to other hospitals.
De Buyser et al., (2014)	Examined functional changes during hospital stay by assessing both physical performance and activities of daily living. Investigated characteristics of older patients associated with meaningful in-hospital improvement in physical performance.	Experimental study Questionnaire and physical function measurements Multivariable logistic regression N= 1123 patients Italy	• Mean walking speed and grip strength performance improved during hospital stay, no significant change was observed in activities of daily living. • Patients with poor physical performance at admission had higher odds for in-hospital improvement. • Physical performance measurements show an improvement during hospital stay. • The margin for meaningful functional improvement is larger in patients with poor physical function at admission. Nevertheless, most of these patients continue to have poor performance at discharge.	Present objective data in the clinical setting where PPMs have received little attention. Demonstrate the feasibility of PPMs in acute care setting The multicentre design of the study improves generalisability of Results.	Important variables not recorded where the main reason of admission and the severity of disease. Assigned a continuous value equivalent to the worst percentile of performance, to those patients who were unable to perform WS and GS.

DePalma et al., (2012)	To examine if patients who return back to the community with unmet activities of daily living was associate with hospital readmission.	Quantitative study Bivariate Cox proportional hazards models N= 584 USA	• One in four Medicare patients return home with at least one unmet (new or existing one) ADL need. • After adjusting for demographic, health, and functioning characteristics, unmet ADL need was associated with increased risk for hospital readmission. Risk of readmission was greater for those with unmet need for new disabilities than those with unmet need for disabilities that were present before the index hospitalization.	Those who report unmet need for new ADL disabilities after they return home from the hospital are particularly vulnerable to readmission. Functional needs of older people should be evaluated and addressed as appropriate in order to prevent hospital readmission.	Respondents to the 1994, 1999, and/or 2004 National Long-Term Care Surveys. Not able to determine whether participants experienced a constant or periodic state of unmet ADL need. Cannot specify the reason the individual reported unmet need. Cannot verify that new unmet need developed as a consequence of the illness or injury that precipitated the index hospitalization.
Dilworth, Higgins and Parker (2012)	To explore the experiences of older people who have been readmitted to hospital.	Qualitative study Interviews, Thematic analysis N=3 Australia	• Three main themes emerged including: being left out, being cared for and feeling let down.	Valuable insight on people experiences of hospital readmission. Importance on hearing people voices and inclusion in decision-making. Benefits of person-centred care.	Small sample size. Positive response bias, as the interviews took place during admission. Lack in-depth understanding of the phenomenon. One site recruitment.
Dirks et al., (2016)	To investigated mechanisms underlying disuse-induced insulin resistance, taking into account muscle atrophy.	Experimental study ANOVA N=10 USA	• Short-term muscle disuse leads to substantial declines in muscle mass and function and is associated with the development of peripheral insulin resistance and a decrease in skeletal muscle oxidative capacity.	The researchers gave a lot of focus on mimicking hospitalisation of 7 days.	Age: 23 (+/- 1) Small sample size.

				Pre examination and post examination of participants.	Does not include social characteristics or perspectives of participants.
Dobler et al., (2020)	To evaluate the ability of the LACE index to predict the risk of 30-day readmissions in patients hospitalised for community-acquired pneumonia.	Quantitative study Retrospective cohort study Chi-square, ROC N= 3996 Australia	• 14.6% were readmitted within 30 days. • 17.8% of all 30-day readmissions were again due to CAP, followed by readmissions for chronic obstructive pulmonary disease, heart failure and chest pain. • The LACE index had moderate discriminative ability to predict 30-day readmission (C-statistic=0.6395) but performed poorly for the prediction of 30-day readmissions due to CAP (C-statistic=0.5760).	Data from 2006-2016, and randomly choosing participants. Tested whether the predictive ability of the LACE model could be improved by assessing modifications.	Could not identify participants that they may have been readmitted to other hospitals. The coding was often not specific for CAP, which misclassified and excluded cases.
Dong and Simon (2014)	To examine the prospective relationship between reported elder self-neglect and rate of 30 day hospital readmission in a community population.	Quantitative study Prospective population-based study Univariate analyses/ Poisson regression models N=1,228 Chicago	• The average annual rate of 30 day hospital readmission for those without elder self-neglect was 0.2 and for those with reported elder self-neglect was 0.9. • Greater self-neglect severity were associated with increased annual rates of 30 day hospital readmission, after considering same confounders. • Reported elder self-neglect was associated with increased rates of 30 day hospital readmission in this community population.	Used self-reported data. Contribute to the field of elder self-neglect and its adverse health outcomes.	Data were collected from 1993-2009. Could not examine the relation between specific indicators behaviours of self-neglect and rate of hospital readmissions. No details on the admitting and discharge diagnosis codes of the first and subsequent hospitalizations No information on the client's social support system.
Doyle, Lennox and Bell (2013)	To explore evidence on the links between patient experience and clinical safety and effectiveness outcomes.	Systematic review 55 studies Focusing on interventions to improve aspects of patient experience	• It demonstrates positive associations between patient experience and self-rated and objectively measured health outcomes; adherence to recommended clinical practice and medication; preventive care (such as health-promoting behaviour, use of screening services and immunisation); and resource use (such as hospitalisation, length of stay and primary-care visits).	Patient experience is positively associated with clinical effectiveness and patient safety It supports the argument that the three dimensions of quality	The first search was confined to one database and the review focused primarily on peer-reviewed literature

			• There is some evidence of positive associations between patient experience and measures of the technical quality of care and adverse events. Overall, it was more common to find positive associations between patient experience and patient safety and clinical effectiveness than no associations.	should be looked at as a group and not in isolation.	excluding grey literature. They did not systematically compare the strengths of positive associations in different studies.
Edwards, Duff and Walker, (2014)	To identify what mattered to a patient and family member during the patient's hospital experience and to examine the healthcare provider's awareness of what mattered.	Qualitative study Semi-structured interviews N= 1 patient, his wife and 7 healthcare providers Australia	• 3 themes: medication management, physical comfort and emotional security are what mattered to the recipients. • Hospital experience as a term is poorly defined, and definitions differ between recipients and providers of care. • Healthcare providers are not always aware of what matters to the patient and family during their hospital admission.	Two researchers conducted the interviews. People and communication were identified as the key modifiers determining a positive or negative experience.	Only 1 patient was interviewed. One site recruitment.
Emmerling et al., (2019)	To determine if levels of personal social capital differ in two groups of patients aged 65 and older, those readmitted to the hospital within 30 days of discharge and those not readmitted.	Quantitative study Cross-sectional study Descriptive design-MANOVA 11 hospitals N = 106 USA	• No significant differences between the two groups' mean levels of bonding or bridging social capital were identified.	Use of proportionate quota sampling and surveying patients discharged from multiple hospitals. Did not rely on secondary analysis of data.	Small sample size. Inability to assess with confidence whether or not the person completing the survey was cognitively impaired.
Ewbank et al., (2020)	NHS hospital bed numbers: past, present, future	Long read (Theking'sFund)	• Population growth, combined with an increasing proportion of older people more likely to need health care, is driving greater demand for NHS hospital treatment from A&E attendances and emergency admissions to referrals, outpatient services, diagnostic tests and elective admissions. • The NHS is only now coming to the end of a prolonged funding squeeze and is in the midst of a staffing crisis. Adult social care has seen staffing and demand pressures rise and is still waiting for the fundamental financing reform it urgently needs. • The total number of NHS hospital beds in England, has more than halved over the past 30 years, from around 299,000 in 1987/88 to 141,000 in 2018/9, while the number of patients treated has increased significantly.	Presenting data on hospital beds for England over a 30-year period and, where possible, data on other categories of beds used in health care. Comparing bed supply in the NHS with other countries. Exploring the drivers underpinning changes observed in hospital bed numbers	Intermediate care capacity (for example, for people moving from hospital care to independent living or social care), comprehensive data on bed numbers is not available.

				considering whether further bed reductions are realistic.	
Falvey et al., (2016)	To describe the need for physical therapist input during care transitions for older adults and to outline strategies for expanding physical therapy participation in care transitions for older adults, with an overall goal of reducing avoidable 30-day hospital readmissions.	Perspective article.	• Considering the strong evidence that links functional abilities in the immediate post-hospitalization period to readmission risk, physical therapists need to assume a stronger role in the treatment of older adults within care transition models. • Physical therapists can contribute meaningfully to existing care transition models and work collaboratively with other health care disciplines in reducing avoidable hospital readmissions. • They also are uniquely qualified to assess physical function, which represents a strong independent risk factor for hospital readmission.	Detailed article about how important the role of physical therapist during transition is and in which ways. Patients needs during transition and continuation of care.	A perspective article does not cover other professionals opinions. Lacks methods used to identify the data/evidence.
Ferré et al. (2019)	to identify and analyze barriers in current home care services and the high-risk population of hospital readmission to improve the strategies to avoid adverse outcomes.	Quantitative study Retrospective cohort study Descriptive/ multivariate logistic regression N: 4990 Argentina	• 53% percent of unplanned emergency room visits within 72 hours after hospital discharge resulted in hospital readmissions. • 65% of which were potentially avoidable including caregiver overburden, medication errors, failure to provide home care services, and complications associated with the complexity of the clinical management or the condition requiring HCS. • Multivariate logistic regression: low functionality, pressure ulcers, and age over 83 years predicted hospital readmission among emergency room attendee.	The study included 55 predictive variables. Strategies to reduce early hospital readmissions are related to the discharge planning process and the continuity of health care of the most vulnerable groups.	Small sample size. One site recruitment. Lack of objectivation of the avoidable vs unavoidable condition of the readmission according to published Criteria.
Finlayson et al. (2018)	To evaluate the comparative effectiveness of transitional care interventions on unplanned hospital readmissions within 28 days, 12 weeks and 24 weeks following hospital discharge.	Quantitative study Randomised controlled trial Bivariate analysis/ Cox proportional hazards regression models N=222 Australia	• Participants in the ExN-HaT or the N-HaT groups were 3.6 times and 2.6 times respectively significantly less likely to have an unplanned readmission 28 days following discharge. • Participants in the ExN-HaT or the N-HaT groups were 2.13 and 2.63 times respectively less likely to have an unplanned readmission in the 12weeks after discharge. • At 24 weeks after discharge, there were no significant differences between groups.	Telephone interviewing at 28 days, and 12 and 24 weeks. Multifaceted transitional care interventions across hospital and community settings are beneficial, with lower hospital readmission rates observed in those receiving more transitional intervention components. Recruitment from two hospitals.	Neither the participants nor the intervention nurse or exercise physiologist were blinded to randomisation. Desired sample size was not achieved within the study timeline. Almost half of the eligible sample were unwilling to participate.

Fisher et al., (2013)	To examine daily post discharge mobility levels as a marker of overall health.	Quantitative study Cohort study Univariate logistic regression models/ multivariate logistic regression model N=111 USA	• 11.7% participants were readmitted within 30 days of discharge. • There was a significant association between mean daily steps taken post discharge and 30-day readmission. • The least active participants post discharge were significantly more likely to be older, be not married, use a cane or walker prior to admission, have longer lengths of hospital stay, and be readmitted.	Mobility level soon after discharge home shows promise as a simple physical biomarker of overall health and risk of 30-day readmission in older patients.	Single-sited recruitment with selective sample. The measure of prior ADL function was very broad and may not reflect more traditional measures ofADLs. Sample size and number of readmissions within 30 days of discharge was relatively low. Did not include admissions to a different hospital.
Fox et al., (2013)	To compared the effectiveness of early discharge planning to usual care in reducing index length of hospital stay, hospital readmissions, readmission length of hospital stay, and mortality; and increasing satisfaction with discharge planning and quality of life for older adults admitted to hospital with an acute illness or injury.	Systematic review and meta analysis 19 databases and several internet search engines. N= 9 articles, 1736 participants	• Compared to usual care, early discharge planning was associated with fewer hospital readmissions within one to twelve months of index hospital discharge; and lower readmission lengths of hospital stay within three to twelve months of index hospital discharge • No differences were found in index length of hospital stay, mortality or satisfaction with discharge planning. • Narrative analysis of four studies indicated that early discharge planning was associated with greater overall quality of life and the general health domain of quality of life two weeks after index hospital discharge. • Early discharge planning with acutely admitted older adults improves system level outcomes after index hospital discharge.	Two reviewers independently extracted relevant data from each included article and entered the data into a standardized pilot tested data extraction form. This review highlights the limited number of studies that examined the effectiveness of early discharge planning.	Included nine studies with limited information of study methods, limited the ability to draw conclusions regarding level of bias in several domains.
Friebel et al., (2018)	To assess trends in 30-day emergency readmission rates across England over one decade.	Quantitative study Retrospective study design A longitudinal analysis Regression model N: 23 069 134 England	• The average risk-adjusted, 30-day readmission rate increased from 6.56% in 2006/2007 to 6.76% in 2012/2013, followed by a small decrease to 6.64% in 2015/2016. • Emergency readmissions for patients discharged following elective procedures decreased by 0.13%, whereas those following emergency admission increased by 1.27%. • Overall, emergency readmission rates in England remained relatively stable across the observation period, with trends of slight increases contained post 2012/2013.	Administrative data for England between 2006 and 2016 from 150 non-specialist hospital trusts. Examining changes in readmission trends and variation	The study was able to describe overall changes in emergency readmission rates over time, but was not able to make inferences about the effectiveness of specific healthcare

.				for all patients, and for nine clinical subgroups. It is possible that the higher emergency readmission rates observed among patients living in more deprived areas	interventions.
Friebel et al., (2019)	To assess the association of increased bed occupancy with changes in the percentage of overnight patients discharged from hospital on a given day, and their subsequent 30-day readmission rate.	Quantitative study Longitudinal study Models and subgroup analysis N = 4,193,590, for UK	• The average bed occupancy rate across the study period was 90.4%. • A 1% increase in bed occupancy was associated with a 0.49% rise in the discharge rate, and a 0.011% increase in the 30-day readmission rate for discharged patients. These associations became more pronounced once bed occupancy exceeded 95%. • When bed occupancy rates were high, hospitals discharged a greater proportion of their patients. Those were mostly younger and less clinically complex, suggesting that hospitals are successfully prioritising early discharge amongst least vulnerable patients. However, while increased bed occupancy was not associated with a substantial increase in overall 30-day readmission rates, the relationship was more pronounced in older and sicker patients, indicating possible links with short-fallings in discharge processes.	Large sample size from 136 non-specialist Trusts. Data were sourced from the Hospital Episode Statistics. The data allowed to measure bed occupancy on a daily basis for all acute NHS trusts across a two-year period.	The use of readmission rates can be affected by the quality of post-discharge care, which may not be under the control of the hospital. Bed occupancy rates only capture one aspect of the pressures that exist on care teams, They mentioned in their analysis section that they used models and subgroup analysis, but they don't give further details.
Gale et al., (2015)	To examine the prevalence of frailty and disability in people aged 60 and over and the proportion of those with disabilities who receive help or use assistive devices.	Quantitative study Survey N=5,450 UK	• The overall weighted prevalence of frailty was 14%. • Prevalence rose with increasing age, from 6.5% in those aged 60–69 years to 65% in those aged 90 or over. • Frailty occurred more frequently in women than in men. Mobility difficulties were very common,	Findings from the English Longitudinal Study of Ageing. Few studies in the UK have examined the use of assistive devices in older people. The prevalence of frailty rises exponentially with age.	Data from 2002-2003 and 2008-2009. No detailed explanation of analysis included, nor limitation section.
Garcia-Perez et al., (2011)	To identify the risk factors for hospital readmissions in elderly people.	Systematic review 5 Databases 12 studies	• Socio-demographic factors were only explanatory in a few models. • Prior admissions and duration of hospital • stay were frequently relevant factors.	Literature published to English or Spanish.	Search limited to 2008.

			• Morbidity and functional disability were the most • common risk factors.	The results demonstrate the need for increased vigilance of elderly patients who are admitted to hospital with specific characteristics that include previous admissions, LoS, morbidity and functional disability.	Excluded retrospective, cross-sectional and qualitative studies. Participants over 75 y.o.
Gold et al., (2016)	To study the association of depression with risk of readmission after total joint arthroplasty	Quantitative study Retrospective cohort data Multivariable logistic regression N= TKA- 132,422, THA- 65,071 USA	• Overall 90-day readmission rates were approximately 8% for TKA and THA. • Even after controlling for other chronic conditions and non-modifiable covariates, depression predicted higher likelihood of readmission. • Depression is associated with a significantly higher risk of readmission after THA and TKA.	Studies have not assessed links between depression and hospital readmission after total joint arthroplasty. Large sample size.	Data from 2007 to 2010. Administrative data: do not have richly detailed clinical information about the sample and whether the conditions are being managed preoperatively, perioperatively, or postoperatively. Readmissions to hospitals out of California are missing.
Goncalves-Bradley et al., (2017)	To determine the effectiveness and cost of managing patients with early discharge hospital at home compared with inpatient hospital care.	Systematic review 7 databases N = 32 trials, 4746	• The intervention was delivered by hospital outreach services (17 trials), community-based services (11 trials). • The intervention was mainly delivered by hospital outreach services and community-based services. • Most of the studies were well designed and conducted. • The studies looked at the effect of these services in patients with different types of conditions: patients who had a stroke, older patients with different types of medical conditions and patients who had surgery. • These studies show that, when compared to in-hospital care, early discharge hospital at home services probably make little or no difference to patient health outcomes or being readmitted to hospital, yet probably decreases hospital length of stay. • Patients who receive care at home might be more satisfied and less likely to be admitted to institutional care. There is little evidence of cost savings to the healthcare system of discharging patients home early to hospital at home care.	Comprehensive systematic review. Detailed explanation of methodology and analyses that where followed. This review provides low- to moderate-certainty evidence that hospital at home does not adversely affect mortality, hospital readmission, or functional status.	Lack of data on the impact on informal caregivers. Issues when comparisons are made between countries.

Greysen et al., (2014)	To describe barriers to recovery at home for vulnerable older adults after leaving the hospital.	Qualitative study Interviews Grounded theory Thematic analysis N=24 USA	• An overarching theme of "missing pieces" was identified in the plan for post discharge recovery at home. • Three specific subthemes emerged: functional limitations and difficulty with mobility and self-care tasks, social isolation and lack of support from family and friends, and challenges from poverty and the built environment at home. • Participants described mostly supportive experiences with traditional focuses of transition, care such as following prescribed medication and diet regimens.	Findings suggest that hospital-based discharge interventions that focus on traditional recovery tasks such as medications and disease management may overlook social, functional, and environmental aspects of recovery.	Study design: associations between the missing pieces described here and outcomes such as readmission cannot be assessed. One sited recruitment. Lacks in-depth understanding of the phenomenon. Participation low mean age.
Greysen et al., (2015)	To assessed effects of functional impairment on Medicare hospital readmissions	Quantitative study Cohort study Logistic regression/ Multivariable logistic regression N=7,854 USA	• 48% had some level of functional impairment prior to admission and 15% experienced a 30-day readmission. • It was found a progressive increase in adjusted risk of readmission as the degree of functional impairment increased. • Sub-analysis restricted to patients admitted with conditions targeted by Medicare (heart failure, myocardial infarction, and pneumonia) revealed a parallel trend with larger effects for the most-impaired.	10-year longitudinal, nationally representative study. Offers greater understanding of functional vulnerability which is crucial to improve transitions of care and increase attention to often-overlooked functional issues for older adults.	The time from measurements of functional impairment and hospitalization were not uniform among HRS subjects. Data from 2000–2010.
Greysen et al., (2017)	To examine patients and caregivers perceptions of factors contributing to hospital readmission.	Mixed method study Cross sectional and Interviews (multiple-choice and open-ended questions) N=1066 (Patients-928, Caregivers-62, Both-73) 12 hospitals USA	• 91% reported understanding their discharge plan; however, only 37% reported that providers asked about barriers to carrying out the plan. • 52% reported experiencing difficulty in ≥1 self-care domains • 26% experienced difficulty in two or more domains. • Only 20% attributed their readmission to early discharge.	Multiple site recruitment. Large sample size. Describes readmission risk factors in terms of self-care domains from peoples' perspective. Study design offers the ability to quantify their results.	Positive response bias, as the interviews took place during admission. Not directly asking the patients for their discharge readiness during their first admission. Participants mean age was low.

Hallgren and Aslan (2018)	Hospital readmissions of older persons are common and often associated with complex health problems. The objectives were to analyse risk factors for readmission within 30 days from hospital discharge.	Quantitative study Longitudinal 9 years of follow-up Multivariate logistic regression N= 772 Sweden	• 208 had one or several readmissions within 30 days. • Causes of admission and readmission were cardiovascular diseases and tumours. • Most older persons that are readmitted return to hospital within the first week after discharge. • Experiencing a fall was a particular risk factor of readmission. • Preventive actions should preferably take place already at the hospital to reduce the numbers of readmission.	The prospective follow-up design. The population-based sample and the fact that SATSA includes persons from across Sweden with a variety of medical conditions.	Does not provide in-depth information about patients' experiences. Did not include information on cognitive impairment nor information on nutritional status. Not included the control for proximity to hospital, which might have had an impact on the propensity to seek hospital care and on readmissions.
Hallgren et al., (2015)	To explore how older people experience and perceive decisions to seek hospital care while receiving home health care.	Qualitative study Content analysis Interviews N=22 Sweden	• One interpretative theme describing an overall confidence in hospital staff to deliver both medical and psychosocial health care, In Hospital We Trust • Three underlying categories: Superior Health Care, People's Worries, and Biomedical Needs. • Findings indicate a need for establishing confidence and ensuring sufficient qualifications, both medical and psychological, in home health care staff to meet the needs of older people.	Understanding older peoples' arguments for seeking hospital care may have implications for how home care staff address individuals' perceived needs. Home health care patients, their relatives and home health care staff, according to the participants, share a trust in hospital care. Recruited from 11 municipalities.	Did not combine stories with details of their specific hospital admissions and whether those were considered as necessary or avoidable. The descriptive design did not allow in depth exploration of the phenomenon.
Hansen et al., (2011)	To describe interventions evaluated in studies aimed at reducing rehospitalization within 30 days of discharge.	Systematic review 4 databases N= 43 articles	• 3 domains that encompassed 12 distinct activities. Predischarge interventions included patient • education, medication reconciliation, discharge planning, and scheduling of a follow-up appointment before discharge. • Post discharge interventions included follow-up telephone calls, patient activated hotlines, timely communication with ambulatory providers,	No single intervention implemented alone was regularly associated with reduced risk for 30-day rehospitalization.	The review took place from 1975 and 2011. Inadequate description of individual studies'

			• timely ambulatory provider follow-up, and post discharge home visits. • Bridging interventions included transition coaches, physician continuity across the inpatient and outpatient setting, and patient entered discharge instruction.	A very broad and comprehensive review.	interventions precluded meta-analysis of effects. Many studies identified in the review were single-institution assessments of quality improvement activities rather than those with experimental designs. Several common interventions have not been studied outside of multicomponent "discharge bundles."
Hao et al., (2019)	To determine the impact of the frailty on subsequent mortality and readmission in acute setting.	Quantitative study Prospective observational study Cox regression models telephone interviews at 12, 24, and 36 months. N: 271 China	• The prevalence of frailty was similar in men and women. • Compared with non-frail patients, death and hospital readmission rates of frail patients were increased. Frailty was an independent predictor of 3-year death and readmission after adjusting for several potential confounders. • Frailty is prevalent among older inpatients and is a valuable predictor of 3-year mortality and hospital readmission in an acute care setting	Telephone interviews at 12, 24, and 36 months. Few studies have focused on frailty as a predictor of mortality and readmission.	frailty index without using the same variables (70-item) employed in its original development study. Excluded patients with severe disease, which may have introduced a selection bias and thereby underestimated the prevalence of frailty.
Healthwatch England (2015a)	To inform the community about people's experiences and the impact that those issues had on their lives.	Briefing Interviews, focus groups and surveys N= >1000, 100 local HealthWatch UK	The patients experienced delayed discharges, lack of support after discharge, discrimination, not involved in decisions about their health and their full range of need were not considered. Instead the patients expected compassion and respect, to be considered for their needs and not only for their symptoms, to be involved in decisions and to be informed where they could seek help.	Large sample size. Multiple site recruitment. Information on a disjointed system struggling to provide compassionate aftercare and	Lack of description of data collection, analysis and synthesis. No description of inclusion/ exclusion criteria.

				support for a rapidly ageing population.	
Healthwatch England (2015b)	Focused on the experiences of older people, homeless people, and people with mental health conditions.	Briefing Views on discharge through focus groups, surveys, visits to services and received evidence submitted from a range of organizations. N= +3,000 people, 101 local HealthWatch UK	Experiencing delays/ lack of co-ordination between different services; feeling left without the services and support they need after discharge; feel discriminated and that they are not treated with appropriate respect because of their conditions and circumstances; feel they are not involved in decisions about their care or given the information they need; and feel that their full range of needs is not considered.	Large sample size. Multiple site recruitment. Important information about people experiences and services issues.	Lack of description of data collection, analysis and synthesis. No description of inclusion/ exclusion criteria.
Hesselink et al. (2014)	To provide insight into hospital discharge problems and underlying causes, and to give an overview of solutions that guide providers and policy-makers in improving hospital discharge.	Intervention Mapping framework N= 26 focus group interviews 321 interviews patients and relatives, and community care providers, 220 experts were consulted and a systematic review of effective discharge interventions The Netherlands, Spain, Poland, Sweden, and Italy,	• Ineffective discharge is related to: Providers can reduce hospital readmission rates and adverse events by focusing on high-quality discharge information, well-coordinated care, and direct and timely communication with their counterpart colleagues. • Patients/carers: should participate in the discharge process; • Assessment by hospital care providers whether discharge information is accurate and understood; • Discharge templates, medication reconciliation, a liaison nurse or pharmacist, regular site visits and teach-back are identified as effective and promising strategies to achieve the desired behavioural and environmental change.	This study provides a comprehensive guiding framework for providers and policy makers to improve patient handover from hospital to primary care. Use of theoretical, empirical and practical information.	Focus on the microlevel excluding other key factors for change. The possible barriers and facilitators at a macro- and meso-levels, i.e., financial and legal obligations or constrains were not included. The relationships between the identified determinants and theoretical-based methods and strategies were hypothetical
Holmås, Monstad and Steskal (2019)	To investigate the relationship between availability of relatives and mortality and hospital readmission within 30 days for patients aged 70 and above.	Quantitative study Retrospective cohort study Linear probability model N= 97,920	• Results show that having a spouse and at least one child is associated negatively with mortality and positively with readmission. • A potential mechanism is that a spouse/child monitors the elder's health status and acts as an advocate for the elderly, making a readmission more likely, while also reducing the mortality risk.	Large sample size. Several analyses to check the robustness of the results.	Data collected from 2009–13. Patients aged 70+.

		Norway	• The availability of children is more important for female patients than for male patients, while for male patients the availability of the spouse appears to be more important, at least for readmission.	Add valuable knowledge in the literature about the family involvement in people health trajectories.	Explorative design, and results cannot be given a causal interpretation.
Horney et al. (2017)	To define factors associated with readmission within the first week of discharge to PAC facilities following hospitalization.	Quantitative study Secondary analysis Bivariate analysis N: 81,173 USA	• Shorter length of index hospital stay is associated with earlier readmission and suggests that for this comorbid, older population, a shorter hospital stay may be detrimental. • Readmission after 1 week is associated with increased chronic disease burden, suggesting they may be associated with factors that are less modifiable.	the first study to examine the association between timing of hospital readmission and hospital length of stay among patients discharged to PAC facilities. Large sample and multisite recruitment.	No information about discharge medications. No information about care processes during hospitalization and between the hospital and PAC facility.
Howard-Anderson et al. (2016)	To understand patients' beliefs and attitudes about 30-day readmissions and to elucidate areas for improvement aimed at reducing readmissions.	Qualitative study In person survey. N=230 (48%) USA	• 28% reported not feeling ready for discharge. • 65% reviewing discharge paperwork, but 22% could not identify critical information on this paperwork. • 85% reported having a primary doctor; however, only • 56% of patients who received a contact number on discharge called a physician before returning to the hospital. • One-third of patients knew where to obtain same-day care outside of the emergency room. • Lastly, patients reported feeling more relieved than burdened upon readmission.	Focus on hospital readmitted patients' perception. The survey questions were based on a pilot study 5 trained study volunteers conducted the interviews Large sample size.	Positive response bias, as the interviews took place during admission Recruitment from one-site. Survey instrument was not previously validated.
Hoyer et al. (2014)	To determine whether functional status near the time of discharge from acute care hospitalization is associated with acute care readmission.	Quantitative study Retrospective cohort study Logistic regression/ Multivariable and Subset Analyses N= 9405 USA	• 13% readmissions. • FIM score was significantly associated with readmission. • Medical patients with low functional status had the highest readmission rate compared to medical patients with high FIM scores. • For patients admitted to an acute inpatient rehabilitation facility, functional status near the time of discharge from an acute care hospital is strongly associated with acute care readmission.	Large patient sample size with a broad range of admission FIM scores. Detailed method of analysis and comprehensive approach to the topic.	Data from 2006-2012 Single-centre recruitment Unable to demonstrate a direct cause-and-effect relationship between functional status and readmission.

					Although FIM score assessment has been validated, admission assessment occurs over a 72-hour time period, during which patients' function could potentially change a clinically meaningful degree.
Hughes et al., (2018)	To examined reasons for, and predictors of, readmission to acute care facilities	Quantitative study Univariate and multivariate Cox regression analyses. N= 3984 (Overall, 5.6% (n = 222) and 23.2% (n = 926) of the patients were readmitted within 30 days and 180 days of discharge respectively) UK	• For patients readmitted to hospital, 26.6% and 21.1% of patients were readmitted with the same condition as their initial admission at 30 days and 180 respectively. • For patients readmitted within 30 days, 13.5% were readmitted with the same condition with the most common diagnoses associated with readmission being chest infection, falls/immobility and stroke. • For patients readmitted within 180 days, 12.4% of patients were readmitted with the same condition as the index condition with the most common • diagnoses associated with readmission being falls/immobility, cancer and chest infections. • In multivariable Cox regression analyses, older age, male sex, length of stay and heart failure predicted 30 or 180-day readmission. • In addition, discharge from hospital to patients own home predicted 30-day readmission, whereas diagnoses of cancer, previous myocardial infarction or chronic obstructive pulmonary disease predicted 180-day readmission.	Routinely collected data from a 13 year period. Detailed health and functional outcomes data on a large set of patients undergoing rehabilitation in a medicine for the elderly unit.	Data were examined retrospectively and were not collected with this study in mind. Data were collected from 1999-2011.
Ismail and Coulson, (2016)	The paper focuses on the impact of the ACCs on their patients' levels of anxiety and depression, hospital readmissions and costs to the National Health Service (NHS).	Quantitative study Longitudinal audit Questionnaires Descriptive analysis N= 32 ACC	• High levels of anxiety and depression amongst patients. Nearly one-third were at the 'borderline' or 'clinically anxious' and 18% were at the 'borderline' or 'clinically depressed' level at their first assessment with small changes at follow-up. • In arrhythmia specialist nurse sites, readmission rates were reduced by half. • After deducting the cost of the ACCs and their support, the estimated that the NHS saves £29,357 per year.	19 sites set in tertiary hospitals. Economic analysis. Patients presenting with arrhythmias can benefit from early psychological assessment and specialist intervention.	Data from 2008-2010. They did not capture baseline or outcome HRQOL data for around half of the patients.
Jeffs et al., (2014)	To understand the reasons and preventability of readmissions from the perceptions of patients, family and health professionals.	Qualitative study Interviews Content analysis N= 49 (16 patients, 7 family members and 26 health professionals)	• The first theme was readmissions as preventable occurrences. • The second theme was readmissions as inevitable. • Some readmissions were perceived to be preventable and associated with in hospital and post-discharged factors and others inevitable because of the burden of the disease. Among the participants readmissions were inevitable when the progression of the disease was not stable.	Insights from the multiple perspectives of patients', family members' and healthcare professionals' perceptions associated with readmissions and their preventability.	One site recruitment. The data analysed were from interviews conducted from self-reporting perceptions

		Canada		Multi-professional approaches to discharge planning and post-discharge care could reduce readmissions to hospital and could improve the quality of life and satisfaction.	on the reasons for, and preventability. Participants mean age was low. Absence of social workers
Kadri et al., (2018)	The study sought to determine the causes and predictors of 30-day readmission in patients with syncope.	Quantitative study Observational cohort study Descriptive/ Bivariable and multivariate logistic regression N= 282 311 USA	• The 30-day readmission rate after syncope/collapse was 9.3%. • The most common cause of 30-day readmissions was syncope/collapse, followed by cardiac, neurological, and infectious causes.	Large sample size. Identification of patients at risk for early readmission will help augment efforts to reduce early readmission.	Administrative nature of using a database such as the NRD: reliance on reported ICD-9 codes to identify primary and secondary diagnoses and the absence of important information related to patients'. NRD tracks patients admitted within the same state and does not track death that occurs outside of the hospital or ED.
Kahlon et al., (2015)	To evaluated the impact of frailty on readmission or death within 30 days after discharge from general internal medicine wards.	Quantitative study Prospective cohort study Multivariable logistic regression analysis N: 495 USA	• 162 met the definition of frailty: 91 (18%) had mild, 60 (12%) had moderate, and 11 (2%) had severe frailty. • Frail patients were older, had more comorbidities, lower quality of life, and higher LACE scores at discharge than those who were not frail. • The composite of 30-day readmission or death was higher among frail than among nonfrail patients. • Frailty was common and associated with a substantially increased risk of early readmission or death after discharge from medical wards.	Frailty was associated with an increased risk of readmission or death within 30 days after discharge and increased use of health services even after we adjusted for age and sex. The Clinical Frailty Scale could be useful in identifying high-risk patients being discharged from general internal medicine wards.	Did not evaluate the functional status of patients after hospital discharge. Recruitment from only medical wards.
Kansagara et al., (2011)	To summarize validated readmission risk prediction models, describe their	A Systematic Review 4 databases N= 30 studies	• The most common outcome used was 30-day readmission; only 1 model specifically addressed preventable readmissions.	Most of the models developed for clinical purposes had poor predictive ability,	Classifications of data types, data collection

	performance, and assess suitability for clinical or administrative use.		14 models that relied on retrospective administrative data could be potentially used to risk-adjust readmission rates for hospital comparison; of these, 9 were tested in large US populations and had poor discriminative ability (*c* statistic range: 0.55-0.65). 7 models could potentially be used to identify high-risk patients for intervention early during a hospitalization (*c* statistic range: 0.56-0.72). 5 could be used at hospital discharge (*c* statistic range: 0.68-0.83). 6 studies compared different models in the same population, 2 of these found that functional and social variables improved model discrimination.	although notable exceptions suggest the addition of social or functional variables may improve overall performance.	timing, and the intended use of each model are subject to interpretation.
Kapoor et al., (2017)	The objective was to evaluate and compare the performance of the ACS Calculator for predicting risk of serious postoperative complications with the addition of self-reported physical function versus a frailty score.	Quantitative study Prospective cohort. Cox Proportional Hazards Models N=403 USA	26% of participants developed an adverse postoperative course. - The increase in c-statistic for the ACS Calculator (baseline value 0.645) was slightly greater with LLFDI-FUNCTION (0.076) than with FP (0.058), with a bootstrapped difference in c-statistic of 0.005.	The study shows significant implications such as the improvement of ACS calculator with the use of a self-report instrument. Self-reported function was more informative than FP in risk stratification of older adults for an adverse postoperative course.	Not a sufficient sample size to verify an association between LLFDI-FUNCTION and serious complications. Did not compare the instrument with other self-report instruments.
Karlson and Karlson, (2019)	The present study aimed to describe nurses' experiences of follow-up visits to older patients with multimorbidity 48 to 72 hours after discharge from hospital.	Qualitative study Content analysis Interviews N=10 Sweden	- Visits by nurses can relieve patient anxiety, as patients are often unsure of the next steps, in terms of medication and care. - According to the nurses, these visits created trust in the nurse–patient relationship and ensured patient safety.	Follow-up visit immediately after discharge made patients feel safer at home and created a relationship of trust.	Small sample size. The study does not include peoples' perspective who are being visited.
Ketterer et al., (2014)	To cross-sectionally identify correlates of number of past-year admissions and 30-day readmissions in patients with congestive heart failure.	Quantitative study Cross-sectional study Logistic regression analysis N=84 USA	- Depression, history of substance abuse, and history of coronary artery disease displayed borderline results as correlates of past-year admissions. - Immediate memory and psychiatric history were associated with 30-day readmission rates. - Indices of congestive heart failure severity were not.	Psychiatric history and cognitive impairment are possible determinants of early readmission. Psychoeducation and involvement of family in medication/ appointment compliance may decrease readmissions.	Low mean age of participants. Males= 62% Absence of data on admissions from outside our health system.
Kingston et al., (2018)	Models projecting future disease burden have focussed	Quantitative study	- Between 2015 and 2035, multi-morbidity prevalence is estimated to increase - The proportion with 4+ diseases almost doubling (2015:9.8%; 2035:17.0%).	A 1% random sample of the 2014 England.	Most of the morbidities are self-

	on one or two diseases. Little is known on how risk factors of younger cohorts will play out in the future burden of multi-morbidity	Dynamic-microsimulation model 2014–2040 N:303,589 England	• Multi-morbidity prevalence in incoming cohorts aged 65–74 years will rise (2015:45.7%; 2035:52.8%).	Estimates from the Population Ageing and Care Simulation (PACSim) model'.	reported, though all three surveys ascertained doctor-diagnosed disease. The transition rates for all characteristics were based upon observations from 2 consecutive waves of each survey, a time period of around 2 years.
Kronzer et al., (2016)	To characterize postoperative falls, and determine whether preoperative falls independently predicted postoperative falls, functional dependence, quality of life, complications, and readmission.	Quantitative study Prospective cohort study Descriptive statistics/ multiple imputation in SAS/ multivariable regression models N=7982 USA	• Fall rates peaked at 175 (hospitalization), declined to 140 (30-day survey), and then to 97 (one-year). • One, two, and ≥three falls predicted functional decline at 30 days and one year, along with in-hospital complications. • Fall history predicted adverse outcomes better than commonly-used metrics, but did not predict QoL deterioration or readmission.	Large sample size. Data: medical record, a baseline survey, and follow-up surveys approximately 30 days and one year after surgery.	The enrolment process and survey nonresponse may have introduced selection bias. Single sited recruitment. Patient-reported falls are prone to recall bias. Participants low mean age.
Lasater and Mchugh (2016)	To examine the effect of nurse staffing and the work environment on 10- and 30-day unplanned readmissions for US Medicare patients following elective total hip and knee replacement.	Quantitative study Retrospective cohort study Cross-sectional analysis N = 112 017 USA	• Nearly 6% of the patients were readmitted within 30 days; more than half of whom were rehospitalized within 10 days. • Adjusted for patient and hospital characteristics, patients had 8% higher odds of 30-day readmission • and 12% higher odds of 10-day readmission, for each additional patient per nurse. • Patients cared for in the best work environments had 12% lower odds of 30-day readmission.	Patients from 495 hospitals. Three secondary data sources and 4 states across the USA.	Data from 2006. The study design limits the understanding of causal relationships.
Lau et al., (2016)	We examined whether patients who feel unready at the time of discharge have increased readmissions or death within 30 days.	Quantitative study Prospective cohort study Logistic regression model	• (23%) reported being unready for discharge. • Risk factors for being unready at discharge were cognitive impairment, low satisfaction with health care services, depression, lower education, previous hospital admissions and persistent symptoms or disability. • At 30 days, 85 patients (17%) had been readmitted or died, with no significant difference between patients who felt unready or ready (15% vs18%)	Multiple site recruitment. A substantial number of patients report feeling unready at discharge.	Participants mean age was low. A single-item yes/no measure correlates well with the overall

		2 hospital N=495 Canada		Patients who felt unready were not more likely to have adverse outcomes—readmission or death, or emergency department visits.	construct. However, some patients may have misinterpreted the item as referring to their eagerness to go home.
LaWall et al., (2019)	To assessed 2 social factors collected from EHRs — social isolation and homelessness — in predicting 30-day potentially preventable readmissions (PPRs) to hospital.	Quantitative study Bivariate/Multivariate logistic regression model N = 21,274 USA	• Living alone did not significantly affect likelihood of a 30-day PPR 16.6% without PPR vs 14.4% with PPR. However, documented homelessness did show a significant effect on the likelihood of 30-day PPR in the bivariate analysis (11.1%] without PPR vs 14.1%] with PPR. • In multivariable models, neither living alone nor homelessness was significantly associated with PPR. Neither living alone nor homelessness predicted PPR once other factors were controlled. Instead, indicators of physical frailty and medical complexity were significant.	Multiple site recruitment. Large sample size. Social and behavioural factors affect patient health, health care systems must rethink the way these measures are defined and captured in EHRs.	Free-text capture of homelessness underreports those who are unstably housed or those who are currently living in shelters.
Lawrie and Bettye (2012)	1. To inform Age UK's health strategy, specifically the theme of improving experiences and outcomes for older people using hospital services. 2. To provide Age UK with a greater understanding of the issue of emergency hospital readmission from the perspective of the older people themselves, to be used in influencing activities and in service development support for local Age UKs.	Qualitative study Interviews N=18 UK	• It included cases where interviewees felt their dignity was not preserved. However, interviewees generally displayed understanding of the challenges facing hospital staff, and an appreciation that in their condition at the time, hospital was the best place to be. • Experiences of discharge from hospital were, in the majority of cases, quite poor. Several interviewees felt that they had no control over the timing of their discharge. The provision of information at the point of discharge was also considered to have been poorly managed. • A common theme reported by interviewees was a desire for more personalised care once they had left hospital. This was noted by the majority of interviewees who had formal support after leaving hospital. Elements to this included: having a greater say over the content of their care; ensuring that health professionals respected personal preferences; and, ensuring that they received a coordinated package of care, especially where several professionals were involved. • In a majority of cases, readmission had a negative impact. This included contributing to feelings of depression and frustration about being back in hospital.	Large sample size. Good description of risk factors, system issues and causes of hospital readmission. Valuable information regarding peoples' lived experiences of readmission.	Interviewed only people over 75 years old. The study took place in 2012. No strength and limitation section. Not explaining which analysis method was used to produce their findings.
Lee et al., (2012)	To determine the risk factors predicting rehospitalization by comparing three models and selecting the most successful model.	Quantitative study Retrospective cohort study logistic regression/ decision tree/ neural network N=11,951 Korea	• The decision tree was selected as the final model. • The risk of rehospitalization was higher when the length of stay (LOS) was less than 2 days, route of admission was through the out-patient department (OPD), medical department was in internal medicine, 10th revision of the International Classification of Diseases code was neoplasm, LOS was relatively shorter, and the frequency of OPD visit was greater.	The most important variable in predicting the risk of read-mission was the LOS, where the risk was high when the LOS was less than two days (64.9%). Large sample size.	Data from a single academic hospital. Variables such as severity of the disease, the title of accompanying diseases, and the pro-cess of providing

					healthcare services were not included.
Lee et al., (2018)	To examined factors at, and after initial hospital discharge and their associations with unplanned hospital readmission for older adults up to six months post-discharge from subacute care.	Quantitative study Prospective cohort study Survey and questionnaires Logistic regression N=311 Australia	• Eighty-nine participants shared 143 readmissions. • Those with cancer history, neurological disease other than stroke and dependence on others to assist in bending tasks at initial discharge were associated with readmission within six months post-discharge. • Those who fell in the last month, being less physical active and dependence on others in moving around residence after initial discharge were associated with a readmission in the next month within six months post discharge.	The findings from this study indicate strategies that may be viable targets for reducing unplanned hospital readmissions in this population are to improve physical capacity, reduce falls, monitor medical conditions such as cardiorespiratory function and infection, and increase participation in physical activity.	Potential factors related to capturing whether any social services were arranged for participants to help them manage the transition from hospital to the community, may mitigate the risk of rapid hospital readmission.
Legrain et al., (2011)	To determine whether a new multimodal comprehensive discharge-planning intervention would reduce emergency rehospitalizations or emergency department (ED) visits for very old inpatients.	Quantitative study Randomized controlled trial Chi-square/ Kaplan–Meier survival curves N= 665 France	• 23% of IG participants were readmitted to hospital or had an ED visit 3 months after discharge, compared with 30.5% of CG participants. • This intervention was effective in reducing rehospitalizations and ED visits for very elderly participants 3 but not 6 months after their discharge from the AGU.	Targeted three risk factors for preventable readmissions: comprehensive chronic medication review, education on self-management of disease, and detailed transition-of-care communication with outpatient health professionals. Multicenter intervention trial.	Participants aged 70+. Not possible to determine which component of this multimodal discharge planning intervention was the most important in reducing readmissions. Excluded patients with LoS of 5 days
Leung et al., (2015)	This study examined the impacts of the virtual ward service on changes in the patients' emergency attendance and medical readmissions, and their quality of life.	Quantitative study Quasi-experimental study Wilcoxon signed-rank tests N= 89 eligible patient–carer dyads in the intervention group and 46 dyads in the control group Hong Kong	• The virtual ward group showed a greater significant reduction in the number of unplanned emergency hospital readmissions and a significant improvement in their overall QOL (n=18) • No significant difference in the number of emergency attendances.	Multisite recruitment. The study gives a great focus on patients quality of life and not only whether the intervention is effective or not.	Small size sample. Using 5 inclusion criteria, it is possible to missed other possible cofounders. Did not include cost analysis for the intervention.

Linertová et al., (2011)	To identify interventions that effectively reduce the risk of hospital readmissions in patients of 75 years and older, and to assess the role of home follow-up.	Systematic review 3 databases and 7 other electronic N= 32 clinical trials	• Two groups: in-hospital interventions (17 studies) and interventions with home follow-up (15 studies). • A positive effect of the intervention evaluated on the readmission outcome was found in three studies from the first group and in seven from the second group. • Most of the interventions evaluated did not have any effect on the readmission of elderly patients. However, those interventions that included home care components seem to be more likely to reduce readmissions in the elderly.	A thorough search of the literature. English and Spanish trials included. Implementation of an effective intervention to reduce the risk of readmission would have important implications for health care systems, as it could considerably reduce the use of resources and consequently health care costs.	The review took place from 2007 -2009 Focused exclusively on readmission outcomes as a measure of intervention effectiveness, without taking into consideration if other outcomes were affected. Publication or language bias due to study design.
Liu et al., (2013)	To implement and evaluate the impact of an evidence-based strategy to promote early mobilization and prevent functional decline in older patients admitted to university-affiliated acute care	Mixed method study A pragmatic, quasi-experimental interrupted time series (ITS) design to evaluate the impact of the staff intervention on the primary outcome. N= 12,490 Canada	• An increase in mobilisation was observed post-intervention, where significantly more patients were out of bed daily post-intervention compared to pre-intervention. • Hospital median LOS was significantly shorter during the intervention period compared to pre-intervention. It continued to decrease post-intervention with significantly fewer days in hospital in the post-intervention period compared to pre-intervention.	The first large, multisite study to evaluate the impact of a multi-component knowledge translation strategy on rates of mobilization of older patients in hospital. Follow up: patient mobilisation, over 3 time periods.	Did not collect information about external factors that may have impacted LOS. Not able to provide analysis of patient outcomes such as functional status The rate of discharge to long-term care facility was high Not able to analyse impact of mobilisation on falls due to data quality issues.
Mabire, Coffey and Weiss (2015)	To develop and psychometrically test Readiness for Hospital Discharge Scale for older	Quantitative study Cross-sectional study design Logistic regression model	• Factor analysis revealed that a 17-item scale withthree factors produced the best model fit. • Patients who lived alone, were older, or who indicated 'not ready' for discharge had lower Readiness for Hospital Discharge Scale for Older People scores, which were also associated with readmission risk.	RHDS could help clinical nurses to evaluate readiness before hospital discharge. Multiple site recruitment.	Does not provide in-depth information about patients' experiences.

	people and to reduce the scale to a more practical short form.	N= 998 medical-surgical patients USA, Ireland, Switzerland.		The use of RHDS-OP-SF could contribute to identification of older people at risk for readmission.	Cultural norms and differences in patient and family expectations for hospital discharge and post discharge care.
Mathew et al., (2016)	This systematic review aimed to identify patient, clinical, or hospital-related factors that are identifiable at the index admission and that may be associated with re-presentations to hospital emergency departments or hospital readmissions in older adults following fragility fractures.	Systemic review 4 databases 11 studies	• These studies reported that age, higher Cumulative Illness Rating scores, American Society of Anaesthesiologists scores > 3, longer length of stay, male sex, cardiovascular disease, low post-operative haemoglobin, kidney disease, dementia and cancer were factors identified at the index admission that were predictive of subsequent re-presentation to hospital.	It used broad search terms and multiple databases. A rigorous screening process was implemented with 3 reviewers. Identifying the paucity of high-quality studies that have examined risk factors for representation to hospital following fragility fractures that affect other important body regions is another important finding from this review.	Exclusion of Qualitative studies, non-English language studies and grey literature.
Middleton et al. (2019)	To determine the association between patients' functional status at discharge from home health care and 30-day potentially preventable readmissions. A secondary objective was to identify the most common conditions resulting in potentially preventable readmissions.	Quantitative study Retrospective cohort study Multilevel logistic regression N= 1,510,297 USA	• The overall rate of 30-day potentially preventable readmissions was 2.6%, which accounted for 40% of all 30-day readmissions. • The 5 most common conditions resulting in a potentially preventable readmission were congestive heart failure (23.6%), septicemia (16.7%), bacterial pneumonia (9.8%), chronic obstructive pulmonary disease (9.4%), and renal failure (7.5%).	Identification of at-risk individuals allows for targeted, efficient prevention efforts. Functional limitations at discharge from home health are associated with increased risk for potentially preventable readmissions. Large sample size.	Data are not collected for research purposes, and the accuracy of data entry is not known. Findings are only generalizable to Medicare fee-for-service beneficiaries who match our cohort selection criteria.

					Results may be different for other measures of functional status.
Min et al., (2019)	The goal of this paper is to conduct a systematic study on developing different types of machine learning models, including both deep and non-deep ones, for predicting the readmission risk of COPD patients.	Quantitative study Case Study on COPD Machine learning N=111,992	• Analysis showed that the prediction performance in terms of Area Under the receiver operating characteristic (ROC) Curve (AUC) can be improved from around 0.60 using knowledge-driven features, to 0.653 by combining both knowledge driven and data-driven features. • Demonstrated that the complex deep learning models in this case cannot really improve the prediction performance, with the best AUC around 0.65.	A comprehensive study on predictive modelling of the 30 day readmission risk of COPD patients based on their claims records with various machine learning models.	Predicting the risk of hospital readmission is difficult based on only claims data. COPD severity grade was not included.
Morandi et al. (2014)	Rehospitalizations for elderly patients are an increasing health care burden. Nonetheless, we have limited information on unplanned rehospitalizations and the related risk factors in elderly patients admitted to in-hospital rehabilitation facilities after an acute hospitalization.	Quantitative study Retrospective cohort study Multivariable Cox proportional regression model N=2,735	• Use of 7 or more drugs and a significant decline in functional status, a length of stay in the acute hospital ≥13 days.	the first to evaluate the rate of unplanned readmissions of elderly patients admitted to an in-hospital rehabilitation setting. Contains functional and cognitive data.	One site recruitment. Unable to collect information on specific type of drugs. The rate of unplanned rehospitalization was low.
Mueller et al., (2017)	Mental health needs of older people have historically been under-recognised and under-treated.	NHS England and NHS Improvement-Guidance UK	• Depression is both the most common and most treatable / reversible mental illness in old age, affecting one in five older people in the community. This figure doubles in the presence of physical illness and trebles in hospitals and care homes. • Anxiety disorders are present in one in twenty people and very frequently along with depression. • Older people more frequently have symptoms of depression or dementia than late-onset schizophrenia. • Older people are more likely to be on drug therapies and less likely to be in receipt of talking therapies.	Professionals risk attributing symptoms to 'old age' or considering the patients' situation as futile. Ninety percent of older people consult their GP at least once each year, underlining the pivotal role of primary care.	
Ofori-Asenso et al., (2019)	To estimate the global incidence of frailty and prefrailty among community-dwelling adults 60 years or older.	Systematic review and meta-analysis 6 Databases N= 46 observational studies involving 120 805 nonfrail	• Among the nonfrail individuals who survived a median follow-up of 3.0 (range, 1.0-11.7) years, 13.6% became frail, with the pooled incidence rate being 43.4 cases per 1000 person-years. • The incidence of frailty was significantly higher in prefrail individuals than robust individuals. • The frailty and prefrailty incidence rates were significantly reduced when accounting for the risk of death.	Community-dwelling older adults are prone to developing frailty. Thorough search of the literature. Studies from 28 countries.	There was substantial heterogeneity of the included studies. During screening they may have missed relevant studies in which frailty was not the main focus.

Oliver (2015)	Who is to blame for older people's readmission?'	Professional perspective	• England has relatively few hospital beds • Hospital staff are encouraged year round to discharge patients early. • Well planned and well supported discharge matters greatly. • About 15% of patients aged over 65 in England are readmitted within 28 days.	Patients often feel stigmatised for problems they don't control—for instance, viewing themselves as "bed blockers," which is a dreadful term—and they are not always properly involved in very personal decisions.	A perspective of a professional does not cover all the other professionals opinions. Not well supported by the literature used.
Park. et al. (2014)	This study was to assess the association of institution specific factors with 30-day readmission.	Quantitative study Retrospective observational study Survey N= 3774 USA	• 17% readmission rate. • By condition: readmission rates were 19.6% for congestive heart failure, 13.0%, for pneumonia, and 14.7% for chronic obstructive lung disease. • 30 day hospital readmissions may be associated with institution specific risk factors, even after adjustment for patient factors.	Institution specific risk factors may be targets for interventions to prevent readmissions. Large sample size.	Study used data from 2009-2010. No information on the number or type of discharge medications. Not able to capture readmissions to other hospitals.
Parry et al., (2015)	To describe the current literature on bed rest models for examining immobilization-induced changes in the musculoskeletal system and pathophysiology of immobilisation in critical illness including examination of intracellular signalling processes involved.	Systematic review	• Prolonged immobility is harmful with rapid reductions in muscle mass, bone mineral density and impairment in other body systems evident within the first week of bed rest, which is further exacerbated in individuals with critical illness. • Therapeutic strategies to enable early rehabilitation and physical activity need to be developed alongside a culture of physical activity in the critical care setting.	Valuable and interesting information regarding bed rest, following the immobility pyramid.	Not included how many databases were searched nor how articles were identified.
Paula et al. (2016)	To identify individual and hospital characteristics associated with the risk of readmission in older inpatients for proximal femoral fracture in the period of 90 days after discharge.	Quantitative study Retrospective longitudinal study Cox multilevel model N=3,405 Brazil	• The risk of readmission was higher for men, individuals more than 79 years old, patients who were hospitalized for more than two weeks and for those who underwent arthroplasty when compared with the ones who underwent osteosynthesis.	The first study on readmissions for patients after hospitalization for hip fracture performed with Brazilian older people. Hospitals have complex structures that reflect in the quality of care.	Sample: women (71.9%) Data did not inform features due to hospital care. No information of the participants' comorbidities neither the time gap between the fracture and inpatient care.

Pedersen, Mark and Uhrenfeldt. (2018)	To explore life conditions and critical incidents pertained to hospital readmission from the perspective of older males.	Qualitative study Interviews using the Critical Incident Technique. N= 4 North Denmark	• Four themes: 'Ambiguity of ageing', 'Living with the burden of illness', 'Realisation of dependency' and 'Growing sense of vulnerability and mortality'. • Critical incidents comprised four areas: 'Balancing demands and resources in everyday life', 'Back home again – a period of recovery', 'Care interaction' and 'Navigating within and between healthcare system(s)'.	Explorative design, one of the few studies exploring peoples experience of readmission. In-depth analysis of participants experiences. This study illustrated the interconnectedness, dynamics and complexity of life conditions and critical incidents that over time and across diverse healthcare sectors affected the course of care in older persons.	Small sample size, only male, age 65-75. One site recruitment.
Pereira et al., (2021)	We explored the electronic records of 20 422 inpatient stays by polymedicated, home-dwelling older adults held in the hospital's patient register.	Quantitative study Longitudinal study/ Registry-based cohort study Bivariate/ Multivariate analyses N: 13 802 hospital readmissions (8878 patients over 64 years old) Switzerland.	• The overall 30-day hospital readmission rate was 7.8%. • Multivariate analyses: revealed increased risk of hospital readmission for patients with longer hospital length of stay, impaired mobility, multimorbidity, tumorous disease, polypharmacy, and certain specific drugs. • Thirty-day hospital readmission risk was associated with longer hospital length of stay, health disorders, polypharmacy and drug regimens.	4-year data from a comprehensive hospital register (2015–2018). Useful for clinical practice and future research because a whole series of sociodemographic and clinical parameters, medical conditions, and prescribed drugs were used to predict the probability of hospital readmission.	The design did not allow to identify hospitalisations and readmissions lost to follow-up and to adjust data for death outside the hospital. Data set could not inform about whether older inpatients had been first admitted to another hospital. The study was unable to explore the reasons for an admission's impact on rehospitalisation.
Picker et al., (2015)	To determine whether the number of discharge medications is predictive of thirty-day readmission	Quantitative study Retrospective cohort study	• 20.8 % were readmitted • The number of discharge medications was significantly greater for patients having a thirty-day readmission.	Relatively simple and accessible parameters can identify patients at high risk for hospital readmission potentially	Due to study design it did not identify all patient variables and processes of care that

		Multiple logistic regression N= 5507 USA	• There was a statistically significant association between increasing numbers of discharge medications and the prevalence of thirty-day hospital readmission. • Multiple logistic regression: identified more than six discharge medications to be independently associated with thirty-day readmission. -day readmission in this population were identified.	distinguishing such individuals for interventions to minimize readmissions.	are important determinants of thirty-day readmission. Examined the number of discharge medications without determining whether certain classes of discharge medications were more likely to be associated with thirty-day readmission. Single-centre study.
Pimouquet et al., (2017)	The association of living alone with hospitalization among the general elderly population has been rarely investigated, and the influence of common disorders on this association remains unknown.	Quantitative study Longitudinal study' Cox proportional hazard models and zero-inflated negative binomial regression models N = 3130 Sweden	• 56.5% lived alone 561 of those who lived alone had at least one unplanned hospitalization. • In the multivariate analyses: living alone was significantly associated with the risk of unplanned hospitalization and the number of hospitalizations but not with the length of hospital stays. • In stratified analyses: the association between living alone and unplanned hospitalizations remained statistically significant only among men.	The first study to evaluate the relationship between living arrangements and hospitalization outcomes using a representative population-based cohort with prospective and highly complete registered-based data on hospitalizations. Availability of registry-based data on all hospitalizations, which ensured optimal validity, complete capture, and accurate classification of hospitalization type.	Data on some potential confounders (such as levels of income or sociologic factors) were unavailable in this study. The study included participants from the central part of an urban area in a Western country; thus, the generalizability of the findings to other settings may be limited.
Pollock et al., (2015)	To evaluate factors associated with 30-day hospital readmission after hip fracture at a level I trauma centre.	Quantitative study Retrospective cohort study Descriptive statistics/ Logistic regression analysis N= 1486	• Readmission rate of 9.35%. • Patients in the readmission group had a significantly higher rate of pre-existing diabetes and pulmonary disease and a longer initial hospital length of stay. • Readmissions were primarily the result of medical complications, with only one-fourth occurring secondary to orthopaedic surgical failure. • Pre-existing pulmonary disease, initial hospitalization of 8 days or longer and discharge to a skilled nursing facility were determined to be predictors of readmission.	Showed important findings and risk factors associated with readmission after hospitalization for hip fracture.	Some patients could have been readmitted to another facility. Study design- selectin bias.

		USA			Could not always identify a single primary diagnosis or complication for readmission.
Purdy (2010)	To identify what interventions work in reducing avoidable admissions, who is at risk, and how do we identify them- potentially avoidable.	Overview based on the research evidence rather than on a systematic review of the literature.	• People from lower socio-economic groups are at higher risk of avoidable emergency admissions. • In primary care, higher continuity of care with a GP is associated with lower risk of admission. • Patient-centered care and integrating model of health and social services may be effective in reducing hospital readmissions. • Developing a personalised health care programme for people seen in medical outpatients and frequently admitted can reduce re-admissions. • Structured discharge planning is effective in reducing future re-admissions.	There is a lack of research evidence in many areas on the impact of combined Interventions. Many patients have multiple, chronic health problems and do not fit within the single disease model of care. It is often these patients who could potentially benefit from a generic approach to managing their care in order to reduce the risk of an avoidable admission.	While the paper covers a wide range of interventions, it is not exhaustive. Published in 2010.
Rayan-Gharra et al., (2019)	To examined whether patients' ratings of their in-hospital discharge briefing and their post-discharge Primary Care Physicians' (PCP) review of the discharge summary are associated with 30-day readmissions.	Quantitative study Prospective study Phone survey Univariate analysis/ multivariate logistic regression N=594 Israel	• The extent of the PCPs' review of the hospital discharge summary at the post-discharge visit was rated higher than the in-hospital discharge briefing and was associated with lower odds of readmission. • Providing extensive post-discharge explanations by PCPs serves as a significant protective factor against readmissions.	Sociodemographic characteristics, physical, mental and functional health status were collected. PCPs should be encouraged to thoroughly review the discharge summary letter with the patient.	High refusal rate (33%) Single-site recruitment. It is acknowledged that the "extent of the discharge summary review by the PCP " may not reflect the actual performance of explanations.
Reed, Isherwood and Ben-Tovim,(2015)	To determine the reasons why older patients experienced unplanned hospital admissions to a major public hospital.	Qualitative study RCA- Thematic analysis N= older people=36, GPs =17, family = 14 and other healthcare providers = 12 Australia	• Causes-6 groups: a consequence of minimal care, progression of disease, home care accessibility, high complexity, clinical error, and delayed care-seeking by the patient. • Four categories of admission (minimal care, clinical error, home care access, delayed care-seeking) were deemed potentially preventable	Exploration of patients, families and professionals' perceptions on the causes of hospital readmission. Large sample size.	This was an exploratory study using RCA and thematic analysis which may prevent the in-depth analysis of the findings

				Benefits of RCA methodology may help on preventing readmissions.	The research was about unplanned admissions, and was not solely focused on readmissions.
Reeves et al., (2018)	For GMS contract purposes NHS England uses estimates based on the electronic Frailty Index (eFI)16 and the ResearchOne database.	Quantitative study The UK primary care is at the frontline of policy attempts of making frailty an integral part of primary care practice.	• The average GP practice of 7,000 patients, will have around 30 severely and 100 moderately frail patients. • Health care systems worldwide are having to adapt to ageing populations and increasing numbers of older people with frailty with complex health and social needs. • . 3% of people 65 and older are severely frail, and another 12% moderately frail	Very interesting issue and valuable information is provided regarding the numbers and management of frailty.	Does not mentioned how the analyse the data or how many general practices are included.
Retrum et al., (2013)	Readmission after hospitalization for heart failure has received increasing attention, little is known about its root causes.	Qualitative study Interviews Deductive and Inductive approach N=28 USA	• Reasons for readmission were multifactorial and not easily categorized into mutually exclusive reasons. • Five themes emerged as reasons cited for hospital readmission: distressing symptoms, unavoidable, progression of illness, influence of psychosocial factors, good but imperfect self-care adherence, and health system failures.	Heart failure is one of the leading causes of readmission. Studies based on administrative databases, chart review, and single-question surveys speculate some reasons for heart failure readmission but fail to uncover root causes. Index admission differ from readmission.	Participants mean age was low. Greater left ventricular systolic dysfunction than seen in the overall HF population.
Robinson et al., (2019)	This investigation compares the predictive ability of polypharmacy alone to the validated HOSPITAL score and LACE index readmission risk assessment tools.	Quantitative study Retrospective cohort study Univariate and multivariate logistic regression N=1781 USA	• 456 readmitted within 30 days. • The number of discharge medications alone is not a useful tool in identifying patients at high risk of hospital readmission within 30 days of discharge.	This investigation used an interesting approach to readmission prediction by using the predictive ability of polypharmacy. Used 2 predictive models.	One site recruitment and small sample size. Could not identify cases that they may have been readmitted to other hospitals.
Robinson, Howie-Esquivel and Vlahov, (2012)	To identify the key factors at discharge that could serve as predictive indicators for hospital readmission.	Literature Review Databases: n/a Articles: n/a	• Published literature has listed predominantly demographic, clinical, and health care utilization characteristics to describe the factors that put the elderly at risk. However, additional factors are proposed that include social, clinical, individual-level, environmental, and system-level factors. • No study has developed a predictive model on the risk for readmission or in order to compare readmission rates in different settings.	Identified risk factors from published literature. Focuses on patients' preferences and safety, acknowledging their importance in reducing the risk of readmission.	Not included how many articles were identified. Lack of description of databases used, analysis and synthesis.

			• Patient safety factor: if we consider the environmental and system level factors as well we can design a comprehensive conceptual framework to identify research gaps that aim to reduce readmission.		Article published 2012.
Royal voluntary service (2014)	To explore the possible financial impact of *appropriate and effective* Home from Hospital services.	Quantitative study Survey Great Britain N=401	• 13% had been readmitted. • A quarter of those who were readmitted within three months said they had not felt ready to go home at the time of their first discharge. • Many people said they felt their early discharge had been driven by financial and related pressures. • Needing support at discharge is associated with an increased likelihood of readmission. • If Home from Hospital services could alter the underlying causes of inappropriate admissions *and* were targeted appropriately with full coverage across England, we conclude they might reduce costs of readmissions by around £40.4m per year.	Well informative report regarding hospital readmissions and people needs. Multiple site recruitment. Important information for cost-impact analysis, including information on readmission rates for older people who reported low or no support for a previous discharge.	Report published 2012. Does not include methodology section.
Rytter. et al. (2010)	To assess whether a follow-up programme undertaken by GPs and district nurses could improve the quality of the medical treatment and reduce the risk of readmission of elderly newly discharged patients.	Quantitative study Randomized controlled trial Logistic and Cox regression analysis N= 331 Denmark	• Control-group patients were more likely to be readmitted than intervention-group patients (52% v 40%). • In the intervention group, the proportions of patients who used prescribed medication of which the GP was unaware (48% vs. 34%) and who did not take the medication prescribed by the GP (39% vs. 28%) were smaller than in the control group.	Patients, intervention group receiving a structured home visit by the GP and the district nurse one week after discharge followed by two contacts after three and eight weeks, or to a control group receiving the usual care. Large sample size.	the inclusion/exclusion criteria excluded many frail patients because the evaluation was partly based on patient interview
Schultz et al., (2021)	To review and synthesise the current literature on social support and hospital readmission rates.	Scoping review 4 Databases 23 articles	• Social support is provided by those within one's social circle. • There are several types of social support and depending on the needs to the patient, the type of social required and provided is different.	Identifying factors, such as social support, that may impact hospital readmission rates is important for quality hospital to home care transitions. Assessing patients' needs and available social support to meet those needs may be an essential part of the discharge planning process to decrease the risk of hospital readmission.	The included articles were limited to those written in English, reporting on the adult patients who were discharged home.

				Studies from 1997-2020 were included for review.	
Sganga et al. (2017)	To assess the predictors of readmission among older adults hospitalized in acute care wards.	Quantitative study Prospective cohort study ANOVA analysis N=921 Italy	• Significant associated: heart failure, the number of falls during 1-year follow up and the number of drugs during first hospitalization. • No significant association was shown for age, sex and walking speed for minimum size. • Predictors of readmission in older people are an intact cognitive status; the presence of a geriatric condition, such as heart failure and falls; and a high number of drugs during first hospitalization.	(CRIME) project: questionnaire including 350 items about demographic, social and clinical characteristics. Large sample size.	Data about the causes and the date of rehospitalization were not collected.
Shebehe and Hansson (2018)	To explore the association between 30-day hospital readmission and socioeconomic characteristics. To explore the association between self-reported lack of strategies for working with older patients at primary health care centres and early readmission.	Quantitative study Cross-sectional study and an online questionnaire Correlation and regression analyses N=283,063 Sweden	• Early hospital readmission was found to be associated with low socioeconomic status of the studied population. • The proportion of unemployed alone could explain up to 71.4% of the variability in hospital readmission Primary health care centres reporting lack of strategies to prevent readmissions in older patients did not have higher hospital readmission rates than those reporting they had such strategies.	The study supports that interventions should focused on social aspects of care, moving from disease-specific to patient-focused approach of transition of care.	Only covers one relatively small region of Sweden. Data for multi-morbidity, a known predictor for patient readmission, was not available
Shih et al., (2015)	To examine functional status versus medical comorbidities as predictors of acute care readmissions in medically complex patients.	Quantitative study Retrospective database study. Logistic regression N=120,957	• Basic Model c-statistics predicting 3-, 7-, and 30-day readmissions were 0.69, 0.64, and 0.65, respectively. • The best-performing Basic Plus Model (Basic+Elixhauser) c-statistics were only 0.02 better than the Basic Model. • The best-performing Gender-Comorbidity Model (Gender+Elixhauser) c-statistics were more than 0.07 worse than the Basic Model. • Readmission models based on functional status consistently outperform models based on medical comorbidities.	The results add to the growing body of evidence that functional status is an important predictor of readmissions. The first large national database study examining the role of functional status as the primary predictor of acute care readmission risk in the subacute medically complex population. Examines not only 30-day hospital readmission, but also early readmissions at 3 and 7 days.	Study design - previously collected data that was not designed for this study. Disease severity or functional status, social support, treatment adherence, quality of post-discharge care, presence of depressive symptoms, and patient cognitive factors may not be included in the models.

Singh et al., (2016)	There is a growing understanding of the prevalence and impact of psychological disorders on COPD but the role of these disorders in early readmission is unclear.	Quantitative study Retrospective cohort data Multivariate analyses N= 5% Medicare USA	• 135,498 hospitalizations occurred for COPD in 80,088 fee-for-service Medicare beneficiaries. Of these, 30,218 patients had one or more psychological disorders. • Multivariate analyses: odds of 30-day readmission were higher in patients with COPD who had depression anxiety, psychosis, alcohol abuse and drug abuse compared with those who did not have these disorders. • These psychological disorders increased amount of variation in 30-day readmission attributed to patient characteristics by 37%.	Large sample size. The study showed that low socioeconomic status and psychological disorders are independently associated with higher all-cause 30-day readmission rates.	Data from 2001-2011 ICD-9 diagnostic code-based information alone may be problematic for accurately identifying patients with psychological disorders and tend to underestimate hospitalizations for acute exacerbation of COPD.
Slatyer et al., (2013)	To explore the perceptions of older patients who experienced hospital readmission as well as their caregivers and health professionals.	Qualitative study Descriptive design Constant comparison method Interviews N=62(Patient-12,Caregivers-15, Proffesionals-35) USA	• Four themes emerged: the health trajectory, communication challenges, discharge readiness and the decision to return. • Being admitted to AMU was beneficial for treating acute illness, but on discharge patients and their caregivers were left with uncertainty due to lack of communication and continuation of care.	Including multiple perspectives provided a more comprehensive understanding of the phenomenon. They highlight the issue of poor discharge planning and the importance that of good communication.	Recruitment from one-site and Insufficient recruitment of care professionals from the community. Descriptive analysis which prevents the in-depth exploration of the phenomenon..
Smeraglio et al., (2019)	To compare patients' and providers' views on contributors to 30-day hospital readmissions.	Qualitative study Interview survey N=178 patients, 101 providers, 2 RN case managers USA	• Patients were more likely to view a readmission as preventable compared with physicians. • Patients with poor functional status were more likely to feel the cause of their readmission was due to system issues than patients with better functional status. • RN case manager review determined that in 48% (86/178) of cases the system had some amount of contribution to a patient's readmission.	Exploring the gap between patients and providers on the causes and perception of readmission. Large sample size. Valuable information regarding patient perception of readmission and potential communication gaps.	One site recruitment. Positive response bias, as the interviews took place during admission. Response rate was not collected. Participants mean age was low.
Sohrabi et al., (2019)	To predict the occurrence of re-hospitalisation of the heart failure patients in two time-	Quantitative study Retrospective cohort study	• It can predict the 1- and 3-month outcomes with a mean AUC score of 0.67 and 0.47, respectively. The mean ACC score were 85.2 and 57.3, respectively.	The study is done under the scrutiny of an expert cardiologist.	Low number of patient's records were

	horizons (1-month and 3-month).	Classification algorithms (i.e. decision trees, artificial neural networks, support vector machines and logistic regression) and ACC and AUC for validation. N=230 Iran	• This methodology can potentially assist the cardiologists and decision makers in heart failure medical centres in one month. • Identified the importance of the variables and how they have changed over time in predicting the outcomes, which can be shared with data science world and the business	This research can be the basis for prospective medical studies and projects.	achieved for the project. Low maturity in healthcare software systems.
Southern et al., (2014)	To profile the timing, main diagnoses, and survival outcomes of inpatient and emergency department readmissions after acute coronary syndrome (ACS), based on a large regional database.	Quantitative study Retrospective cohort study Multivariable logistic regression models N=1170 USA	• (34.3%) patients had ≥1 hospital readmission within 30 days, reaching 2106 (61.7%) within 1 year of ACS discharge. • Of first readmissions, 45% were emergency department only and 53% were for cardiovascular or possibly related diagnoses. • Renal disease and diabetes predicted all-cause readmissions at 30 days and 1 year, but there were no robust predictors of cardiovascular readmissions. • Thirty-day inpatient, but not emergency department, readmissions were associated with increased mortality.	All-cause 30-day readmission rates may be too simplistic, and perhaps even misleading, as a hospital performance metric. These data provide several important insights into the phenomenon of repeat hospital visits after ACS discharge.	Data from 2008 -2010 Canada healthcare system. No access to important information post discharge, which may limit the impact of potential quality of care indicators .
Stein et al., (2016)	To compare patients and care providers' perspectives on the prevention of hospital readmission and the contributing factors	Qualitative study Descriptive research N=23 interviews N=213 chart reviews USA	• Providers stated that 30% of the readmissions were preventable, compared with only 13% of patients. • Key contributing factors differed between providers and patients. Providers cited medical problems in 45% of readmissions, pain (24%), follow-up problems (22%), substance abuse (20%), and nonadherence (17%). Patients believed nothing could have been done to prevent them in 35% of readmissions, but they also cited medical problems (35%), incomplete diagnosis or treatment (22%), medication issues (17%), and system concerns (13%) as contributing to readmissions.	In terms of prevention and root causes, providers and patients view readmissions differently. Providers: follow-up, mental health, and substance abuse Patients emphasized pain control and the need for additional diagnostics as key drivers of readmissions / Timely post-discharge follow-up visits.	Chart reviews were conducted by the same providers who interviewed the patients, which could have led to observer variability and/or potential bias in how they conducted the interview. Missing demographic information from chart reviews. Participants mean age was low.

Steventon and Billing (2017)	They argue that the priority lies with developing logic models that link the outputs from these models to the decisions practitioners need to make regarding the care of individual patients.	Editorial	• Collaborating with patients and practitioners when developing predictive risk models will not by itself solve some of the other conundrums in this area, such as which interventions should be delivered for which risk groups, or how those interventions should be resourced, evaluated and improved. • The first step in any quality improvement project consists of understanding the nature of the problem at hand, and this understanding requires close working between analytical teams, healthcare practitioners and patients. • The predictive modelling enterprise would benefit enormously from such collaboration because the real goal of this activity lies not in predicting the risk of readmission, but in identifying patients at risk for preventable readmissions and 'impactible' by available interventions.	While doubts remain about the practical value of predictive risk models (for example because it is not clear whether interventions are more effective when targeted at high-risk than low-risk patients), it is undeniable that many models accurately predict readmission risk. A general point is that many healthcare systems rely predominately on practitioners and administrative staff to collect data, and generally lack ways to collect data on an ongoing basis from service users.	No description of methodology and methods used.
Steventon et al., (2018)	'Emergency hospital admissions in England: which may be avoidable and how?'	Briefing A great deal of effort is being put into reducing emergency admissions in England. The motivation for this is three-fold. Firstly, hospital care is the most expensive element of the health service. Secondly, hospital admissions can expose certain patients to risk of infections. Thirdly, many patients admitted to hospital would prefer to be treated at home.	• Readmission rates have been increasing over time in the NHS, with 6.75% of discharges in 2015/16 being followed by an emergency admission in 30 days, 6.5% in 2006/07. • 5% and 79% of readmissions are potentially preventable, depending on the method used and the care setting. • The most effective interventions seem to be multimodal, involving several components and multiple health care practitioners, and often include an element to support individuals to manage their own health and care.	Health policy in England for 10+ to reduce demand for emergency care by making improvements to other parts of the health care system. Increased numbers of hospital admission and bed occupancy, reduced LoS.	It does not include methodology section or how the analysis implemented.
Stillman et al., (2021)	To evaluated patient frailty and comorbidity and determined the relationship between these measures and the probability	Quantitative study Correlation cohort design	• Frailty was a significant predictor of hospital readmission and length of stay and outperformed the explanatory power of our comorbidity metric.	These findings underscore the importance of prompt identification and management of frailty by bedside clinicians.	REFS has potential limitations including

	of early readmission and length of hospital stay.	Logistic regression N:435 New York	• One unit of increase in the Reported Edmonton Frailty Scale increased the odds of readmission by a factor of 1.12 and an increase of 10 units tripled the odds of readmission.		recall bias, respondent bias, and interview bias
The King's Fund (2018)	The health care workforce in England: Make or break?	Briefing	• Across NHS trusts there is a shortage of more than 100,000 staff. • The long-term plan and a supporting workforce strategy will need to pass five key tests: - address workforce shortages in the short term - address workforce shortages in the long term - support new ways of working - address race and gender inequalities in pay and progression - strengthen workforce and service planning at all levels of the system.	This briefing highlights the scale of workforce challenges now facing the health service and the threat this poses to the delivery and quality of care over the next 10 years.	The briefing does not offer any suggestions on strategies to address these issues, but the forthcoming report will examine some of the measures that local and national bodies can implement over the short and long term to secure the health and social care workforce of the future.
Torrison et al., (2013)	The purpose of this study was to examine whether a multidisciplinary intervention targeting drug-related problems, cognitive impairment, and discharge miscommunication could reduce readmissions in a general hospital population.	Quantitative study Prospective, non-randomized intervention Matched-pairs Wilcoxon signed-rank test N= 200 (99 patients received interventions and 101 received standard care) Sweden	• Control group had 125 readmissions in total, compared with 58 in the intervention group. • For hospital nights, the numbers were 1,228 and 492, respectively. • Yearly admissions had increased from the previous year in the control group from 77 to 125 and decreased from 75 to 58 in the intervention group. • From the intention-to-treat perspective, the same general pattern was observed but was not significant.	A multidisciplinary approach, targeting several different areas, could substantially lower readmissions and hospital costs. More ED visits and fewer GP visits in the control group before the study, possibly indicating lower accessibility to primary care. Included costs analysis.	The lack of randomization, patients allocated to control or intervention through geographic selection. Only a third of available patients were included.
Tully et al., (2016)	To report the 6-month longitudinal outcomes of routine depression screening in cardiac patients.	Quantitative study Longitudinal follow up Linear Model and the chi-square statistic. N=481 Australia	• By six-month follow-up the depression screen-positive group was at a higher risk of MACE. • The depression screen-positive group was also at a • higher risk of depressed mood. • The depression screen positive group also reported significantly poorer QOL in five domains. • The depression screen-positive group was more likely to be initiated on antidepressant and at follow-up. • The number needed to screen to achieve one additional depression remission case was 9 in the screen-positive group (versus the depression-control group).	Depression screening was associated with an increase in psychotropic medication use however depression, morbidity and quality of life remained poor at six months. Large sample size.	The observational and nonrandomized design implemented at a single center and thus the findings may not generalize to other settings. Use of self-report data to obtain follow-up data

					regarding anti-depressant and anxiolytic medication use. Data from 2010-2012.
Verhaegh et al., (2019)	This study explores chronically ill patients' experiences and perceptions of being discharged to home and then acutely readmitted to the hospital to identify the potential impact on future care transition interventions.	Qualitative study Constructive grounded theory Semi-structured interviews N=23 Netherlands	• Core category: 'readiness for hospital discharge,' • Related categories: 'experiencing acute care settings' and 'outlook on the recovery period after hospital discharge. • ' Patients' readiness for hospital discharge was influenced by the organization of hospital care, patients' involvement in decision-making and preparation for discharge.	Exploring the difficulties during transition and how it may affected hospital readmission. Importance of discharge readiness, involvement and informal carers role. Interviews lasted approximately 1 hour	Some participants were interviewed in the hospital after they were readmitted - social desirability bias. Participants mean age was low.
Vernon et al., (2019)	Approximately 15% of elderly patients are readmitted within 28 days of discharge. This costs the NHS and patients. Previous studies show telephone contact with patients post-discharge can reduce readmission rates.	Quantitative study Pragmatic service evaluation cohort design Logistic regression N=756 UK	• The readmission rate was 9.24% compared to 15.67%. • Of the patients who community nurses attempted to contact, 288 were contacted, and 202 received a home visit with general practitioner. • Referral and medications advice being the most common interventions initiated. • This service evaluation shows that a simple intervention where community nurses attempt to contact and visit geriatric patients after discharge causes a significant reduction in 30-day hospital readmissions.	Large sample size. An interesting study that provides information about Interventions and referrals initiated by receiving the new service.	Comparison group was drawn from the same wards as the patients receiving the intervention, this will have reduced the likelihood of some confounding factors. Data were extracted over 6 months.
Weiss et al., (2019)	To determine the effect of unit-based implementation of readiness evaluation and discharge intervention protocols on readmissions and emergency department or observation visits	Quantitative study Randomized clinical trial Multivariate logistic regression model 33 hospitals USA N= 144 868 (74 605 in the intervention group and 70 263 in the control group; 12.2% were readmitted and 8.8% had an emergency department visit.	• None of the READI protocols reduced the primary outcome of return to hospital in intent-to-treat analysis of the full sample. • In exploratory subgroup analysis, when patient self-assessments were combined with readiness assessment by nurses (READI2), readmissions were reduced by 1.79 percentage points. • Implemented in a broad range of hospitals and patients, the READI interventions were not effective in reducing return to hospital.	Adding a structured discharge readiness assessment that incorporates the patient's own perspective to usual discharge care practices holds promise for mitigating high rates of return to the hospital following discharge. Large sample size.	Participants mean age was low. Does not provide in-depth information about patients' experiences.

Wen et al., (2018)	We evaluated the risk factors associated with 31-day unplanned readmission of stroke patients in China.	Quantitative study Retrospective cohort study Descriptive/ multivariate logistic regression 375 hospitals N=50,912 China	• 28.8% were readmitted within 31 days after discharge. • The commonest cause of readmissions were recurrent stroke (34.8%), hypertension (22.94%), cardio/cerebrovascular disease (13.26%) and diabetes/ diabetic complications (7.34%). • Higher risks of unplanned readmissions were associated with diabetes, use of clinical pathways, and being discharged without doctor's advice. • Age, type of stroke, medical insurance status, type of discharge, use of clinical pathways, length of hospital stay and comorbidities were the most influential factors for readmission within 31 days.	Multiple site recruitment. Comprehensively assessed the impact of both disease-related and unrelated factors on the risk of 31-day unplanned readmission after stroke, including social, financial, hospital or health system-related factors. Large sample size.	Data were secondary data from each inpatient's cover sheet of medical records and not designed for research purposes, some important medical information was not recorded.
Wong et al. (2011)	To investigate the factors associated with 30-day unplanned readmission for 10 common conditions and to determine the cost implications.	Quantitative study Retrospective cohort study Correlation and regression analyses N: 337,694 Hong Kong,	• The overall unplanned readmission rate was 16.7%. Chronic liver disease and cirrhosis had the highest OR. • Patients with cerebrovascular disease had the longest LOS, with mean acute and rehabilitation stays of 6.9 and 3.0 days, respectively. • Malignant neoplasms had the highest mortality rate (30.8%) followed by aortic aneurysm and pneumonia. • In-hospital care, comprehensive discharge planning, and post-discharge community support for patients need to be reviewed to improve the quality of care and patient health outcomes.	Large sample size. Multisite sample recruitment. The CMS database of all public hospitals in Hong Kong provided by the HA which is responsible for 90% of hospital services in Hong Kong.	Disease codes based on the primary discharge diagnosis were used, and the severity of disease and other co-morbidities were not available. Data on the patients' quality of life, health status, functional status and satisfaction were unavailable.
Woolford et al., (2020)	Frailty and multimorbidity are interrelated complex syndromes.	Narrative review	• Frailty and multimorbidity are principal causes of polypharmacy. In combination, they are associated with significant healthcare use, unscheduled hospital admissions and mortality. • Multiple medication use is not always inappropriate. • Early detection of frailty, patient-centred decision-making and review of multimorbid conditions underpinned by principles of comprehensive geriatric assessment are the cornerstones of patient management.	Frailty is best thought of as a multisystem disorder, and therapeutic intervention in one system may not improve this abnormal health state. Multimorbid patients are not always frail, but individuals living with frailty are likely to be multimorbid.	No description of methodology and methods used. Lack of discussion section.
Yang et al., (2018)	Reducing 30-day hospital readmissions has become a focus of the current national payment policies.	Quantitative study Retrospective cohort study A national survey	• The average 30-day readmission rates ranged from 5.19% for knee/hip surgery to 22.7% for COPD.	6 different clinical conditions for analyses. Large sample size.	The HCAHPS, responsiveness and communication is measured by multiple

		Multivariate regression models N: 4535 hospitals USA	• Patient experience of hospital-staff responsiveness as "top-box" ranged from 64% to 67% across the six clinical conditions, communication with nurses ranged from 77% to 79% and communication with doctors ranged from 80% to 81%. • Neither communication with physicians nor communication with nurses was significantly associated with hospital readmissions.	With better staff responsiveness were significantly more likely to have lower 30-day readmissions for all conditions.	choice questions and open ended questions. Data from 2014.
Yli-Kyyny et al., (2019)	What risk factors were associated with the occurrence of early readmission due to surgical complications after hip fracture surgery.	Quantitative study Retrospective cohort study Nationwide database Cox proportional hazards model N:68,800 Finland	• Early readmission within three months due to hip fracture surgery complications occurred at a rate of 4.6%. • Increased occurrence of readmission was found among patients with: heavy alcoholism, Parkinson's disease, pre-existing osteoarthritis, rheumatic disease, as well as those with a fracture of the femur neck, depression, presence of a psychotic disorder, an operative delay of at least three days, or previous treatment with total hip arthroplasty.	Large sample size. Care Register and the Causes of Death Register have been compared to prospectively collected hip fracture audit data	Data from 1999-2011 Register studies: reliance on the accurate use of diagnostic and procedural codes used during normal clinical practice
Zhou et al., (2016)	To update previous systematic review of predictive models for 28-day or 30-day unplanned hospital readmissions.	An updated systematic review 3 databases N= 60 studies	• A wide-range C-statistic was reported in 56/60 studies • (0.21–0.88). • 11 of 13 predictive models for medical condition-related readmissions were found to have • consistent moderate discrimination ability (C-statistic ≥0.7). • Only two models were designed for the potentially preventable/avoidable readmissions and had C-statistic >0.8. • The variables 'comorbidities', 'length of stay' and 'previous admissions' were frequently cited • across 73 models. • The variables 'laboratory tests' and 'medication' had more weight in the models for cardiovascular disease and medical condition-related readmissions.	It followed rigorous methodology applying comprehensive electronic database search, strict inclusion, exclusion and quality assessment criteria to synthesise current literature on characteristics and properties of risk predictive models.	A meta-analysis is not permitted in this systematic review as the included studies were heterogeneous due to diversity of cohort of population, duration of retrieved data source, sample sizes and geographical locations. Studies that included patients discharged from hospital but still receiving treatment were excluded.

Appendix 4: Gantt chart 2015-2023

Gantt Chart- DClinP 2015-2023

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2015												
Milestone 1		███	███	███	███							
HLTH 6118		███	███	███	███	███						
Milestone 2					███	███	███	███	███	███	███	
HLTH 6095											███	███
Milestone 3											███	███
2016												
HLTH 6095	███	███	███	███	███	███	███					
Milestone 3	███	███	███	███	███	███	███	███		███	███	███
Special consideration form								███	███			
HLTH 6079										███	███	███
2017												
Milestone 3	███	███	███									
HLTH 8011			███									
P1- ERGO		███	███	███	███	███	███	███				
HLTH 6079	███	███	███	███	███							
P1-Recruitment/Meetings							███	███				
P1-Writting									███	███	███	███
2018												
P1-Writting	███	███	███									
P2-ERGO/IRAS/REC/HRA		███	███	███	███	███	███	███				
HLTH 8009					███	███	███	███				
P2-Recruitment/Interviews									███	███	███	███
2019												
P2-Recruitment/Interviews	███	███	███	███	███	███	███					
P2-Thematic analysis							███	███	███			
P2-Writting									███	███	███	███
P3-ERGO/IRAS/REC/HRA							███	███	███	███	███	
2020												
Upgrade	███	███	███	███	███	███	███					
P3-UHS Data											███	███
2021												
P3-UHS Data	███	███	███	███	███							
P3-Data analysis				███	███	███	███	███	███	███	███	
P3-Writing									███	███	███	███
Nominal registration										███		
2022												
Special consideration form		███	███	███	███							
DClinP Thesis submission							███	███	███			
DClinP Viva										███	███	███
DClinP Thesis resubmission												
2023												
DClinP Thesis resubmission	███	███	███	███	███	███	███	███				

Gantt Chart_V8.0_01Jan_2023
ERGO Ethics number: 25487
IRAS Project ID: 202824

Appendix 5: Interview Schedule

UNIVERSITY OF SOUTHAMPTON

Faculty of Health Sciences

ERGO Ethics number: 25487

IRAS Project ID : 202824

Participant Code: ....

Date: ..../......./.........

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"

(A) Demographic data collection:

Gender: Male/Female   Year of Birth: ....

Marital status: Married □ Divorced □ Widow/er □ Single □

Living arrangements: Partner □ Children □ Alone □ Friend □   Postcode: ....

Educational level: Primary □ Secondary □ Tertiary □

Ethnicity:

White	Black/African/Caribbean/Black British	Asian/Asian British	Mixed/ Multiple ethnic groups	Other ethnic groups

Can you please tell me how many medications you currently take per day?

0-5 □ 6-10 □ 10-more □ cannot remember □

Can you please let me know if you have any chronic diseases (Comorbidities):

Heart & Vascular Disorders	Blood & Circulation	Respiratory	Musculoskeletal	Brain & Nervous System
Hypertension Congestive Heart Failure Angina Atherosclerosis	Anemia Hypercholesterolemia Hyperkalemia	Chronic Obstructive Pulmonary Disease Asthma Bronchitis	Osteoarthritis Osteoporosis Rheumatoid Arthritis	Alzheimer's Disease Parkinson's Disease Epilepsy
Endocrine System	**Digestive System**	**Psychology**	**Eye/Ear/Nose**	**Other**
Diabetes Mellitus Chronic kidney disease Hyperthyroidism Hypothyroidism	Crohn's Disease Colitis Gallbladder Disease Obesity	Anxiety Dementia Depression Stress	Allergic Rhinitis Cataracts Glaucoma Vision/Hearing impairment	

(B) **Interview questions:**

Study aim:

The overall aim of this study is to look at what factors matters the most to older people who have had the experience of readmission and examine whether these factors are collected by the associated services. The reason that I am doing this study is to identify any issues or problems that people deal with, so they could be avoided or minimized.

I would like to ask you some questions regarding your admissions to hospital during the past 18 months. I am interested in listening about the way you lived the whole experience from your first admission to discharge and later on your readmission in less than 30 days. I would like to hear your opinion and experiences about the care you received, the staff that were taking care of you, how organised the services were, different thoughts or feelings that you had during that period and anything that made an impression on you. I would like to remind you that all the information that you will provide will remain confidential and that you are free to withdraw at any time.

Can you please tell me in a few words the story of your two hospital admissions in less than 30 days (for example: reasons for admissions, length of stay)?

1. Can you please tell me about your experience from the care you received during your first admission? (For example, what was good about it and what could have been better)

2. Can you please tell me in a few words about the discharge process?
   Prompt:
   ➢ Who was involved in the decision of your discharge?
   ➢ Would you prefer that something could have been done differently?

3. How was your everyday life after discharge? (For example, how did you manage your daily activities such as personal hygiene, nutrition, mobility and sleep?)
   Prompt:
   ➢ Did you receive any help from family or friends?
   ➢ Did you have any visits from health staff – for example a community nurse or a physiotherapist or health care worker?

4. Can you please tell me about your hospital readmission experience?
   Prompt:
   ➢ What were the differences from the first admission?
   ➢ What do you think were the main factors that led you to be readmitted?

5. If your hospital readmission could have been prevented, what sort of help or services could prevent it?

6. What was the most significant element from your whole experience of hospital readmission and why?

7. In your opinion what issues should be taken into consideration from the health services, social services and local authorities in order to avoid hospital readmissions?
   Prompt:
   ➢ Are there any issues that are not being addressed by these services?

We have reached the end of our interview. Have you got any questions for me? Is there anything you would like to add?

Thank you very much for your time!

UNIVERSITY OF
Southampton

PARTICIPANT INFORMATION SHEET:
PUBLIC PARTICIPANT INVOLVMENT (PPI) GROUP

Study Title:
"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study: Design and Development phase"

Researcher: Fanis Stavrou, Dr Dinesh Samuel and Professor Jo Adams
Ethics number: 25487

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

My name is Fanis Stavrou I am a Registered Nurse, I am doing this research study as part of my Clinical Doctorate at the University of Southampton. I am interested on what factors matter the most to older people who have had experienced hospital readmission.

What is the research about?
Avoiding readmissions of patients is important for the NHS. This study is looking at what issues people believed were important to them in their NHS hospital admission. This study is focused on people over 65 years old, who have had the experience of unplanned hospital readmission.

Why have I been chosen?
You have been chosen because I would value hearing your opinions on an interview schedule (questionnaire) draft about hospital readmission that is planned to be used for this research study.

What will happen to me if I take part?
You will have one week to decide if you want to take part in the research study after you receive this information sheet. The researcher will contact you to confirm eligibility and to answer any questions you may have about the research. A mutually convenient date and time to meet will be arranged. The place of the meeting will preferably be a room on the campus of the University of Southampton unless you are unable to travel to University of Southampton. In that case, a mutually convenient place to meet will be arranged. You will provide informed consent by completing the consent form at the meeting. The interviews will be recorded and will last approximately 30-40 minutes. You will be asked to read the interview schedule and share your opinion about it, particularly if any changes are required and if any further questions need to be included.

If you are interested on participating, you will be considered as colleague or advisor. You will be helping with the design and structure of the interview schedule where you will be asked to express any concerns or opinions on it. The interview schedule will be designed to focus on identifying the factors associated with hospital readmission through the lived experiences of older people.

UNIVERSITY OF
Southampton

Are there any benefits in my taking part?

There are not any benefits for you personally but the whole research will help to understand older people's views and preferences about hospital readmission.

Are there any risks involved?

There are not any particular risks involved.

Will my participation be confidential?

Your participation will be confidential and the information you provide will be stored in the University for minimum of 10 years, in accordance with the University of Southampton Research Data Management Policy. All files containing any personal data will be made anonymous. Data will be stored on a password protected computer to which only the researcher will have access. Also, hard copy of consent forms will be securely stored in a locked filing cabinet within post-graduate researcher office. The keys of this cabinet are kept only by the researcher of this study.

What happens if I change my mind?

You are under no obligation at all to take part in this research. Even after agreeing to take part you are free to change your mind and withdraw from the research at any time. You may terminate the interview or decline to answer any question you don't wish to answer.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you may contact Research Governance (02380 595058, rgoinfo@soton.ac.uk) at the University of Southampton.

Where can I get more information?

Fanis Stavrou DClinP student
Tel: 02380 524322
Email: fs1r12@soton.ac.uk

Supervisors

Dr Dinesh Samuel
Tel: 02380 598925
Email : D.Samuel@soton.ac.uk

Professor Jo Adams
Tel: 02380 595287
Email: ja@soton.ac.uk

Contact Address: Faculty of Health Sciences
                      Building 45 University of Southampton, Burgess Road
                      Highfield Southampton, SO171BJ

THANK YOU

Appendix 7: Phase 1 Poster

Appendix 8: Phase 1 Invitation Letter UoS

UNIVERSITY OF Southampton

Study Title:

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study: Design and Development phase"

Dear Sir/Madam,

As you are a member of the Faculty of Health Sciences Participant Register, we are sending this letter to invite you to take part in a Design and Development study phase about older people and hospital readmission.

My name is Fanis Stavrou and I am doing this research study as part of my Doctorate in Clinical Practice at the University of Southampton.

The overall aim of this study is to explore the factors that matter the most to older people who had the experience of readmission and examine whether these factors are integrated into the routinely collected health care data obtained from the Hampshire Health Records database. To help us with making sure we identify the most appropriate questions to ask older people about their NHS experiences we are now asking for the views and opinions from a public participant involvement group on our interview schedule (questionnaire). This is what we would like to invite you to take part in.

We are asking you to take part as a colleague or adviser and you will be helping on the design and structure of the interview schedule. You will be asked to express any concerns or opinions on it. The meeting will last approximately 30 minutes and it can be carried out in a room in the Highfield campus of the University of Southampton or a place more convenient to you. If you are interested on taking part, please contact me.

Contact details:

Fanis Stavrou (DClinP student)

Tel: **02380 524322**

Email: fs1r12@soton.ac.uk

THANK YOU

Appendix 9: Phase 1 Participant information

Design and development phase – Demographics

➢ **PPI group:**

   10 (6 at the University, 4 at their home)

➢ **Gender:**

   4 females (1934, 1943[x2], 1947), 6 males (1935, 1940, 1941, 1942, 1946, 1947)

➢ **Marital status:**

   Married (6), Divorced (2), Widow/er (2)

➢ **Living arrangements:**

   Partner (6), Alone (4)

➢ **Education level:**

   Secondary (5), Tertiary (5)

➢ **Ethnicity:**

   White (10)

➢ **Postcode:**

   SO14, SO16, SO19, SO21, SO30(x2), SO40, SO40, SO51, SO53

Appendix 10: Phase 1 Information leaflet

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"

Aim:

The overall aim of this mixed methods study, is to explore the factors that matter most to older people who may have had an experience of readmission and examine whether these factors are integrated into routinely collected hospital data.

Phase 1	Phase 2	Phase 3
• Design and development of the interview schedule	• Face-to-face interviews with people who had had an experience of hospital readmission and identifying what factors matter the most for them	• Statistical analysis of the main factors as identified in Phase 2 • Identify weather these are included in the UHS database • Investigate the relationship between the factors and hospital readmission
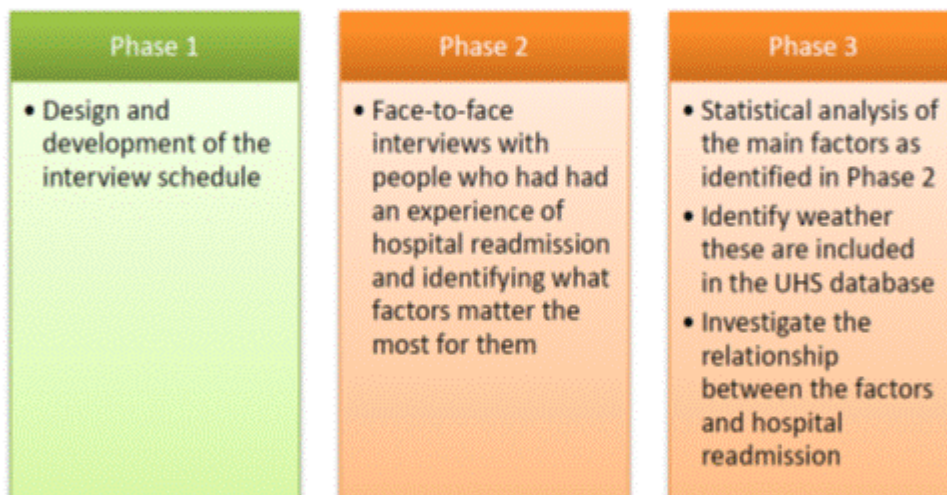
This is a move forward study for patient centre care and may help

1. Inform services aimed at preventing readmissions
2. Inform existing predictive models of hospital readmission

ERGO Ethics number 25487

Appendix 11: Phase 1 Consent form

UNIVERSITY OF Southampton

CONSENT FORM

Study title:

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"

Researcher name: Fanis Stavrou
Ethics reference: 25487

Design and Development phase:

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (01June/V2) and have had the opportunity to ask questions about the study.

I agree to take part in this research project and agree for my data to be used for the purpose of this study

I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected

I am happy to be contacted regarding other unspecified research projects. I therefore consent to the University retaining my personal details on a database, kept separately from the research data detailed above. The 'validity' of my consent is conditional upon the University complying with the Data Protection Act and I understand that I can request my details be removed from this database at any time.

Data Protection
I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Name of participant (print name)...

Signature of participant...

Date   ... /... /.......

Name of researcher (print name)...

Signature of researcher...

Date   ... /... /.......

Appendix 12: Phase 1 Questions

Design and development phase – questions

1. How did you find the questions in terms of difficulty?
   - Were there any questions difficult to understand?
   - Which ones?
   - Do you have any suggestions?

2. How did you find the questions in terms of clarity?
   - Are the questions clear?
   - Do you have any suggestions?

3. Do you find the questionnaire too long?
   - Do you find it tiring in any way?

4. Are there any questions that might make the interviewee feel uncomfortable?
   - What changes do you suggest in order to avoid such situation?

5. Are there any questions that you suggest to be removed?
   - If so, why?

6. Are there any questions that you suggest to be added?
   - If so, why?

7. Do you have any other comments regarding the questionnaire?

8. Do you have any suggestions?

Appendix 13: Phase 1 Findings and Quotes

Comments regarding difficulty to understand: All 10 PPI members agreed that the questions are easy to read and understand.

Interview schedule in terms of clarity: All the members of PPI agreed that the interview schedule was clear and that it helped the readers to share their experiences.

Interview schedule in terms of length (too long/tiring): The interview schedule according to the PPI group was not tiring and people would not have any problems answering the questions.

Questions in term of making people feel uncomfortable: 8 members of the PPI believe that the questions will not make anyone feel uncomfortable, two had some concerns.

Add or remove questions: All the members of PPI agreed that the interview schedule was appropriate as it was and no questions needed to be added or removed.

Suggestions: Five members of the PPI group suggested changing the word 'unforgettable' to 'significant' in question 6 as it would make the question more neutral.

Overall, the PPI group found the interview schedule clear and to the point and corrections were made regarding grammatical and syntactical errors. Other suggestions were concerned with the questions being neutral rather than guiding the participant in what direction to take while answering. The suggestions and comments of the PPI group were taken into consideration and the appropriate changes were made in order to ensure the interview schedule was easy to understand, respectful and covered the areas relevant to the present research.

PPI group:

Participant 1: male, 1940, Married, Partner, SO40 2SS, Tertiary, White

Q1: They were not difficult to answer, they are very wordy lots lots of word, I think lots of people would find it hard, it depends on the space given to them [interviews will be recorded]... So they can tell you that would be better. I think a lot of people would be a bit frighten be presented with a form, but that's find if they can tell you.

Q2: They seem very clear, I mean weather I understand the same as you understand, will only find out with a discussion, but yeah they seem ok.

Q3: No, well it's difficult to tell because am not actually filling the form am I? I am just reading the questions it didn't take me too long to read the questions. It would take me longer assuming I was in a position filling in the questions. [was there a question that would took you more than 5 minutes to answer?] Well, you could draw your life history in that one (describe your experience of hospital readmission)... the other questions are shorter, especially with the given pointers. There are generally written, but then you give them some pointers that are good... (Not a structure questionnaire)... that's the problem with giving pointers, people follow the road.

Q4: No, not really, that would be the one that would worried me slightly [Q6], especially if I was admitted to hospital and there was something that I didn't t like and you are from the hospital, I would be uneasy about answering the question, but no most of them are very straight forward they look alright...(Q6- unforgettable element) that could be good but most people would interpreted as being bad, maybe that's not how you want to interpreted... I supposed if I met the queen on my way in and she was coming out that would be a bummer, unforgettable wouldn't be but that's not luckily to happened, for most people that would mean what happened that was bad.

Q5: No really, I think it looks ok.

Q6: No its all seem very clear, easy to read. I am not really sure if you can do this, but people nowadays, if you go to places the give them a scale from 1-5 to write how satisfy they are, and they punching a number, if you do a similar thing here (explanation why not)... there's nothing in there that I would find offensive or difficult to answer... I wish you luck with it.

Participant 2: male, 1935, Married, Partner, SO30 0HU, Secondary, White

Q1: No, there are understandable, but there not always apply.

Q2: Yeah, there clear enough.

Q3: No, I wouldn't need more than 5min to answer these questions.

Q4: No, no in this one.

Q5: No I don't think there is.

Q6: I think it is quite clear, that's easy (Part A), this needs more thinking (Part B), because you are not necessarily think about why you might be admitted- if they say you gone be admitted, you go along with what they say, because you are not in an opinion to say you are going to stay home with a chance dying or go back to hospital. No I haven't, not really, I think is a reasonable question, (+/-) I think is both.

Participant 3: *female, 1943, Married, Partner, SO30 OHU, Secondary, White*

Q1: *There are ok, yeah, quite clear. There were understandable. I think sometimes you might not know the answer, (talking as a patient), Q2.1 I just think about my mother who was discharged, she did not really told what was going on, I think she wouldn't be able to answer that question. Q5 I think is difficult for someone to answer when you don't really know what is available.*

Q2: *questions 3&4, that's quite clear, Q5 I think needs more clarification. Q6 I think is quite good it will provide you with a lot of information.*

Q3: *No, I don't think so, it depends from the age of the person doesn't it, but if they go with it , I think they will be ok, form the moment that they have the cognitive behaviour they will be ok, wouldn't they.*

Q4: *No, I don't think so. I think there are all good.*

Q5: *No, I don't think they need to be removed, just clarification of some questions.*

Q6: *Will you tell them what is the research all about (Yes), ok that's good. No, I don't think so.*

Participant 4: *male, 1947, Married, Partner, SO40 7DW, Secondary, White*

Q1: *I supposed I was trying to look behind the questions, I understood them, but I think it is easier when someone actual doing the questions rather than reading it. Q5 I did not really understand this- for example- when I was going to be discharge, I remember the doctors coming and saying to me that this will be available for you, but when I was discharged it was a bit quiet, what I was promised in the hospital on discharge didn't exactly happened, I mean they came and put a rail in the bath, but at the time I was thinking that I was the same as before the stroke, I thought I don't need this I don't need that, so I think it would be better if they would come back a bit later on, just for a follow up- and I would ask them for an extra handle, a further visit would be very useful.*

Q2: *No, its very straight forward.*

Q3: *In some ways, it is easier for me and faster when people are making me the question rather reading it.*

Q4: *No, no at all.*

Q5: *No, I think is good.*

Q6: *No, for my personal experience of in and out of hospital discharge process could be a bit smoother.*

Participant 5: *male, 1941, divorced, alone, SO14 1AP, tertiary, white*

Q1: *I think there are quite easy to understand them, no difficult to understand*

Q2: *They are clear enough. I think the way the questions are, you will be able to receive a lot of words.*

Q4: *No.*

Q5: *No, I don't think so.*

Q6: *No it looks ok as it is. No, I don't have any questions. No, I don't have any suggestions. The questions are as good as it goes.*

Participant 6: *female, 1947, divorced, alone, SO53 3AU, tertiary, white*

Q1: *No, I just think the part of the family is very important in the decision making and the care plan.*

Q2: *Its fine, its better way to do this rather have a system of rating.*

Q3: *No, just right.*

Q4: *No, no... I don't think so.*

Q5: *Add family here, it could be that a family member would be willing to visit every morning so, also, if the person I not very able in making decisions about himself, then it would be the family stating on what should be done, because if people are elderly may not be able to do so. Evolving the informal care plan, because a lot of people would be happier to help the elderly as a relative rather from a stranger. It would also save money but also it will not be a different person every day, but a familiar face... because that it getting very confusing for older people if it is a different person visiting everyday. Unforgettable/significant, I think significant is better word to use, unforgettable in English really means fantastic. Also, a prompt could be used here. Grammatical errors- Q1-promts (were-was, would have been).*

Participant 7: *female, 1934, widow, alone, SO16 9PZ, secondary, white*

Q1: They were very good, I find the questions very good, very excellent.

Q2: Oh, very good, I understood them fine you know.

Q3: No, it will not. It's not too long.

Q4: No, no no no, no for me... about me, it would not distress me at all, nothing would.

Q5: I think you cover almost everything. I don't think that you need to add or remove any questions.

Q6: Question 4, If you have to go back again it would be dreadful, wouldn't it be. If you have to been readmitted again that would be an avoidable bad experience (lead towards bad experience) I didn't t have any experience of hospital readmission so I wouldn't know, I am just commenting on it... and if you had a bad experience on your first admission would you like to go back again.

Participant 8: *male, 1946, widower, alone, SO19 2HW, secondary, white*

Q1: Well, there are very straight forward, anyone can understand them.

Q2: Yes, clear.

Q3: No, surely no.

Q4: I supposed some people might take objections of talking about personal hygiene, but its depends on the person, but otherwise I think its fine.

Q5: I suggest to ask participant about the time of their discharge, sometimes you get discharged occurred hours in the morning.

Q6: Unforgettable doesn't sound right... significant could probably be better. Significant it's pretty neutral isn't it... you neither had a very good treatment or pretty awful, it's got to be very good or bad... most time its bad... people tend to remember only the bad... Part B: look at what, listening about the way...Q2. Tell me in a few, something could have been done...Q3. Did you have any... No, I don't have any further comments.

Participant 9: *female, 1943, married, partner, SO51 0HG, tertiary, white*

Q1: I thought they were very clearly expressed and if a person didn't have any cognitive inability they should understand them very easily.

Q2: Yes they are clear, I haven't got any problem. Question 6, (Significant) possibly but I don't have problem with unforgettable, either was something good or either something bad, in which case it was unforgettable. I think unforgettable would actually bring a more positive response rather significant where they would mosey around.

Q3: No, definitely not. I thought it could take up to 10 questions, would probably be enough. Well I supposed if they were reasonable recover I don't think so.

Q4: Possibly if they had a criticism of someone, they might feel uneasy about expressing that criticised.

Q5: The only think that occur to me, but I don t know if it comes with the remit of this is... If I was living alone and I come home from hospital and I can actually cope and I was been readmitted... I think I might panic a bit that the same thing would happened again, and I think there is not any guarantee that the same wouldn't happened again, presumably this is sort of thing that you are trying to prevent, but that would be my feeling of unease if I was in that sort of situation, oh my godness I thought they make me better... I must go back again... what will happened afterwards.

Q6: No, I have not any other comments... I think it's pretty good, it's simple very understandable and I don't think there are not any grey areas in it at all, and if it asking the questions you want asked I think you should get pretty good responses for it, that you can then slop-it in to whatever you want, to prove whatever points you want to prove... I think is good.

Participant 10: *male, 1942, married, partner, SO21 1TB, tertiary, white*

Q1: Not difficult, easy to understand.

Q2: Clear, easy to understand.

Q3: No, not tiring at all.

Q4: No, I can't think of any.

Q5: I can't think any, I think you 've... all the points have been covert, I don t think there are too many, it was a comfortable interview, in the sense it was not tiring, and I think it can be completed easily.

Q6: No no, I thinks it's cover what you set-up to do, its covered nicely.

(B) Interview questions:

Study aim:

The overall aim of this study is to look (P8) at what factors matters the most to older people who have had the experience of readmission and examine whether these factors are collected by the associate services. The reason that I am doing this study is to identify any issues or problems that people deal with, so they could be avoided or minimized.

I would like to ask you some questions regarding your admissions to hospital for the past 18 months. I am interested in listening (P8)about the way you lived the whole experience from your first admission to discharge and later on your readmission in less than 30 days. I would like to hear your opinion and experiences about the care you received, the staff that were taking care of you, how organised the services were, different thoughts or feelings that you had during that period and anything that made an impression on you. I would like to remind you that all the information that you will provide will remain confidential and that you are free to withdraw at any time.

Can you please tell me in a few words the story of your two hospital admissions in less than 30 days (for example: reasons for admissions, length of stay)?

1. Can you please tell me about your experience from the care you received during your first admission? (For example, what was good about it and what could have been better)

2. Can you please tell me (P8) in a few words about the discharge process?
    Prompt:
        ➢ Who (P5) (were) was involved in the decision of your discharge?
        ➢ Would you prefer that something (P8) (would) could have been done differently?

3. How was your everyday life after discharge? (For example, how did you manage your daily activities such as personal hygiene, nutrition, mobility and sleep?)
    Prompt:

        ➢ Did you receive any help from family or friends?
        ➢ Did you (P8) (had) have any visits from health staff – for example a community nurse or a physiotherapist or health care worker?

4. Can you please tell me about your hospital readmission experience?
    Prompt:
        ➢ What were the differences from the first admission?
        ➢ What do you think were the main factors that led you to be readmitted?

5. If your hospital readmission could have been prevented, what sort of help or services could prevent it?

6. What was the most (P1,2,3,8,9) (unforgettable) significant element from your whole experience of hospital readmission and why?

7. In your opinion what issues should be taken under consideration from the health services, social services and local authorities in order to avoid hospital readmissions?
    Prompt:
        ➢ Are there any issues that are not being addressed form these services?

We have reached the end of our interview. Have you got any questions for me? Is there anything you would like to add?

Appendix 14: Phase 2 Participants Pen portraits

Phase 2: Participant pen portraits
Participant 1: Female, Year of Birth: 1944, **Marital status:** Married, **Living arrangements:** Partner, **Postcode:**SO15, **Educational level:** Secondary, **Ethnicity:** white **Comorbidities:** 4- VTE, Osteoporosis, Vision impairment, Breast Ca 11y, **Medications:** 0-5, **MoCA:** 30, **GS:** 34-25
Background: P1 was admitted for an elective total laparoscopic hysterectomy, bilateral oophorectomy and pelvic lymphadenopathy. P1 was well informed about her procedure and complications. Following her first discharge P1 had another two readmissions (2nd admission– pelvic abscess/ infection, 3rd admission - infection/thrombosis). P1 wanted to share her experiences for both readmissions with more focus on her 2nd and 3rd admission . In both occasions P1 was readmitted as she was feeling unwell and very weak.
Key points: • Hospital provided a feeling of safety • Two other patients experienced hospital readmission • Three occasions may be considered as poor practice • Readmission - P1 contacted UHS ward and then MacMillan nurses for advise (own transport) • After 2nd discharge, P1 blamed herself for not pushing herself more in doing more activities • The last discharge process, despite being lengthier was considered the best as participant felt included

P1	First Admission / Post discharge /Readmission		Post discharge		2nd Readmission			Services	
	Elective: TL Hysterectomy / Home / Emergency: Infection		Home		Infection/ Thrombosis				
	LoS – 2d/13d/ 4d		11d		LoS – 20d				
Factors	Healthcare Busy	Not ready Not included	Functional limitation	Informal care Follow-up No POC	Attentive	Medical Poor practice Early d/c	Inevitable	Disorganised	Let down

First Admission: (Elective) Total laparoscopic hysterectomy – LoS: 2 days	Interpretation
In my first operation I knew that I will be home in 24h. They kept an extra day because I couldn't wee. They make me drink so much water, I think that was a mistake because it made me feel ill and they catheterise me. That was expected and that was fine. You know that when you pass wind and wee you can go home, it's all lay down for you. Everyone were so kind, the staff super… *I don't know whether they were trying to empty the wards for the weekend or what, but this doctor, I am assuming that he was a doctor, came in with other people… and he just went round and started to say you can go home, you can go home… and we were basically all sent home and I could hardly walk … It was the only one we saw and I don't know who he was, I didn't see him again… and two other people including me, were back in in a few days. Probably because you didn't have the chance to say well… I don't think I am quite ready to go home, because well you said you can go home and you think well I can go home mmm… ok you struggle but you can go home. I don't know… and the thing is when you are in hospital you might want to go home but in hospital you feel more secure if you are not well… and you don't want to go home to the unknown, so I didn't know whether I was ok to go home or not, but I was obviously wasn't.*	**Healthcare / Poor practice** - P1 was pleased and satisfied by the care she received during her hospital stay. However, she mentioned that she was catheterized due to retention, which according to the participant it may be because of staff asking her to drink too much water. **Busy/ Not included/ Not ready/ Safe** –P1 for her first discharge said that everything went as planned. For her 2nd admission P1 felt that the hospital staff was trying to empty beds which lead to a rush discharge process. P1 felt that she was not included and not ready to be discharged. She was not given a chance to have a discussion regarding her discharge or to express her concerns. P1 felt safer while being in hospital rather being home, as she did not feel that she was well enough. She also mentioned that another two patients who were discharged with her were readmitted.

Post-discharge: 13 days/ 11 days

Recover well from the first operation, but about less than a week I started to feel ill and I rang the ward, they reassured me that it haven't had anything to do with the operation, partly I had a very bad headache and I felt terrible. Husband fed me, didn't get much sleep because I was so sore my bottom got very sore and slight down the bed, not very good. I managed to washed managed to go to the toilet *Not very good, bed most of the time hardly moving, couldn't move, very uncomfortable got bed sores, got very weaken wrists trying to move, because I couldn't move properly and then I noticed my leg was getting swollen and fatter. A couple of days later I called MacMillan nurses because I still feeling bad and I said I can't take a deep breathe so they immediately though it was thrombosis but it wasn't it was cramped ... when I was flat it was ok... they immediately help you they were very good and they said go to A&E.*	**Functional limitation [ADL's (14/20)] / Informal care** – P1 said that during her first week everything was fine until she started feeling ill. When she started feeling ill she needed more help from her husband for her daily activities. P1 was able to wash and use the toilet without assistance. For her second discharge, P1 felt weaker plus she developed a pressure ulcer which make her feel more uncomfortable. Her mobility was affected due to the inactivity and the medical complications, which resulted in needing more assistance with daily activities as she was unwell. **Follow-up/ No POC** – P1 had a planned outpatient appointment 2-4 weeks after her 1st discharge which she missed and was rearranged after her 2nd discharge. There was no a POC for either discharges. **Readmission route** – For her 1st readmission, a week after feeling ill she called the ward where they reassured her that the symptoms described were not related to her operation. As her symptoms were getting worst she phoned MacMillan nurses (P1 had a past medical history of cancer and she felt more comfortable talking to them). P1 was advised to go to A&E due to the symptoms she described, thrombosis was suspected. For her 2nd readmission P1 only mentioned that she just went to A&E without mentioning if she contacted anyone for advise or how she transferred back to hospital.

Readmission: Infection - LoS: 4 days / Infection and Thrombosis - LoS: 20 days

Anyway they took me in and checked me, it wasn't but I was obviously ill. It took them some time to find out that I had an infection, the wound... something to do... they said there was an abscess so I was given antibiotics and I stayed in until a doctor came in for a round and send everybody home, whether they wanted to go or not. *I went to A&E, I was there for some time and they were debating whether it was Lymphoma or thrombosis. I had many procedures that time, because of the infection was still there. I had drains put in, more antibiotics. They were attentive actually, the third time. They decided that they wanted to do another operation and clean it out. I had a kind of umbrella inserted in my vein and I had some smaller bags in. It got a bit hard with the bags because they needed to be tight and I couldn't move and in the night they were getting heavy because of the fluid. Eventually after the operation the fluid was draining away clear and they took one away and then the other and I went home... I left a lot out because many happened, but they were very attentive that time because obviously things haven't worked... but I don't think they knew what to do with me. I was obviously ill but they didn't really know what was wrong and I seem to be having to go for various tests to try and find what was wrong and I was just left basically to just sleep.* *I think the care was so good, once they knew what was up with me. The only thing I will say is sometimes, like with the bedsores, they make a big thing of it but then they don't always follow*	**Attentive care** – For her 2nd admission P1 was given antibiotics for her infection and four days later she was discharged. P1 was happy by the care she received, however she felt let down as the doctor did not included her in the discharge decision. P1 compared the 2nd discharge with her 3rd, where she felt that the latter one was more attentive as she was included in the decisions about her care and she received more information. P1 described the investigations, procedures and treatments she received and one can see from P1's comments that despite her lengthy recovering she was pleased by the care and attention she received. She was not happy about her last operation on her 3rd admission (bilateral drainage of the pelvic and two drains were inserted) as she was already healed from her first operation. **Medical complication** – P1 had two readmissions, one with pelvic abscess (infection) and one with ongoing infection plus thrombosis. **Poor practice** – P1 mentioned three occasions of poor practice: (i) pushed to drink too much water after her first operation, (ii) no follow up on her pressure ulcer and (iii) an antibiotic dose was not given.

through, you must have this and that, some stuff will remember and some other simply forgotten, sometimes you need to remind the staff. For the bedsores they came and photograph it and two weeks later a staff member asked me 'you still have something put on your bedsores', no I haven't seen anybody, there wasn't always a continuity of care. I think I should have some antibiotics and they forgotten to give them to me, but I think it happened once. *Well, I don't know... the factor that I get the thrombosis... infection haven't gone... I think I was send home too soon, the staff, nurses, doctors and surgeon were absolutely super. The surgeon was toying with what to do and then he said I will do the operation. I wasn't very happy with that and they went through the same wholes so I was already heal up more or less and they did it again, I wasn't too happy with it.* *I don't think anything could really prevent it, because I couldn't move... because when my leg swollen up it was like I drugging a tree all around, it was swollen all the way down and it was heavy and whether I was home or hospital you still have the same problem. The fact that I was so ill and I didn't want to do anything brought the thrombosis, probably my fault by not drugging out myself and walking out of bed I supposed. I can't think anything could help but probably if a home visit or a district nurse would come she might identified it earlier.*	**Early discharge** – P1 felt that her 2nd discharge was too early as she was not ready to be discharged because she was still feeling very weak and ill. **Inevitable** – P1 believes that her readmissions were inevitable because of her illness progression and the medical complications after her first operation. P1 mentioned that she should have put more pressure on her self during her 2nd discharge, as the thrombosis may have developed due to her inactivity. **Continuation of care** – The follow-up care plan remained the same with the outpatient appointment being rearranged and a district nurse was meant to visit P1 for wound check and plaster redressing.
Services	
My third discharge I felt that was much better, they told me when the second drain is removed I will be able to go home, so when the second one was taken out I was able to go home the next day... they came and they told me I can go home that day but the surgeon wanted to see me, and I waited all day for the surgeon to see me. They were asking me about follow ups with the doctor, to see the nurse basically to change the plasters and she was going to make an appointment but then things drug out so long that you get to the point that you are not sure if you are going home or not... I was bit low thinking if I am going home and then he came along and sat down with us and said 'alright you can go home now'. Then I was waiting for my discharge notice and for some medications. I think we got home around six o'clock. The whole process didn't seem too organised, you needed to wait for certain people to say you can go home. *I can go only by what I have experienced and from another lady who was really afraid to go home and nobody came to reassured her that she will be ok. I mean I have my husband ... some people have nobody, so they are going home to look after themselves and is quite scary if you don't feel alright and I think in some cases to have someone come in and just say you can go home, is a bit daunting. So if some people can come and reassure you that you are ok to go home or explain what is happening or even to ask questions. Definitely, you need a little bit more than just send home, is not enough. The other one there was nothing, I supposed they just look out the notes and they say you are fine to go. I have nothing that praise for the staff.*	**Disorganised services** – From her three discharges P1 was only pleased by her last one, as she felt more included. However, she found it very lengthy as she was waiting for the surgeon who wanted to see her before her discharge and for the paperwork and the medications to be prepared. Because of the waiting P1 was in doubt if she was going to be discharged or not. P1 felt that the procedure was not well organised. **Let down** – P1 felt let down by the services and how the lack of communication affects people. She shared an experience of another patient who was living alone and how afraid she was for her discharge. P1 said that in a discharge process staff should be more informative and more supportive. Checking only the notes, saying that you can go and not actually have a discussion with patients about their concerns is not enough. People should be included in decisions regarding their care.

Participant 2: Female, **Year of Birth:** 1949, **Marital status:** Single, **Living arrangements:** Alone, **Postcode:** DT3, **Educational level:** Secondary, **Ethnicity:** White, **Comorbidities:** 3- COPD, Stress, Lobectomy 2019, **Medications:** 0-5, **MoCA:** 30, **GS:** 45-42

Background: Earlier in the year P2 developed a cold and despite antibiotics from her GP, there was not an improvement. After investigations, a mass was identified in the right upper zone. An elective admission for video assisted thoracic surgery lobectomy was planned. The 3rd post-discharge day P2 started feeling unwell and noticed swelling which resulted on being readmitted with a surgical emphysema.

Key points:
- First discharge was too lengthy
- Discharged too early because of winter pressures
- Doctor suggested to stay for an extra day
- Readmission – P2 called UHS ward/ attended local A&E referred and transferred back to UHS (ambulance)

P2		First Admission		Post discharge		Readmission			Services	
		Elective: VATS Lobectomy		Home		Surgical emphysema				
		LoS – 4d		4d		LoS – 3d				
Factors	Healthcare Busy	Included Ready	Functional limitation	Informal care Follow-up No POC	Attentive	Medical Early d/c	Avoidable	Disorganised	Let down

First admission: (Elective) VATS Lobectomy – LoS: 4 days	Interpretation:
I went into hospital... with a tumour in my right top of my lung. All was successful, absolutely fine, no problems I was made aware of... I can't fought anything they did. It was brilliant, They were all brilliant, and I couldn't say that there is any room for improvement, because they looked me after so well... A little bit more lengthy the first time, because they had to get everything sorted. *I think was quite unfortunate really, there was circumstances that made me leave probably a little bit too early because I hadn't stop bubbling for long enough but it was one of those things, and it was possibly the time of the year, I think there were mitigating circumstances for letting me go... but it was alright, it was one of those things and I sorted it... I think another 24h could probably circumvented all of these but it's all it is. It was nobody's fault....I think another 24h in-hospital at the time, which to be fair the doctor did suggest...*	**Healthcare** – P2 described the overall experience as satisfactory and suggested that room for improvement could not be identified as it was felt that the healthcare professionals looked after her very well. **Discharge process** – P2 felt that the discharge process was lengthy in comparison to the discharge process during the readmission. **Early discharge / Busy** – P2 exhibits feelings of slight disappointment whilst describing the discharge process. The response alludes to early discharge related to busy wards because of the time period. **Ready / included** – P2 agreed with the decision to be discharged at the time and had consulted with her doctor which suggests that she was included in the decision.
Post-discharge: 4 days	
Well, family made a little bit of shopping for me. I managed to do 1-2 bits for me but obviously I wasn't into doing all the things I was used to do because I couldn't. No, I didn't have any POC planned, but I had a follow-up care. First two days was absolutely fine and then of course I started to suffer the effects of the air leak and was quite a struggle... and next day I was readmitted so... in-between I hadn't had a lot of time to do much... I was starting to swell and then readmitted on. So, I didn't get back in any sort of routine or anything in those days really.	**Functional limitation [ADL's (18/20)]** – P2 expressed a difficulty returning to her previous routine due to functional limitations. **No POC /Follow-up/ Informal care** – P2 had no planned POC, however, she had an outpatient appointment for surgical follow-up and a practice nurse was meant to visit her 7-10 days after her discharge to remove the drain stitch. Also, P2 had help from family in daily activities such as shopping.

...but obviously things then transpire that there was still some air, that hadn't allowed to drive into the receptacle. When all started to manifest I phoned to Southampton and they said 'look, you can't just come back here you need to be referred, so pop up to A&E and we will take it from there, which I did, the register was literally waiting for me and sorted it right away'. Southampton wanted me back because obviously it was still in their remit.

Readmission route – the 3rd post-discharge day P2 started feeling unwell and noticed swelling and called UHS. As P2 wasn't local, she was advised that she had to be referred to return to UHS. She attend her local A&E and transferred to UHS.

Readmission: Surgical emphysema – LoS: 3 days

...so I was driven to Southampton, register was there waiting for me, inserted the chest drain and started the suctioning...second time was just question to make the paperwork because I didn't had any medications to bring back with me ... so it was pretty quick...Only the discharge process, we are fitting you with a flutter bag you can have your letter and we will give you some packages of pills and you are off to go. Which was absolutely fine because they done everything that they could and that came to knowing that they will not be any recurrence because I had the flatter bag...so I could start to go back to living although I would have a little baggage to carry and I am still having the effects of surgery but I would start to do things by myself although the family still helps with sort of bathing... because I couldn't bath or showering because of the dressings... and the District Nurse came a couple of times and changed the dressing... I did the shopping and some of the heavy lifting and some of the housework for me, but once I had the flutter bag removed I was up and running more.

I would say the timing for my first discharge. No, I think it was just a question of, you know, those factors and I think another 24h in-hospital at the time, which to be fair the doctor did suggest', should have been, would have possibly made all the difference. So, it was just a question of timing. The whole experience as said to you it was brilliant. I mean obviously I wasn't particular well but the care, the attention, the attitude of the staff I can't fault it, I think they were absolutely phenomenal. They were brilliant, all of them.

Medical complication – P2 was readmitted with a surgical emphysema following the first admission.
Early discharge / Avoidable – P2 felt that if her 1st discharge was delayed by 24 hours, which had been suggested to her by the doctor initially, it could have made a difference, however, P2 believes that the time of the year (winter pressures) may have led to her early discharge which in her view was a mitigating circumstance. Although, P2 indicated that during the first 2 days of her discharge she was feeling well and only started to feel the effects of the air leak on post-discharge day 3 so it is unclear if an additional 24 hours could have prevented her readmission. Furthermore, during winter pressures, it is standard practice to discharge medically fit patients for their own protection against seasonal flu.

Continuation of care – Based on P2's descriptions, she had at least 1 planned outpatient appointment and visits by a district nurse.

Attentive care – despite the challenges P2 experienced, she describes the care she received highly and attentive which demonstrates her appreciation and satisfaction towards the care received.

Services

It's difficult one to answer actually, because I think it's case has to be taken on merit, whether they are on medications, whether that's a factor, whether they have mental health issues. I am sure that various health services do work together but I don't always think them jell. But haven't ever been in this situation of wanting various elements to get together to look after me that's quite difficult question for me to answer. I don't know the answer for that one.
At the end of the day there was no gap really... So the way of communication was brilliant but of course didn't involve social services, it didn't involve community nurses or GP's, it was actually the doctor in A&E and the Doctor in Southampton and they were brilliant they decided what to do and how to do it. A little bit more lengthy the first time, because they had to get everything sorted.

Disorganised services - Based on P2's experience, she did not have any comments regarding the integration between services. However, she believed that the different services work together but are not perceived as one service. This may indicate a gap between services. P2 upon reflecting on her experience, she described the communication between the doctor of A&E and UHS as "brilliant" as everything was organised and in place in time for her arrival at UHS.
Discharge process – P2 felt that the discharge process of her first admission was lengthy in comparison to the discharge process during the readmission. The difference between them would have been the preparation of the discharge summary and preparation for her medication.
Let down – Regardless of the positive comments made about the services, P2 describes the discharge process of her first admission with slight disappointment and feels that there were mitigating circumstances for being discharged and alludes to thinking that her readmission could have been avoided.

Participant 3: Male, **Year of Birth:** 1939, **Marital status:** Widower, **Living arrangements:** Alone, **Postcode:** SO19, **Educational level:** Secondary, **Ethnicity:** White, **Medications:** 6-10, **Comorbidities:** 10- Fracture neck of femur, Mitral regurgitation, Aortic regurgitation, L ventricular systolic dysfunction, Atrial fibrillation, Pulmonary-regurgitation, PE, Cellulitis-chest, AKI, Cancer of the oesophagus, **MoCA:** 27, **GS:** 70-65

Background: P3 was admitted following a fall, probably due to a syncopal episode secondary to postural hypotension. During his stay, P3 suffered 2 falls without any injuries due to postural hypotension. P3 was discharge to a rehabilitation centre for more physiotherapy sessions, where he had another fall which resulted on fracturing his other hip and been readmitted back to UHS for surgical operation.

Key points:
- Agreed to transferred to rehabilitation centre as it would help his family with parking
- Readmission related to first admission/ unresolved issue
- Readmission – referred from rehabilitation centre to UHS (ambulance)
- 2nd discharge issues – Forgotten to take frame / home heating not checked before arrival
- Missed outpatient cardiac appointment due to transport not showing up

P3	First Admission		Post discharge		Readmission			Services	
	Emergency: R Fracture NOF/ fall		Rehabilitation centre		L Fracture NOF/ fall				
	LoS – 19d		LoS – 24d		LoS – 20d				
Factors	Healthcare Transport Food	Not included Not ready	Functional limitation	Informal care Follow-up Rehabilitation	Attentive	Medical Fall	Inevitable	Disorganised	Let down

First admission: (Emergency) R Fracture NOF fall – LoS: 19 days	Interpretation:
I went to the UHS because I broke my R hip after a fall... The ambulance crew was perfect, there was very little delay in A&E, X-ray was done very quickly and I was in a ward in what appear in no time at all. Very very quick. To be honest, I found everything worked very smoothly, very, it wasn't any difference between the two hospitals, it was like moving from one ward to another... the staff was good and caring in both places and the food was slightly different. As I understand it, it was the specialist who was making the ward round, that I should be transferred into rehab. It might be physiotherapist too. They have not discuss it with me, I was told I was moving... and I thought it will help my younger brother with the parking... RSH is easier to park rather than the general...	**Healthcare** - P3 was admitted at UHS for his operation and was later transferred to RSH for his rehabilitation. He was satisfied by the care received from the staff and he mentioned that there were not any differences between the two places. **Transport** – P3 was impressed by the transport service crew and their response time, as everything was done quickly without delays. **Food** – P3 was pleased with food in both places **Not involved/ Not ready** – P3 was not included in the discussion regarding the discharge decision, he was only told that he was going to be transferred into a rehabilitation centre. He thought that moving to RSH would help his family with parking as it is more accessible at RSH than UHS.
Post-discharge: 24 days	
Then I went for rehabilitation in RSH, I don't remember how long I was there. I had a fall there and I broke my other hip and that apparently had a result of an infection.	**Rehabilitation** – P3 was transferred to a rehabilitation centre and this decision would have been led by his frequent falls and hip operation.

I was in a rehab centre, I was having regular physio sessions, I could manage most of my personal care, with dressing I found very difficult to put on trousers I tended to go for a gown rather pyjamas which make life easier for everyone	**Follow up** – P3 had formal follow up care and regular physio sessions a heart failure outpatient appointment.
My general care require did not change from the general to rehab, my habits didn't change- I read a book every day and that took time away, I didn't watch tv or listen to the radio. Reading a book a day was a challenge and I am still doing it. I found the staff very helpful and they didn't like the fact that I tended to get out of bed when I shouldn't and have falls when I shouldn't….ha…but that's just me being stubborn and independent, I have been independent for 3 years now, I have lost my wife 3 years now and I become more independent during that time and I don't like relying on other people when I think I can do it on my own *My family and friends visited me and spend time with them*	**Functional limitation (ADL 16/20)** – despite the functional limitations and the assistance P3 required for bathing and mobilising, he tried to maintain his independence – and at time against medical advice which put him at fall risk. **Informal care** – P3 had family and friends visiting and keep him company. P3 showed that he valued highly his brother being able to visit. **Readmission route** – P3 had another episode of postural hypotension which resulted in falling and fracturing his other hip. He was then transferred to UHS with an ambulance from RSH as an emergency admission.
Readmission: L Fracture NOF fall (orthostatic hypotension/ infection) – LoS: 20 days	
I went back to UHS for a second operation and the infection for 20d. *I don't really remember much, whether it was my infection or not. I didn't really know anything about the infection until my younger brother told me about it* *Not really, the care I received was the same as the first time, everything was done on time and very quick.* *I would say the fall and the infection.* *I didn't help by breaking the other hip did I… most of my falls were because of dizzy spells, I had one the day before my discharge, I was going to the toilet in the ward and I had a nurse with me and I was through the door and I said dizzy spell and she grabbed me and ask for help to get me back, so I would have them all the time through hospital, no warning. At the beginning I thought it was because I was standing up and I have low blood pressure but I was getting them lying down as well so I don't know… they seem to be gone* *Being back to the general again I had learned some bits and pieces of my exercises and also the staff who quite honestly you couldn't pick between the two of them, they were both places great*	**Medical complication / Fall / Inevitable** – P3 had unresolved medical issues (postural hypotension) which led to another fall which resulted in breaking his other hip. In addition, P3 presented with an infection. P3 exhibits confusion when recalling his experience. P3 stated that he was unaware of his infection and that he was informed by his brother which may indicate either lack of communication from the staff or lack of recollection of the discussion by P3. The readmission was related to the unresolved medical issues which caused falls. It seems that the readmission was inevitable as P3 indicated that whilst trying to maintain his independence he was mobilising unsupervised which again led to falls. **Attentive care** – P3 was pleased with the staff and the care he received. P3's descriptions also indicate that he built a good relationship with the health professionals as he was learning exercises and how to improve his mobility. **Continuation of care** – P3 had outpatient appointments planned with cardiology and a TDS package of care (home visits 3 times a day).
Services	
Slightly bitter I had a hospital appointment last week, my younger brother organised the transport and they never turned up and they didn't contact. Since then everything I ding ding and I am going again this week and I am promised that the transport will turn up. It wasn't severe disappointment because it's probably my pacemaker and I will get it sorted. *Yes and no, the transport that brought me home turned up on time brilliantly driver and me supposed to be 2 man for getting me down the steps in the garden and he forgot to put the zf in the ambulance but it was here the same day so it wasn't a big problem, I was so bloody cold in here I didn't want to get out of bed anyway. The heating wasn't working for all this time and when I got back it didn't work.*	**Disorganised services / let down** – P3's description of his outpatient appointment indicate that the process was disorganised which led to P3 feeling disappointed. **Discharge process** – P3 indicated that he was meant to be discharged with a frame but it was forgotten at the hospital which was delivered later on the same day. Although P3 felt that this was not a big issue, he was unable to mobilise without it. Another issue was that the heating was not working, which wasn't checked, and due the cold P3 stayed in bed to stay warm.

Participant 4: Female, **Year of Birth:** 1950, **Marital status:** Divorced, **Living arrangements:** Children, **Postcode:** SP10, **Educational level:** Secondary, **Ethnicity:** White, **Comorbidities:** 6- Osteoarthritis, Osteoporosis, Diabetes Mellitus Type 2, Ca Bowel 6y ago, Vision/Hearing impairment, **Medications:** 0-5, **MoCA:** 30, **GS:** 50-52.5

Background: P4 had an elective admission for a total knee replacement at the Nuffield Hospital. P4 was meant to change her own dressing a few days after her discharge, but she was not able to it. She then visited her surgery where they noticed that the wound was oozing and they prescribed antibiotics and applied a pressure dressing, but it was very tight which led to P4 to visiting Nuffield hospital the next day to redress it. P4 was not able to cope at home because of the pain and the swelling. P4 was readmitted to UHS for wound monitoring and more physiotherapy.

Key points:
- Felt let down as she was not accompany downstairs - it was Saturday and staff were busy
- Post discharge – P4 was trying desperately to arrange physiotherapy by her own.
- Poor practice – dressing replacement at her surgery/ dressing was too tied – ended up visiting the Nuffield the next day to replace it
- Readmission – referred from Nuffield hospital to UHS (own transport)

P4	First Admission		Post discharge		Readmission			Services	
	Elective: TKR		Home		Infection				
	LoS – 4d		26d		LoS – 8d				
Factors	Healthcare Busy Food	Not involved Ready	Independent	Informal care Follow-up No POC	Attentive	Medical Poor practice	Avoidable	Disorganised	Let down

First admission: (Elective) TKR – LoS: 4 Days	Interpretation:
I was seen in November by a doctor about my knees. I had x-ray on both of them and the Dr said that I have osteoarthritis and asked me which knee I would like to do first. A physio showed me how to get off bed how to use the stairs, send me home. …The care was fair. No, problem with that. Food could be hotter, it was cold. In the first hospital food was on trails without cover so until it reaches you it was cold. In the general, the food is contained in a big container so it comes hot. *You can go home tomorrow, we will check you on the stairs, have you got transport, cheerio. Nobody saw me out … it was just, that's it off you go, two pair of crutches, one shoe horn and a gripper to help pick things up, and out the door you go, your own…I am assuming my Dr, just the nurses and physio said to me you are going home on Saturday. You were told that you will be in for a few days, so you already knew that much, but no it was just … yes you are doing alright you can go home tomorrow. It will be nice to been seen outside the door, to make sure I went down alright but other than that I supposed no because it as a Saturday you know people are busy.*	**Healthcare** – P4 was pleased with the care received. **Food** – P4 described the food as cold and felt that it could be hotter. **Not involved / Ready** – P4 indicated that she was not involved in the decision making process and her discharge was expected as she had an elective admission. P4's description indicates that she wanted physiotherapy post discharge which had not been planned as part of her discharge planning. **Disappointment / Left alone / Busy** - She expressed her disappointment and feeling of being left alone during discharge. These feelings were caused from not being accompanied when she was leaving the hospital and that no one checked that she could make it to the car safely. P4 indicated that this may have been as it was a Saturday and people are busy. However, it would have been good practice if someone had accompanied the patient especially since she was walking on crutches.
Post-discharge: 26 days	
Personal hygiene I arranged with Red Cross for a bath board, because I need to climb in a bath which I found difficult having a shower but I managed it. Daily activities slow moving around the house. I have bought a trolley and I am keeping it, as it helps me move around with my food on it … My children I've got 2 boys living with me and a girl married, they have done all my books, I just sat at home and sorted the books because I am a distributer.	**Independent [ADL's (20/20)]** - P4 was able to maintain her independence, she did not need any help with personal care as she obtained assistive equipment. However, her children assisted her with work related tasks. **No POC/ Follow up/ Informal care/ Disorganised services** – P4 after her first discharge, she had an outpatient appointments planned 1 month after her discharge. As for her wound

You are joking aren't you... no... I went to my surgery for physio they told me I don't need any. In fact I had to beg for physio, they told me I had to wait for a month until I see my Dr. Then I get a call from Andover physio yes we got you booked in, and by then it started weeping so I went back to the general because of the weeping knee. And I don't know why, seems nobody know ... it's just under the surface... so when I was readmitted I phoned Andover and pleased them not to cross me off their books, I still need help. So I had physio in my admission but nothing between. *I was send home with one dressing on the wound, which is fine, told to change it after a few days and made a mess of it, so I went to my surgery asking for the same dressing and believe it or not she put a piece of gauze along the wound then iodine gauze then a couple of coverings and top it off with waterproof covering, which the next day find me back in the Nuffield trying to get rid of it, because it was so tight. The nurse that was there said why did she do that?, I said because she wanted to prevent infection, so is a possibility that she did the opposite I don't know.*	dressing, her stitches were dissolvable and she only needed to change her dressing by her own. She felt let down by the follow up services (physiotherapy) as she was told that she did not have any when she first contact them. P4 then received a call from physiotherapists, saying that they had her booked, but she had already being readmitted. **Readmission route/ Poor practice/ Avoidable** - P4 was meant to change her own dressing a few days after her discharge, but she was not able to it. She then visited her surgery where they noticed that the wound was oozing and they prescribed antibiotics and applied a pressure dressing, but it was very tight which led to P4 to visiting again the next to redress it. P4's description of the events, alludes to potential poor practice when she had her knee redressed as she highlighted that this was questioned when she attended Nuffield the next day. The lack of details regarding her visit for the dressing change leaves unanswered questions regarding wound care plan and if wound swabs were taken for further investigation since P4 was showing signs of infection. P4 was not able to cope at home because of the pain and the swelling was readmitted to UHS for wound monitoring and more physiotherapy. It unclear how this event took place, although her description alludes to being referred to UHS as she stated that she was expected.
Readmission: Infection/ Pain and swelling – LoS: 8 days	
It was completely a different hospital, my son took me in. They were expecting me in Trauma unit, they decided that I will be staying for the night. Next morning Dr came around and I still don't remember his name, yes we will keep you in. That night I was transferred to surgical day unit and a few days later to another ward. The hospital was different, the food was much better and the care was the same. I was there for 8 days. I had some tests, antibiotics, no physio and send home. Still weeping with a bandage on and I am still stiff but I had at least a physio therapist now... *I supposed, not knowing why, a month after an operation you started weeping, the knee is red hot to the touch, the top of the wound has healed over the middle part had 3 spots weeping and nobody really said why ... it's just under the surface...The one thing that stayed was, I see you moving you don't need physio, ok I am walking but I am not walking like this I am walking like that, that's not how I should walking. I should have more encouragement to do the exercises that told you instead of left to do it on your own and not be checked upon. That's the one thing that hurts.*	**Attentive care** - P4's son took her to UHS were she was readmitted. P4 mentioned that the food was better and the care was the same (i.e. satisfactory). According to P4, she did not received any physio sessions, she had some tests done and was given antibiotics. **Medical complications** - P4 readmitted with an infection, pain and swelling knee. **Continuation of care** - P4 had an outpatient appointment planned and physiotherapist visits. **Let down / lack of encouragement and supervision by physiotherapist** – During her readmission, P4 was assessed by a physiotherapist and was shown physio exercises that she could do. Despite the advice given, P4 felt let down as she felt that she needed more encouragement and guidance. P4 felt that her gait was altered and wanted to get back to her normal gait and needed more professional support to achieve it. P4 also showed frustration and feeling let down as she did not know why a month after her operation her wound was infected.
Services	
Somebody to check the dressing instead of being left to do it on your own in case is going green or red or whatever. Somebody to follow up on you, ok you've been in you had it off you go and absolutely nothing. The physio, I was release on the 12th and it took 2 weeks for the paperwork even though it's electronic to go across we've got your referral. That should have been done instantaneously, so you didn't have the break you have continuously care one-way or another. That I think is necessary instead of having to beg and be told you are not entitled, you don't need it, and you are not getting it which is basically what I was told.	**Let down / Disappointment** – P4 was feeling let down by the services as she did not have follow up care or a wound care plan. She also felt let down by the delay in getting the physio referral and felt that this delay disrupted her continuation of care and recovery. She also felt that she had to "beg" to have physio sessions rather than automatically being set up as she had a TKR. **Disorganised services / Communication** – P4's description of the follow up process indicates that the services were not as organised as one would expect. P4 expected that the physio referral would have been instantaneous as everything is electronic, however, there was a 2-week delay.

Participant 5: Male, **Year of Birth:** 1936, **Marital status:** Widower, **Living arrangements:** Alone, **Postcode:** SO45, **Educational level:** Tertiary, **Ethnicity:** White, **Comorbidities:** 7- Hypertension, L THR 2007, Diabetes Mellitus type 2, Hypothyroidism, Stress, Vision/Hearing impairment, **Medications:** 0-5, **MoCA:** 27, **GS:** 75-85

Background: P5 had a fall secondary to hypoglycaemia 5 months before his admission, which resulted in an ankle fracture. At the time of the fall, P5 did not feel any pain or had any swelling. Three weeks later P5 went to the hospital for x-rays as he foot was swollen and he was in pain. From the review, he was advised that he had an ankle sprain and he should return to his normal daily routine and continue to walk as he normally would. Three weeks following this visit, he received a call from his GP advising him to attend A&E as he had an ankle fracture. The x-ray showed that his fracture had healed and needed to wear a plastic boot. P5 returned home and continued to walk without the plaster boot for 3 months before starting to experience a lot of pain and noticed that he was walking on the side of his foot. He then attended the A&E again and was admitted to the hospital (Prior to his admission, P5 had 2 operations cancelled as his ankle was too swollen to be operated on). P5 discharged home in the morning and readmitted the following day. During the night P5 developed pain inside the plaster and he was also bleeding.

Key points:
- Poor practice – first advise given to P5 before being admitted
- P5 not using the plastic boot before being admitted
- First admission – disturbance of sleep every morning (twice: blood pressure/ Glucose blood level)
- Doctor suggested to stay for more days – P5 was feeling guilty as he felt he shouldn't be in-hospital
- Readmission – P5 contact UHS ward and readmitted (ambulance)

P5	First Admission		Post discharge		Readmission			Services	
	Emergency: Fractured ankle/ fall Pain /Charcot's foot		Home		Charcot's foot/ Pain				
	LoS – 21d		1d		LoS – 14d				
Factors	Healthcare Busy/ Sleep Food/Transport	Included Ready	Independent	Informal care Follow-up POC	Attentive	Medical Poor practice	Inevitable	Disorganised	Let down

First admission (Emergency) - Fracture ankle/ fall/ Charcot's foot– LoS: 21days	Interpretation:
In the early hours... I got up to go to the bathroom and I had a blackout which was cause due to too much insulin, which resulted to lose too much weight about 15 pounds over 6 months. When I came too, I was lying on the floor with my right leg tug under my body and when I looked over my right shoulder I could see my foot bottom, I manage eventually to get back to my bed and I went back to sleep. When I woke up in the morning normally I felt I had a nightmare. *I didn't have immediate pain or swelling that came about 3 weeks later. I then went to hospital for x-rays and they told me I was luckily I had a bad sprain ankle. They told me the best cure for that, live normally and walk on your ankle and it may be a bit painful but it would come right.* *It was about 3 weeks later I had a phone call from my GP, who said to me I have just review your x-ray and you have broken your foot. This was very unwelcome news, and he told me to go to A&E as soon as possible. A friend of me took to A&E the next morning, it wasn't busy yet. The Dr said from the x-rays that it was already heal and that I could not have a plaster cast but he gave me a big plastic boot and you can take off when you go for sleep or if it bothers you during the day you can take it off.*	**Healthcare / Busy** – P5 was satisfied with the care received, especially considering the staff shortages. P5 alluded to the wards being busy as nurses have to spread their time to provide cover. **Sleep** – P5 found sleeping difficult as he lives alone and is used to sleeping in a quiet environment. His sleep was also interrupted in the morning, once to take his blood pressure and another to measure his glucose blood level. **Food** – P5 found the food to be very good and the portions to be big. **Transport/ Disorganised services** – P5 was disappointed by the transport services as they did not show up during the four hour window and ended up delaying his discharge for the following morning.

I managed to walk without the boot for a matter of 3 months, no much pain not a lot of swelling, but all of the sudden I did developed a lot of pain and I found I was walking on the side of my foot that really worried me. I went back to general and they x-ray and the next thing knew they were admitting me to hospital to get the swelling down and to relieve me from any further pain. *I was in hospital for 3 weeks…The level of care I felt that it was very good considering we know our hospitals are short staffed and the available nurses have to spread their time, they work very hard. I found sleeping in hospital being extremely difficult because I live alone its very quiet. Also, they wake you up in the morning to take your blood pressure and as soon you get back to sleep they wake you up to take your blood sugar level. I think the degree of care is surprisingly good if one thinks the extent of NHS. The food was extremely good plenty of it possibly even too much.* *The decision I am sure it was taken by looking on my record of blood pressure, age and blood sugar levels. I must say that I feel included, as I mentioned anybody in hospital that is well and not sick, you feel that the hospital isn't the place for you and you are taking the bed of other people who are in need of it.* *I felt a little bit guilty about it. Naturally when you are used to be a free soul and getting on with your life and being active and all of the sudden it's cut short when you are offered the opportunity of being relieved from hospital life and to going home you begin to feel a bit like a drowning man clutching at a straw. I was supposed to be d/c on Thursday but the transport that was meant to come at afternoon, it arrived at 9 o'clock at night, so I went into the bed which I was sitting in it all day and went home the next day.*	**Included/ Ready** – P5 felt that he was included in the discharge process and he felt ready to go home. He believed that he could managed at home instead of hospital as he was not sick. He even mentioned of feeling guilt being in hospital.
Post-discharge: 1 day	
During my 3 weeks in hospital I only managed to have shower once and that was only because of the nurses' hard press but I had a wash daily. When I managed to come home I had a shower as I have a wet room shower which has a stool in it. It was a very pleasant experience. I didn't have any difficulty with moving or personal care…My children visited me as much as they could in and out of hospital… *Yes, a carer is visiting me twice a day and every week I have outpatient appointment with my doctor…In three weeks I had 4 plasters, the first one had a metal in the bottom of in order to help me walk on it. The next I went home, and that night I developed tremendous pain in my ankle because the cast was rubbing on it, and actually was bleeding. Extremely painful, I could barely take one step at the time.*	**Independent [ADL's (18/20)]** – P5 was able to maintain his independence, he needed minimal assistance with personal care because of the plaster. Otherwise, he was able to mobilize independently and do almost all of his daily activities. **Follow up/ POC/ Informal care** – P5 children's were visiting him in and out of hospital and a continuation care plan was in place. P5 had weekly planned outpatient appointments for ankle monitoring and plaster replacement, as well as, a carer visiting twice a day. **Readmission route** – P5 discharged home in the morning and readmitted the following day. During the night P5 developed pain inside the plaster and he was also bleeding. Either the plaster was too tight or P5's ankle swollen which concluded in skin friction and skin wound development. The ward was contacted and P5 was transferred back to hospital with an ambulance.

Readmission: Charcot's foot – LoS: 14 days	
I went back in, they replaced the plaster with a new one which had a window on it. In order to observe the sore. The nurse call for a doctor to come and have a look on the sore. After 20 min 2 doctors arrived and said we think you need to be admitted to hospital. I stayed for two weeks. I had a new plaster cast each week and they were checking my temperatures...	**Attentive care** – P5 did not mentioned any differences regarding the care between the two admissions. He only referred to the new plaster that was used for monitoring the wound and the step down ward that he was admitted. P5 mentioned that he should have consider his doctor suggestion for staying in hospital for further two weeks, despite being able to manage at home. In addition, P5 said that his readmission caught him by surprise as he did not expect to be readmitted.
The only difference was the ward that I was admitted, 1ˢᵗ one was in trauma ward and 2ⁿᵈ one was in a step down ward, which had calmer atmosphere and it was quieter. Everything was getting better, the physios were happy and I was send home with a frame.	
	Medical complication – P5 was readmitted due to Charcot's foot, pain, swelling and a foot wound.
Now on reflection I think I should have stayed in hospital for another two weeks because my doctor wasn't happy with my feet temperatures and the swelling reduction. The swelling was coming back. I came back home rather disappointment because instead of getting closer to the operation date I am now seeing to getting further away...	**Inevitable/ Poor practice** – P5 believes that his admissions were inevitable as they were part of his care and his condition development. However, he states that after his first x-ray, he was advised to walk on it which resulted on the Charcot's foot development.
For my 2ⁿᵈ admission I was totally not prepare, I didn't even had a toothbrush with me, because I didn't realize until the doctors suggest it. They wanted someone to observe me during my recovery. This has been a very long road very difficult road, taking a lot of patience and meeting lots of different people...	**Continuation of care** – The continuation care plan for P5 remained the same, outpatient appointment for monitoring and twice a day visit by a career. The care plan for P5 is in the next two weeks if the ankle is not swell to have an operation date.
So, I am hoping in the next 2 weeks I will receiving an operation date, only from then I could be looking for recovering, apparently I have developed a Charcot's foot as a result of walking on it when I shouldn't. I confirm that nobody told me not to walk on that foot...I don't think it could have been prevented as my admissions were actually continuations of the reduction of swelling in my foot and the evening temperatures between my two feet, and at no time since I have been plastered I have had any pain or feeling or sensation even , in the ankle.......I would say from the early beginning of my story when they advised me to live normally and walk on it.	
Services	
The only thing that I can say, is about the transport service. They give you a 4 hour window and you never know what time they will show up. My experience wasn't the best.	**Disorganised services/ poor discharge planning/ Let down-** P5 was satisfied by the care received throughout his experience. However, he was not pleased by the transport services as they have delayed his discharge. Also, he faced some communication difficulties as his hearing aids were not working properly. He did not mentioned if the staff used any other method of communication (e.g. writing on a paper).
Also, communication was a bit difficult because of my hearing aids, as they need to be checked and I haven't had the chance yet.	

Participant 6: Female, Year of Birth: 1942, Marital status: Married, Living arrangements: Partner, Postcode SO16, Educational level: Secondary, Ethnicity: White, Comorbidities: 3- COPD, Hypertension, Vision impairment, Medications: 6-10, MoCA: 27, GS: 51-45

Background: P6 had a fall from her bed which resulted in rib fracture and T7 fracture. She attended A&E where she stayed overnight before being discharged. The day following her discharge, P6 was in a lot of pain and had difficulty breathing due to the pain. P6 could not manage at home and she was readmitted.

Key points:
- Discharge issues - First discharge – No appropriate analgesia was prescribed/ took a taxi as transport services would take a lot of time
- Readmission related to first admission/ unresolved issue
- Readmission – P6 husband called 999 (ambulance)
- 2nd discharge was much better – More healthcare professional involved [Spinal specialist, Breathing exercises and equipment training]4

P6	First Admission		Post discharge		Readmission			Services
	Emergency: Fractured rib and T7/ fall		Home		Difficulty breathing/ Pain			
	LoS – 1d		1d		7d			
Factors	Healthcare Busy Transport	Not involved Ready	Functional limitation	Informal care No follow-up POC	Attentive	Medical Early d/c	Avoidable	Intergraded

First admission: (Emergency) Fracture rib and T7/ fall – LoS 1 day	Interpretation:
I fell out of bed, I fractured rib and a vertebrae at my back. I admitted into the hospital stay over a night and they send me home and the next day I went back in.

The care was very good. It could have been better but ... no yeah... the were busy... but they were very good. The first time we call a taxi, no transport because it was too long so, we call a taxi. The nurse push me at the reception and we got a taxi form there.

My husband... I don't know who it was who discharge me, I don't have a clue. Nobody came to me to discuss this, they just say go home, that's it. I haven't been included in the process. Yes, I think they should send me home anyway but not only with paracetamol. That was not good at all, they send me home without any medication, nothing, just paracetamol | Healthcare / Busy – P4 felt that the care received was very good but could have been better. Her description indicated that it was busy and alludes that this is the reason the care was not better.

Transport – P6 chose to use a taxi to go home as the hospital transport waiting time was too long.

Not included – P6 was not involved in the discharge planning and decision as her opinion was not asked.

Ready – P6 felt ready to be discharged and felt that it was the right decision, however, the choice of analgesics was poor in her opinion. |
| Post-discharge: 1 day | |
| For the day I came home I couldn't move, I couldn't do anything, no food, no showering, no moving... and I couldn't sleep... My husband, he is pretty good....

The pain really, I couldn't breathe it was terrible.

Ah... oh yeah, yeah, the ambulance, they put me in an ambulance took me in the A&E. | Functional limitation [ADL's (13/20)] – P6 was unable to mobilise or perform daily activities by herself such as eating, personal hygiene and sleep due to the pain. She also expressed that she had difficulty breathing because of the pain.

No Follow up / POC – P6 had no planned follow-up outpatient appointment. A rapid response package of care was planned. However, this service had not been utilised as P6 was readmitted 1 day after being discharged. |

	Informal care – P6 had informal care at home as her husband helped her with her daily activities
	Readmission route – the day following her discharge, P6 was in a lot of pain and had difficulty breathing due to the pain. P6's husband called 999 and an ambulance took her to A&E.
Readmission: Pain/ difficulty with breathing – LoS 7 days	
... waiting in the A&E for a while and then they took me into a ward. Later on, they transferred me into PAH and that was it. I think they were a bit quicker the second time. The staff was a bit more worried this time. I felt more involved this time... ...for the second time, I have nurses and physios visiting me. _It could have been prevented really, I think so. But I could have more care home really. If I had some carers visiting me, more help and painkillers I think I could avoid the readmission._	**Attentive care** – P6 felt that the care received was better as she was more involved with making decisions regarding her care. She also had physiotherapist visits and felt that the healthcare professionals were more attentive. P6 had appointments with a spinal specialist, received better pain management and breathing exercises and physiotherapists educated how to use assistive mobility equipment. **Medical complication** – P6 had unresolved issues (pain and difficulty breathing) from the first admission which led to her readmission. Being discharged with paracetamol only does not seem adequate pain management as she was diagnosed with spinal and rib fractures. **Early discharge** – even though P6 does not mention early discharge, the fact that her readmission lasted 8 days may indicate that the first decision to discharge her after 1 day may have been premature. **Continuation of care** – P6 had planned outpatient appointment in a fragility clinic and received a rapid response package of care. **Avoidable** – P6 felt that had she had better pain management resources and attentive care whilst at home, her readmission could have been prevented. It has been noticed that her comments on how her readmission could have been prevented include the package of care she had after her first discharge. As she was readmitted mid-day, it leads to thinking that had she received a visit earlier in the morning, she could have been at ease to stay at home and receive the care that was planned for her.
Services	
I would say it was good, a general good impression form the whole experience. Mmm, I don't know... I would say they are pretty organized. No, no I think there aren't any issues. They are doing their best.	**Integrated** – P6 felt that the services were very organised and there were no issues that needed to be addressed.

Participants 7: Female, Year of Birth: 1942, Marital status: Widow, Living arrangements: Alone, Postcode: SO30, Educational level: Secondary, Ethnicity: White, Comorbidities: 3- Hypertension, Hypercholesterolemia, Hypothyroidism, Medications: 0-5, MoCA: 29, GS: 60-42

Background: P7 slipped on wet manhole cover which resulted on twisting her ankle and falling. She was first driven by her friends to RSH. After x-ray, a plaster was applied and she was transferred to UHS for an operation. P7 had a fall at home the day after her discharge which had not caused any injuries. The following morning, whilst trying to get out of bed she pulled a groin muscle which resulted in tremendous pain and her readmission.

Key points:
- First admission – not show how to use a frame the right way
- Anxious about her discharge – could not sleep the night before
- If she had not had informal care she would being able to manage home by her own
- P7 was meant to have community rehab therapy but she was readmitted before the first visit
- Readmission – P7 daughter contact the GP/ then the UHS ward and ended up calling 999 (ambulance)
- Discharge issues – 2nd discharge transport was not on time and wrong transfer equipment was booked – resulted on delaying discharge for next day
- P7 believes that all these issues are a waste of money

P7	First Admission		Post discharge		Readmission			Services	
	Emergency: Fractured fibula/ fall		Home		Fall/ Pain				
	LoS – 5d		2d		LoS – 5d				
Factors	Healthcare Busy Sleep	Not included Not ready	Functional limitation	Informal care Follow-up No POC	Attentive	Medical Poor practice Early d/c Fall	Avoidable	Disorganised	Let down

First admission: (Emergency) Fracture fibula/ fall– LoS: 5 days	Interpretation:
It was pouring rain and I slipped on a manhole cover, obviously twisted my ankle, my friends took me to RSH and they x-ray it plaster it and they told me I needed an operation and they arranged a bed at the general. So, I was admitted at the trauma ward and then I was taken to another ward about 1 o'clock in the morning. The consultant came around the next morning they cut the plaster to see if there was any swelling. It went down so we operated it later that afternoon on Friday. I didn't have a lot of experience using the frame and Tuesday morning they discharged me *That was fine, I mean is a very busy ward and they had a couple of elderly people with dementia and incontinence. I mean how many bed sheets were changed I couldn't say how many times, it was a very busy ward. It was good I cannot fault them for that.* *The consultant came with the registrar and they told me we have seen your x-ray and is gone back really well, it was a nasty break and then he said is she mobile and I think it's all he asked. I asked about the crutches and he said no frame... I didn't feel involved, not at all. I said I've been to the*	**Healthcare / Busy** – P7 was satisfied with the care received, however, she highlighted that the ward was very busy. **Not included / Not ready** – P7 did not feel involved in the discharge process and even when she asked to used elbow crutches because a frame wouldn't fit in her bathroom it was dismissed and a frame, commode and stool was issued instead. P7 did not feel ready to be discharged as she started to mobilise the last 2 days of her stay and felt that she did not know how to use the assistive equipment. P7 felt that if she was shown how to use the assistive equipment effectively and safely she would have been more ready to be discharged. As she felt not included she did not have a chance to make this suggestion. **Sleep** – P7 had trouble sleeping as she was worried about every day activities and how she would be able to do them. Taking into consideration that P7 did not feel involved or ready,

bathroom 4 times, that was my mobility in hospital. I came back from the surgery at night time, the next day I didn't get up. So, it was only Sunday and Monday that I started to be mobile and start to get use to this. Yes, I should have been shown how to use the crutches, because it might be easier to move around with them rather frame. Not that I had any experience before with the frame, I would have thought they would try me with the EC or even got me up walking more with the frame rather than couple of days I did. The therapy team asked me where do I live, I told me I live in bungalow with a small room downstairs, I told them that frame would not fit in my bathroom door so they gave me a commode and a stool. I also told them I live alone and my 2 daughters live near me. The first time was a shock for me the night before I couldn't sleep very well, I was thinking how I am going to do this and that. It kept worried me all the time.	including her in the decision could have potentially prevented feeling worried and anxious about going back home.
Post-discharge: 2 days	
My daughter was here, I couldn't do it myself. If it wasn't my daughter around I would be able to do anything. I wouldn't be able to dress or cook for myself or even use the commode... Not the first time... (POC) I spend the next day at home and I did have a fall, luckily my daughter was here and I took the frame and I stood up. I fall down while trying to balanced, I turned to her to say goodbye to her and I felt down. They pick me up but I didn't hurt myself. It frightened me and upset me... So, the next day in the morning I went to get up from the bed, my daughter stayed with me the first few nights, they didn't want to live me alone. So, I put my good leg on the carpet moved this one of the bed and I pulled a muscle in my groin and I was in a lot of pain. I couldn't get of the bed the pain was awful. My daughters rang the GP and he said ring the ward. From the ward they said it needs to be 24h to be readmitted, so we called 999 and I was readmitted. The paramedics came over and they examined me everywhere. As soon as they touched me in my groin she said we have to take you in. She also said you must have a care plan, don't let them send you without a care plan.	**Functional limitation [ADL's (15/20)]** – P7 had functional limitations in performing every day activities such as getting dressed, cooking or using the commode and stated that if she hadn't had help from her daughter she wouldn't have been able to do anything. **Follow up / No POC / Informal** – P7 had an outpatient appointment for surgical follow-up and a community rehabilitation therapy referral was done, however, she had not received any communication and was then readmitted. P7 did not have any formal package of care planned, though, she had informal care from her daughter. **Readmission route** – P7 had a fall at home the day after her discharge which had not caused any injuries. The following morning, whilst trying to get out of bed she pulled a groin muscle which resulted in tremendous pain. Her daughter called her GP which suggest to ring the ward. Her daughter then called the ward but as it was over 24 hours they had to call 999, which they did. She was assessed by the paramedics and was taken to UHS to be readmitted.
Readmission: Pain/ fall – LoS: 5 days	
The first time my friends took me to RSH, the second time was entirely different...I didn't wait a lot for a bed and the care was the same... So, we went back to assessment cubicles then for an x-ray. While I was there a community nurse came to see me and she said I am arranging care for you. Then they took me to another ward for 24h and then I was moved again. The nurse came again and she told me that they are still trying to sort it out. When I went back to trauma ward the nurse in charge told me that there is care for me on Tuesday morning. After that they transferred me again to PAH on Saturday lunch time...	**Attentive** – P7 had a different experience during her readmission as she was more involved in the discussion around her care, she received more clear instructions on how to use the mobility equipment and the professionals were spending time to explain things to her. **Medical/ Poor practice / Early discharge / Fall / Avoidable** – P7 felt that the factors that led to her readmission were related to her ability to use the mobility equipment. During her first admission she felt that she was not given enough time to practice using the frame safely. Her fall at home was due to her inexperience using the frame and felt that if she had been given proper instruction and time to practice her readmission would have been avoided.

258

In PAH they explained everything to me about the care I am receiving. The staff were very professional they came to me and they said they are trying to arrange Monday night care for me to bridge the gap so I would be able to go home that day. As soon as they told me that they arrange everything I had to call my daughter to be at my home so we would be able to get in... They were excellent I can't fault them. They arranged everything for me in short period of time. The discharge process was much better, oh gosh, they told me everything. *When I was at the ward I have never used one of this, they were watching me but they didn't said that I could put my leg down, so I am hopping with my leg straight...Not having any sort of care after being discharged and that I haven't had much practise with the frame while I was in the hospital...* *If I had more physiotherapist and more explanation on how to mobile around I would probably avoid it. When I went in, someone asked me if I can bend my knee, oh yes I can, well is easier to do that because then you don't fall backwards. So if they showed me that probably I wouldn't fallen when I was here.*	Continuation of care – P7 was discharged with outpatient appointment, community rehabilitation therapy and a package of care to assist her with activities of daily living. P7 felt that had this been made available to her in her first admission, the readmission could have been avoided.

Services

I shouldn't being discharged too early, without care in place and the transport should be at least in the 4 hour slot that they are giving... *I just think is a total waste of money from the health services for things that should be happened, My early discharge, my readmission, the cancelled transport all these could be avoided. I think that they can do better...* *I was expecting the transport after lunch but they didn't showed up until 20:10. The paramedic came up with a chair and she asked me if I would be able to walk from the wheelchair to the ambulance. Me and the nurse told her no because I am non weight bearing. She then apologies and she said I have to aboard the transport as I have a man on the wheelchair and I cannot take you. After that they booked a stretcher for next morning. I came home with care plan in place.*	Disorganised services / transport / waste of money – P7 descriptions indicate that the services were disorganised. Whilst she was being discharged she was waiting for her transport to arrive between 8 am and 12 pm, however, hers did not arrive within this timeframe. Instead, the transport arrived after 8 pm. The transport ended up being aborted and moved to the next day as there was no capacity for her on a stretcher. P7 stated that these issues (readmission, transport) were a waste of money for the NHS and could have been prevented. Poor discharge / let down – P7 felt that even though she had been in-patient for 5 days, she did not receive adequate instructions and time to practice using the frame. She was let down as she felt she wasn't involved or heard during the discharge planning and a decision was made for her without her being ready which was something that caused her worry.

Participant 8: Female, Year of Birth: 1938, Marital status: Married, Living arrangements: Partner, Postcode:SO19, Educational level: Secondary, Ethnicity: White, Comorbidities: 3- COPD, Osteoporosis, Asthma, Medications: 6-10, MoCA: 26, GS: 30-25

Background: P8 had a fall at home and sustained a NOF fracture which was repaired surgically. P8 started experiencing shortness of breath whilst out for the evening a week after her readmission so her friend took her home. She went to bed and continued to experience shortness of breath, had a fast pulse and started developing a high temperature. Contact 999 and she was readmitted.

Key points:
- Before first admission, husband and P8 contact 111 but as they were asking many questions they contact 999
- Hospital provided a feeling of safety
- P8 was allocated for a reablement POC but she was readmitted before first visit
- P8 was aware that there was a risk for infection after her operation
- Readmission – P8 husband contact 999 (ambulance)
- Readmission was considered as inevitable or bad luck by P8 as it was 7d after her discharge
- Discharge planning – everything was in place

P8	First Admission		Post discharge		Readmission			Services
	Emergency: Fractured NOF/ fall		Home		Chest Infection			
	LoS – 10d		7d		LoS 7d			
Factors	Healthcare Busy Food Transport	Included Ready	Functional limitation	Informal care Follow-up POC	Attentive	Medical	Inevitable	Intergraded

First admission: (Emergency) #NOF- LoS 10 days	Interpretation:
I came to the living room, twisted around went flying lost my balance and landed on the ground. I said to my husband I am in agony, he said where and I showed my hip. I am not the person who exaggerate so he knew I am in great pain. We phoned 111 but they weren't a great help, they were just asking a lot of questions, so we called 999 and they came, they were extremely helpful. They took me to hospital, they told I had a fractured hip. I had a surgery, they were absolutely marvellous. I stayed for 10days and my husband brought me home.	Healthcare – P8 was satisfied with the care she received.
	Busy – P8 described the ward as very noisy throughout the day and explained that people were calling the nurses which may allude to the ward being busy.
The nurses were extremely kind, they worked very closely with the doctors. The ward was fine, it was noisy, very noisy but apart from that it was fine. The noise was more or less all day… the people were calling the nurses and they were chatting all the time. The transport were marvellous, both times came very quickly and extremely helpful. My bad experience was the food, it was appalling. It was awful, it was tasteless I didn't have much appetite but I knew that it wasn't good.	Transport – P8 was transferred with an ambulance and had a positive experience with the transport services.
	Food – P8 described the food as appalling and tasteless.
I felt I was ready to go home, I didn't see a problem with going home at all. They asked me if I thought I was ready to go home and I said yes. They were very good.	Included / Ready – P8 felt both included and ready to be discharged and was asked if she felt ready to be discharged prior to any decision being made.

Post-discharge: 7 days	
For about a week after I came home I needed a bit of assistance from my husband for washing and dressing other than that I was fine. No I haven't had at that time but a representative was supposed to visit the following week but unfortunately I was readmitted with an infection. For my readmission, I was out for the evening and I had difficulty breathing, which is pretty unusual for me and my friend brought me home… while I was in bed I was very very hot and I was breathing very quickly and I had fast pulse and my husband rung the ambulance. My husband phone 999 and I was admitted again.	Functional limitation [ADL's (16/20)] / Informal – P8 had functional limitations to some extend and required assistance from her husband for washing up and getting dressed. Follow up / POC – P8 had a district nurse visit planned 2 weeks after her discharge for removal of clips and was referred for the first time to a respiratory clinic for her COPD. In addition, she was assigned a reablement package of care. The formal follow-up and package of care were not progressed as she was readmitted. Readmission route – P8 started experiencing shortness of breath whilst out for the evening a week after her readmission so her friend took her home. She went to bed and continued to experience shortness of breath, had a fast pulse and started developing a high temperature. As this was unusual for her, her husband called 999 and was taken to the hospital via an ambulance to be readmitted.
Readmission: Chest infection – LoS 7 days	
They sorted me out as best as they could and I was discharged after a week. Both admissions were very similar… I felt safe while being there, I thought they knew what they were talk about, I thought they knew what they were doing. They were explaining everything to me. I had to be admitted, I don't think that it could be prevented because it was a week after my discharge, so even if I had someone visiting I don't think they could do something to prevent it… I think it was just bad luck, I was told that is possible to get an infection so I might caught something home because it was a week after my operation.	Attentive / Feeling safe – P8 felt that the care was the same as the first time and was satisfied with the care received. P8 felt safe whilst she was in-patient and stated that everything was explained to her. Medical complication – P8 was readmitted with a chest infection and exacerbation of her COPD which were treated accordingly. Continuation of care – P8 was referred to the respiratory clinic to help manage her COPD. She continued with the package of care she had after her first discharge. Inevitable – P8 felt that her readmission could not have been prevented as she had been at home for 7 days, started returning to her routine and going out and felt that it was an unfortunate event.
Services	
Personally I don't think they could do anything to prevent my readmission. The services are quite organised because they arrange me a commode, a walking frame and a visit form community nurse and everything happened as they said it would. So obviously there is a pretty good liaison between the hospital and the community, so yes I believe services are working quite good.	Integrated – P8 felt that the services were organised and well connected as she had received the necessary equipment she needed and had the community nurse visit. P8 stated that everything happened the way she was told they would happen.

Participant 9: Female, Year of Birth: 1941, Marital status: Widow/er, Living arrangements: Alone, Postcode: SO19, Educational level: Secondary, Ethnicity: White, Comorbidities: 4- Hypertension, Osteoarthritis, Rheumatoid Arthritis, Aortic valve stenosis Medications: 10-more, MoCA: 27, GS: 50-35

Background: P9 was electively admitted for a hip replacement. On her discharge day, whilst being driven home by her daughter, she had a vehicular accident. She returned back to A&E where she had a hip X-ray and there was no obvious fracture so she was discharge home the same day. Following her surgery and accident, P9 was still in pain which was increasing gradually and on day 6th it was so severe that her grandson called 999 and an ambulance transferred her back to the hospital.

Key points:
- P9 did not like of changing wards
- Discharge issue/ Poor practice – Miscommunication or misleading information regarding the discharge transport
- On discharge day P9 had a vehicular accident/ went back to A&E and discharged again
- P9 had a planned visit by a district nurse but she was readmitted before the visit
- Readmission – P9 grandson contact 999 (ambulance)
- 2nd discharge was much better – more organised and a POC was allocated
- P9 mentioned of lack of community health centres

P9	First Admission		Post discharge		Readmission			Services	
	Elective: Fracture NOF		Home		Periprosthetic#/ Pain				
	LoS - 5d		6d		LoS - 8d				
Factors	Healthcare

Busy | Not included

Not ready | Functional limitation | Informal care

Follow-up

No POC | Attentive | Medical

Poor

practice

Early d/c | Avoidable | Disorganised | Let down |

First admission: (Elective) Fracture NOF – LoS 5 days	Interpretation:
I actually went in for a hip replacement on Monday and came out on Friday, on the way home we had an accident, a car came in my side and I went back to A&E that evening and went home. Everything was fine. The only thing that I don't agree, really don't agree was that they kept changing me wards. When they move you. I am not sure why but it wasn't just upsetting for me but for people around you too. The lady opposite me ended up crying because there wasn't anybody else around to talk with. It upset me, I was quite crossed. You are not asked if you want to moved, you are just told you that you are moving. The care was fine.

I really think it was the moving to different wards, because I think it has an impact on your wellbeing and getting better, I really do because you look like a family in that ward and all of sudden you are wiped away on another ward and when I was first moved to PAH I really hated it, I hated that small room that I stayed for that one night I was really angry... I did not feel involved with the decision for my d/c... I think that if I stayed for a couple of days longer, to make sure that I could manage home...because when I came home I couldn't manage to put my legs in the bed. My daughter need to come and help me with it. If I had a bit of more physio, because I had only walking and then right at the last they had me walking up float the stairs which it was a bit early and then they decided I can come home. Something it was mist there I think. | Healthcare / Busy / Changing wards – P9 was satisfied with the care received, however she was unhappy and upset that she was moved through multiple wards without being asked. Being moved from multiple wards may indicate that the wards were busy and had to empty beds to receive more patients.

Not included / Not ready – P9 did not feel involved in the discharge process and did not feel ready to go home as she need more physiotherapy practice with mobilising and getting in and out of bed. |

Post-discharge: 6 days	
I was able to do most of my daily activities by my own but I needed a bit of help. Like getting in and out of bed, washing and drying my legs and getting dressed as I couldn't bend myself. My daughter and friends helped me...I had people there all the time, my daughter stayed with me the first days, my friends stayed for a few days and then my grandson. He was the one who was here when the pain actually happened... I had only a DN arranged to visit me for changing of my dressing. The first time I haven't had anything in-place for therapy or care...I stood up to walk down the room and the pain was so severe, I knew that the hip hadn't come out of the socket because it would throw me to the ground. The pain was so severe that I didn't know what to do with myself. My grandson called an ambulance and I was taken back in... I came home but on the 6th day I was in excruciating pain and I was taken back in, and they found a fracture on top of the hip. I stayed longer the second time.	**Functional limitation [ADL's (17/20)] / informal care** – P9 was experiencing some functional limitations and need help to get in and out of bed, getting dressed and drying her legs. During her first days at home, she had friends and family staying with her to assist her. **Follow up / No POC** – P9 had an outpatient appointment planned 6 weeks after being discharged and a district nurse was meant to visit her 8 days post discharge to redress her wound, however, P9 was readmitted before then. **Readmission route** – following her surgery and accident, P9 was still in pain which was increasing gradually and on day 6th it was so severe that her grandson called 999 and an ambulance transferred her back to the hospital.
Readmission: Vehicular accident –Periprosthetic#/ Hip pain – LoS 8 days	
I was in the A&E the whole afternoon being really ill because the paramedics they filled me up with painkillers. They did x-rays again and they moved me in AMU for the night. The Dr there couldn't see any fracture and she was trying to figure out what was going on. They kept me in and they moved me to a different ward. A Dr there said that there is definitely something going on there he said he was going to study it and he was coming back to me. He came back and he said I want you to have a CT scan and there they found out the fracture on top of the hip. I was taken care very well. There weren't any differences really, the nurses any ward you are, they are very nice...The pain was terrific, d/c too early, not enough physio [the one first day they walked me to the door my face colour changed and they took me back to the bed, the next day they walked me and then I did the stairs and then they said I can go home], No POC in place and the way I was d/c...The nurse there would said to me about having transport but my daughter was coming to pick me up. The physios were to blame there, because my daughter thought I was coming out a bit early because I couldn't put my legs in or out of bed. They actually phoned her without me knowing anything about it and they said I want her to come and pick me up and they told me what my daughter said, that she was coming to pick me up. Those words were never spoken. And I was really crossed. Because have I listen to that nurse I would have transport home, and that accident might never happened we don't know. The physios were very pushy to get people out. My daughter and I we believe that I was d/c too early. You don't know I mean this accident I mean nobody, nobody could predict it, if you think about it it's like a comedy film. I think if I had transport home, my daughter was nervous, her driving is fine but she was worried about me.	**Attentive** – P9 was satisfied with the care received and felt that she was looked after very well. All the necessary investigation test were carried out to identify the cause of her pain. **Medical/ Poor practice / Early discharge** – P9 felt that she was discharged too early and without being given proper physio sessions. She also felt that a package of care should have been made available to her at her first discharge as she needed help. P9 was very disappointed about the way she was discharged as she felt rushed out of the hospital. P9 shared the details of her discharge and according to her, she was told that her daughter had called the staff and advised that she was picking her up whereas her daughter received a call from the physiotherapists advising her that P9 wanted to go home and that she wanted her daughter to pick her up. According to P9, she did not ask to be picked up. This indicates that there was either miscommunication between all parties involved or that P9's descriptions are accurate and healthcare professionals may have provided misleading information to her family. **Avoidable** – Based on P9's descriptions, her readmission could have been avoided if she stayed longer to the hospital and had more physio practice or if she had hospital transport home as her daughter was nervous about driving her home. **Continuation of care** – P9 was discharged with a package of care and physiotherapy at home.
Services	
I don't think the services are really connected, there are Dr's who don't work with the hospitals. A lot of community places were closed down. We had a health care place where people could go and they closed it down. So really, you only have your Dr or if you have an accident you go straight to A&E. If you had a health care place you could go there rather than the hospital which is full packed with people...I believe that if the d/c plan of my 2nd admission was done for my 1st, things could be very different. For example, if I had transport, some help in the morning and some physio in place as I had in the 2nd time... who knows. But I don't blame the hospital for anything.	**Disorganised / communication** – P9 felt that the services are not well connected and that there is a lack of community centres that could be between the GP centres and A&E. **Let down** – P9 felt let down, especially following the events of her discharge and the way she was discharged. P9 felt that had she had the discharge plan of her readmission on her first admission, this could have made a difference to her experience.

263

Participant 10: Female, Year of Birth: 1939, Marital status: Married, Living arrangements: Partner, Postcode: SO45, Educational level: Tertiary, Ethnicity: White, Comorbidities: 5- Hypertension, Chronic Obstructive Pulmonary Disease, Hypothyroidism, Hearing impairment, Lung Cancer, Medications: 6-10, MoCA: 28, GS: 22-20

Background: P10 was seen by her GP after complaints of lethargy and coughing. She was then diagnosed with a tumour on her right lung was electively admitted for a VATS bilobectomy. On the day of her discharge, the chest drain was connected to a flutter bag. P10 was at home and woke up in the evening to use the facilities and noticed that her face was a bit swollen. The morning after her daughter-in-law visited her and called the hospital as her family was worried as her face was still swollen. The flutter bag was not draining so she was asked to go back to the hospital and her family drove to the hospital.

Key points:
- Discharge issues – no coordinate discharge/ lengthy/ medication were pick up by daughter in-law
- Discharge issue – P10 felt that she was not included in neither of her discharge decisions
- A district nurse was meant to visit for stiches removal but P10 readmitted before the visit
- P10 was devastated by her readmission
- Readmission - P10 daughter in-law contact the UHS ward (ambulance)
- P10 believes that government should provide more to health and social services

P10	First Admission		Post discharge		Readmission			Services	
	Elective: VATS bilobectomy		Home		Surgical emphysema/ Infection				
	LoS – 7d		1d		LoS – 8d				
Factors	Healthcare Sleep Food	Not included Not ready	Functional limitation	Informal care Follow-up No POC	Attentive	Medical Early d/c	Avoidable	Disorganised	Let down

First admission: (Elective) VATS bilobectomy – LoS 7 days	Interpretation:
I went in to have my lung operation... Everybody was very kind and helpful, the only thing was day 3 I was in pain and agony. They gave my some IV painkillers, it was very very bad. The other thing was that pillows I was always sliding down and I didn't had the strength to pull myself up. The ward was fine, the only thing, there was a women creating merry hell, screaming and shouting during the night. They gave me earplugs but I couldn't sleep that night. They moved her the next morning. The food was ok but I couldn't eat at all I didn't had the appetite and I couldn't swallow very good. The dietician came and see me and we had a discussion about my options. *He just came around said you sat on that chair then you might sit on a chair home so you can go home. Like that. How did I feel? I didn't feel involved. It was a very off the cuff type thing. There was no conversation about it at all.* *We have been waited for ages for my medications and at the end we went home and my daughter-in-law went over later that day to pick them up.*	Healthcare – P10 was satisfied with the care she received and felt that the healthcare professionals were kind and helpful. P10's needs were addressed adequately for example when she was struggling with pain, she was given painkillers and was seen by a dietitian when she stated that she had swallowing difficulties. Sleep – P10 struggled with sleep on the first night due to another patient. She was given earplugs but still couldn't sleep that night and the other patient was moved the next day. Food – P10 was given options and advice by a dietitian as she was struggling with her appetite and swallowing. Not included / Not ready – P10 was not involved in the decision to be discharged and her description indicated that she felt emotional about the way the decision was made and the comments made to her that since she was sitting at a chair in the hospital she could do the same at home. She did not feel ready to go home and was not expecting to be discharged. Discharge delays – P10 was waiting for her medication in order to be able to go home and due to delays, she ended up going home and her daughter-in-law driving later to collect them.

Post-discharge: 1 day	
I came home went to bed, used the toilet once during the night and next day I was readmitted, so I didn't had any chance to wash or do anything else. ...Yes my husband and daughters in-laws... ...Yes a district nurse was planned to come over... *I went to bed and at some point I got up to go to the toilet and I notice that my face was a bit swell. My daughter in-law came over and we called the hospital. They asked if anything is draining in the flutter bag but nothing was draining and I was readmitted again. It broke my heart, I was so comfortable at home and I didn't want to go back. It was lovely there but I didn't want to go... I just sat there and I cried, I want to go home.*	**Functional limitation [ADL's (15/20)] / Informal care** – P10 had functional limitations and help at home, however, due to her short stay at home no help was provided as she was readmitted 1 day after being discharged. **Follow up / No POC** – P10 had a thoracic surgery follow up a month after the operation and a district nurse visit for drain and stiches removal. She had no package of care planned. **Readmission route** – P10 was at home and woke up in the evening to use the facilities and noticed that her face was a bit swollen. The morning after her daughter-in-law visited her and called the hospital as her family was worried as her face was still swollen. The flutter bag was not draining so she was asked to go back to the hospital and her family drove to the hospital. **Disappointment** – P10 was very disappointed that she had to be readmitted
Readmission: Surgical emphysema/ infection – LoS 8 days	
Another drainage was inserted and the care was the same. When we arrive they expected as, they send as for x-ray and then I was admitted to the ward. I was impressed of how everything was in-place. *If I was discharge a couple of days later. Although I would have liked to go home, but what transpires after was this infection that kept me in so I would have rather staying for a couple of more days and them saying we can't let you go you have an infection and that didn't happen.* *No, since I got discharge I don't think anything could prevent my readmission. It wasn't only the swelling I had an infection too. The worst thing was being admitted during the night and the pain. Also the disappointment of going back again.*	**Attentive** – P10 was satisfied with the care and was impressed with how organised everything was during her readmission process. **Medical complications** – P10 was readmitted with an infection and a surgical emphysema following her first admission. **Early discharge / Avoidable** – P10 felt that if she her discharged had been delayed, the infection could have been caught and thus her readmission would have been prevented. P10 felt that since she had been discharged, being readmitted was inevitable and had she been discharged later it could have been prevented. It has been noted that P10 had been fitted with a flutter bag on the day of her discharged. Based on these details and the fact that she was readmitted just 1 day after her discharge, it could be argued that her readmission could have been avoided. **Continuation of care** – P10 had district nurse visits planned to change the dressing around the drain every 48 hours. She also had a thoracic surgery follow up appointment.
Services	
I don't think they are working together, social services are not doing as much as they should. If I hadn't had my husband here I wouldn't be able to survive all this. My kids are not living local so it's just me and my husband. They just asked me if I live alone or not. They haven't spoken with my husband about the discharge plan, I just call him to pick me up. *Personally I think that the government needs to help them more in order to provide more.*	**Disorganised services** – P10 felt that the services are not working together. She felt that if she did not have her husband's assistance, she wouldn't have been able to cope. P10 was asked if she was living alone or not, however, no instructions were given to her or her husband about the discharge. **Poor discharge / let down** – P10 was not involved during the discharge process and she felt let down about the way the discharge was decided. P10 was very emotional when she had to be readmitted and if she had a more inclusive discharge process, this could have been avoided.

Appendix 15: Phase 2 REC approval

NHS

Health Research Authority

East of England - Essex Research Ethics Committee
The Old Ch
Royal Standard F
Nottinc
NG1

Please note: This is the
favourable opinion of the
REC only and does not allow
you to start your study at NHS
sites in England until you
receive HRA Approval

18 June 2018

Mr Fanis Stavrou
University of Southampton
University of Southampton
Faculty of Health Sciences
Southampton
SO17 1BJ

Dear Mr Stavrou

Study title:	"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"
REC reference:	18/EE/0152
IRAS project ID:	202824

Thank you for your letter of 12 June 2018, responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

1. Please add information to the Participant Information Sheet to state that, unfortunately, it will not be possible to reimburse participants for their travel expenses

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System, at www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" above).

Approved documents

The documents reviewed and approved by the Committee are:

Document	Version	Date
Copies of advertisement materials for research participants [A28_Poster_Phase 2_V1.1.docx]	1.1	01 February 2018
Covering letter on headed paper [REC cover letter]	1.1	02 June 2018
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [A76_UoS_Professional Indemnity and Clinical Trials Insurance]	1	06 April 2018
Interview schedules or topic guides for participants [A13_Interview schedule final_4.1]	4.1	01 October 2017
IRAS Application Form [IRAS_Form_18042018]		18 April 2018
IRAS Checklist XML [Checklist_12062018]		12 June 2018
Letter from sponsor [sponsor letter]	1	10 April 2018
Letters of invitation to participant [A27_Letter UHS_Phase 2_V1.1.docx]	1.1	01 February 2018
Letters of invitation to participant [A27_Letter UoS_Phase 2_V1.1.docx]	1.1	01 February 2018
Other [Declaration on Exemption of a SoA and SoE]		02 September 2016
Participant consent form [A30.1_Consent form_Phase 2_V2.2]	2.2	20 May 2018
Participant information sheet (PIS) [A30.1_Participant Information	2.2	20 May 2018

Sheet _Phase 2_V2.2]		
Referee's report or other scientific critique report [A54.1_Milestone 3_Peer-Review_p.1.pdf]	1	22 February 2017
Referee's report or other scientific critique report [A54_1Milestone 3_Peer-Review_p.2.pdf]	1	22 February 2017
Research protocol or project proposal [Protocol_Phase 2_V2.2]	2.2	20 May 2018
Summary CV for Chief Investigator (CI) [A3.1_FStavrou_Curriculum Vitae]	1.1	09 April 2018
Summary CV for student [A3.1_FStavrou_Curriculum Vitae.doc]	1	06 April 2018
Summary CV for supervisor (student research) [A2.1-DSamuel_ Curriculum Vitae.docx]	1	06 April 2018
Summary of any applicable exclusions to sponsor insurance (non-NHS sponsors only) [Insurance Certificate]		24 July 2017
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Gantt chart_V5.1]	5.1	01 February 2018

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance
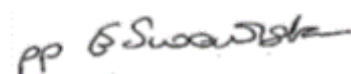
We are pleased to welcome researchers and R & D staff at our RES Committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

18/EE/0152	Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely

pp G Swoawsote

Dr Gerry Kamstra
Vice Chair

Email:	NRESCommittee.EastofEngland-Essex@nhs.net
Enclosures:	"After ethical review – guidance for researchers"
Copy to:	Mrs Diana Galpin
	Mrs Jennifer Peach , R&D Department University Hospital Southampton NHS Foundation Trust SGH - Level E, Laboratory & Pathology Block, SCBR - MP 13

Appendix 16: Phase 2 HRA approval

Ymchwil Iechyd
a Gofal Cymru
Health and Care
Research Wales

NHS
Health Research Authority

Mr Fanis Stavrou
University of Southampton
Faculty of Health Sciences
Southampton
SO17 1BJ

Email: hra.approval@nhs.net
Research-permissions@wales.nhs.uk

26 June 2018

Dear Mr Stavrou

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"
IRAS project ID:	202824
REC reference:	18/EE/0152
Sponsor:	University of Southampton

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

How should I continue to work with participating NHS organisations in England and Wales?
You should now provide a copy of this letter to all participating NHS organisations in England and Wales, as well as any documentation that has been updated as a result of the assessment.

Following the arranging of capacity and capability, participating NHS organisations should **formally confirm** their capacity and capability to undertake the study. How this will be confirmed is detailed in the "*summary of assessment*" section towards the end of this letter.

You should provide, if you have not already done so, detailed instructions to each organisation as to how you will notify them that research activities may commence at site following their confirmation of capacity and capability (e.g. provision by you of a 'green light' email, formal notification following a site initiation visit, activities may commence immediately following confirmation by participating organisation, etc.).

It is important that you involve both the research management function (e.g. R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details of the research management function for each organisation can be accessed here.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within the devolved administrations of Northern Ireland and Scotland.

IRAS project ID	202824

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) has been sent to the coordinating centre of each participating nation. You should work with the relevant national coordinating functions to ensure any nation specific checks are complete, and with each site so that they are able to give management permission for the study to begin.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?
The document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:
- Registration of research
- Notifying amendments
- Notifying the end of the study
The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

I am a participating NHS organisation in England or Wales. What should I do once I receive this letter?
You should work with the applicant and sponsor to complete any outstanding arrangements so you are able to confirm capacity and capability in line with the information provided in this letter.

The sponsor contact for this application is as follows:

Name: Fanis Stavrou
Email: fs1r12@soton.ac.uk

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **202824**. Please quote this on all correspondence.

Yours sincerely

Michael Higgs
Assessor

Email: hra.approval@nhs.net

Copy to: Diana Galpin, University of Southampton (Sponsor)
               Jennifer Peach, University Hospital Southampton NHS Foundation Trust (R&D office)

IRAS project ID	202824

List of Documents

The final document set assessed and approved by HRA and HCRW Approval is listed below.

Document	Version	Date
Copies of advertisement materials for research participants [Poster]	1.1	01 February 2018
Covering letter on headed paper [REC cover letter]	1.1	02 June 2018
Evidence of Sponsor insurance or indemnity (non-NHS Sponsors only)		06 April 2018
Evidence of Sponsor insurance or indemnity (non-NHS Sponsors only)		24 July 2017
Interview schedules or topic guides for participants	4.1	01 October 2017
IRAS Application Form [IRAS_Form_18042018]		18 April 2018
Letter from sponsor		10 April 2018
Letters of invitation to participant [UHS]	1.1	01 February 2018
Letters of invitation to participant [UoS]	1.1	01 February 2018
Other [Declaration on Exemption of a SoA and SoE]		02 September 2016
Participant consent form	2.2	20 May 2018
Participant information sheet (PIS)	2.3	19 June 2018
Referee's report or other scientific critique report [Peer Review]		22 February 2017
Research protocol or project proposal	2.2	20 May 2018
Summary CV for Chief Investigator (CI) [Fanis Stavrou]		06 April 2018
Summary CV for supervisor (student research) [Dinesh Samuel]		23 February 2018
Summary, synopsis or diagram (flowchart) of protocol in non-technical language	5.1	01 February 2018

Summary of assessment

The following information provides assurance to you, the sponsor and the NHS in England and Wales that the study, as assessed for HRA and HCRW Approval, is compliant with relevant standards. It also provides information and clarification, where appropriate, to participating NHS organisations in England and Wales to assist in assessing, arranging and confirming capacity and capability.

Assessment criteria

Section	Assessment Criteria	Compliant with Standards	Comments
1.1	IRAS application completed correctly	Yes	No comments
2.1	Participant information/ consent documents and consent process	Yes	No comments
3.1	Protocol assessment	Yes	No comments
4.1	Allocation of responsibilities and rights are agreed and documented	Yes	As a single site study where that site has joint research office or similar arrangements with the sponsoring university, study specific agreements are not expected to be used.
4.2	Insurance/indemnity arrangements assessed	Yes	No comments
4.3	Financial arrangements assessed	Yes	No application for external funding has been made. The sponsor does not intend to make funds available to participating NHS organisations.
5.1	Compliance with the Data Protection Act and data security issues assessed	Yes	No comments
5.2	CTIMPS – Arrangements for compliance with the Clinical Trials Regulations assessed	Not Applicable	No comments
5.3	Compliance with any applicable laws or regulations	Yes	No comments
6.1	NHS Research Ethics Committee favourable opinion received for applicable studies	Yes	No comments
6.2	CTIMPS – Clinical Trials Authorisation (CTA) letter received	Not Applicable	No comments
6.3	Devices – MHRA notice of no objection received	Not Applicable	No comments

Section	Assessment Criteria	Compliant with Standards	Comments
6.4	Other regulatory approvals and authorisations received	Not Applicable	No comments

Participating NHS Organisations in England and Wales

This provides detail on the types of participating NHS organisations in the study and a statement as to whether the activities at all organisations are the same or different.

There is a single participating NHS organisation, which shall act as a participant identification centre. If this study is subsequently extended to other NHS organisation(s) in England or Wales, an amendment should be submitted, with a Statement of Activities and Schedule of Events for the newly participating NHS organisation(s) in England or Wales.

The Chief Investigator or sponsor should share relevant study documents with participating NHS organisations in England and Wales in order to put arrangements in place to deliver the study. The documents should be sent to both the local study team, where applicable, and the office providing the research management function at the participating organisation. Where applicable, the local LCRN contact should also be copied into this correspondence.

If chief investigators, sponsors or principal investigators are asked to complete site level forms for participating NHS organisations in England and Wales which are not provided in IRAS, the HRA or HCRW websites, the chief investigator, sponsor or principal investigator should notify the HRA immediately at hra.approval@nhs.net or HCRW at Research-permissions@wales.nhs.uk. We will work with these organisations to achieve a consistent approach to information provision.

Principal Investigator Suitability

This confirms whether the sponsor position on whether a PI, LC or neither should be in place is correct for each type of participating NHS organisation in England and Wales, and the minimum expectations for education, training and experience that PIs should meet (where applicable).

There is no expectation for a Principal Investigator or Local Collaborator at participating NHS organisations.

HR Good Practice Resource Pack Expectations

This confirms the HR Good Practice Resource Pack expectations for the study and the pre-engagement checks that should and should not be undertaken

All activity at NHS sites shall be conducted by members of the care team who will have appropriate access to personally-identifiable information, in order to conduct participant identification activity. Therefore, access arrangements and pre-engagement checks will not be relevant to this study.

Other Information to Aid Study Set-up

This details any other information that may be helpful to sponsors and participating NHS organisations in England and Wales to aid study set-up.

The applicant has indicated that they do not intend to apply for inclusion on the NIHR CRN Portfolio.

Appendix 17: Phase 2 Sponsor

UNIVERSITY OF
Southampton

10ᵗʰ April 2018

title: 25487

bmission number: Exploring and investigating older people's experiences and factors associated with
readmission: a mixed methods study

iting to confirm that the University of Southampton is prepared to act as Research Sponsor for this
nder the terms of the Department of Health Research Governance Framework for Health and Social
nd edition 2005). We encourage you to become fully conversant with the terms of the Research
ance Framework by referring to the Department of Health document which can be accessed at:

ebarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/P
ons/PublicationsPolicyAndGuidance/DH_4108962

study has been designated a Clinical Trial of an Investigational Medicinal Product, I would like to take
ortunity to remind you of your responsibilities under Medicines for Human Use Act regulations
006), The Human Medicines Regulations (2012) and EU Directive 2010/84/EU regarding
covigilance If your study has been designated a 'Clinical Investigation of a Medical Device' you also
be aware of the regulations regarding conduct of this work.

guidance can be found: http://www.mhra.gov.uk/

versity of Southampton fulfils the role of Research Sponsor in ensuring management, monitoring and
g arrangements for research. I understand that you will be acting as the Principal Investigator
sible for the daily management for this study, and that you will be providing regular reports on the
s of the study to the Research Governance Office on this basis.

also familiarise yourself with the Terms and Conditions of Sponsorship on our website, including
g requirements of any Adverse Events to the Research Governance Office and the hosting
ation.

roject involves NHS patients or resources please send us a copy of your NHS REC and Trust approval
when available. Please also be reminded that you may need a Research Passport to apply for an
ry research contract of employment from the hosting NHS Trust. Both our Terms and Conditions of
rship and information about the Research Passport can be found on our website:

ww.soton.ac.uk/corporateservices/rgo

to comply with our Terms may invalidate your ethics approval and therefore the insurance agreement,
unding and/or Sponsorship of your study; your study may need to be suspended and disciplinary
dings may ensue.

do not hesitate to contact this office should you require any additional information or support. May I
e this opportunity to wish you every success with your research.

ncerely

alpin

h Integrity and Governance Team
02380 595058

ch & Innovation Services, University of Southampton, Highfield Campus, Southampton SO17
ited Kingdom
4 (0)23 8059 5058   www.southampton.ac.uk

Appendix 18: Phase 2 UoS insurance

University of
Southampton

Dr Dinesh Samuel
University of Southampton
Faculty of Health Sciences

Date: 6th April 2018

Dear Dr Samuel,

Professional Indemnity and Clinical Trials Insurance

Project Title: 'Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study' (Amendment 1)

ERGO Ref: 25487

Participant Type	Number of participants	Participant age group
Healthy Volunteers	30	Adult

Thank you for submitting the completed questionnaire and attached papers.

Having taken note of the information provided, I can confirm that this project will be covered under the terms and conditions of the above policy, subject to informed consent being obtained from the participating volunteers.

If there are any changes to the above details, please advise us, as failure to do so may invalidate the insurance.

Mrs Jenny King
Senior Insurance Services Assistant

Tel: 023 8059 2417
email: jsk1n08@soton.ac.uk
Finance Department, University of Southampton, Highfield Campus, Southampton SO17 1BJ U.K.
Tel: +44(0)23 8059 5000 Fax: +44(0)23 8059 2195 www.southampton.ac.uk

Appendix 19: Phase 2 UoS and UHS agreement

University Hospital Southampton **NHS**

NHS Foundation Trust

Clinical Governance
R&D Department
SCBR Level E, Laboratory & Pathology Block
Mailpoint 138
Southampton General Hospital
Southampton
SO16 6YD

Mikayala.King@uhs.nhs.uk
Tel: +44-(0)23 8120 8689
Fax: +44-(0)23 8120 8678

2nd September 2016

To whom it may concern,

Please take this letter as confirmation that, when UHS is the only NHS site involved in studies either sponsored by, or involving University of Southampton Employees or students, a Statement of Activities and Schedule of Events will not be required.

There exists a high level agreement between the Trust and the University which sets out the way in which joint studies are managed.

Yours Faithfully

Dr Mikayala King
Research Governance and Quality Assurance Manager

Appendix 20: Phase 2 Non-substantial amendment

Partner Organisations:

Health Research Authority, England
NHS Research Scotland
HSC Research & Development, Public Health Agency, Northern Ireland

NIHR Clinical Research Network, England
NISCHR Permissions Co-ordinating Unit, Wales

Notification of Non-Substantial/Minor Amendments(s) for NHS Studies

This template **must** only be used to notify NHS/HSC R&D office(s) of amendments, which are **NOT** categorised as Substantial Amendments.
If you need to notify a Substantial Amendment to your study then you **MUST** use the appropriate Substantial Amendment form in IRAS.

Instructions for using this template

- For guidance on amendments refer to http://www.hra.nhs.uk/research-community/during-your-research-project/amendments/
- This template should be completed by the CI and optionally authorised by Sponsor, if required by sponsor guidelines.
- This form should be submitted according to the instructions provided for NHS/HSC R&D at http://www.hra.nhs.uk/research-community/during-your-research-project/amendments/which-review-bodies-need-to-approve-or-be-notified-of-which-types-of-amendments/ . If you do not submit your notification in accordance with these instructions then processing of your submission may be significantly delayed.

1. Study Information

Full title of study:	"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study (Phase 2)"
IRAS Project ID:	202824
Sponsor Amendment Notification number:	25487. A3
Sponsor Amendment Notification date:	01/03/2019
Details of Chief Investigator:	
Name [first name and surname]	Fanis Stavrou
Address:	123 St Mary's road, flat 20
Postcode:	SO14 0BJ
Contact telephone number:	07593843345
Email address:	fs1r12@soton.ac.uk
Details of Lead Sponsor:	
Name:	University of Southampton
Contact email address:	rgoinfo@soton.ac.uk
Details of Lead Nation:	
Name of lead nation *delete as appropriate*	England
If England led is the study going through CSP? *delete as appropriate*	No
Name of lead R&D office:	R&D Department University Hospital Southampton NHS Foundation Trust Southampton General Hospital

Partner Organisations:
Health Research Authority, England   NIHR Clinical Research Network, England
NHS Research Scotland   NISCHR Permissions Co-ordinating Unit, Wales
HSC Research & Development, Public Health Agency, Northern Ireland

2. Summary of amendment(s)
This template **must only** be used to notify NHS/HSC R&D office(s) of amendments, which are **NOT** categorised as Substantial Amendments.
If you need to notify a Substantial Amendment to your study then you **MUST** use the appropriate Substantial Amendment form in IRAS.

No.	Brief description of amendment *(please enter each separate amendment in a new row)*	Amendment applies to *(delete/ list as appropriate)*		List relevant supporting document(s), including version numbers *(please ensure all referenced supporting documents are submitted with this form)*		R&D category of amendment *(category A, B, C) For office use only*
		Nation	Sites	Document	Version	
1	Add Dr Harnish Patel as a Principal Investigator of the study.	England	All sites or list affected sites	CV and GCP	1.1	
2						
3						
4						
5						

[Add further rows as required]

3. Declaration(s)

Declaration by Chief Investigator

- I confirm that the information in this form is accurate to the best of my knowledge and I take full responsibility for it.

- I consider that it would be reasonable for the proposed amendment(s) to be implemented.

Signature of Chief Investigator: *F.Stavrou*

Print name: Fanis Stavrou

Date 19/03/2019

Appendix 21: Phase 2 PIS-P2

UNIVERSITY OF
Southampton

NHS
University Hospital Southampton
NHS Foundation Trust

Participant Information Sheet

Study Title:

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"

Researcher: Fanis Stavrou
Supervisors: Dr Dinesh Samuel and Professor Jo Adams
ERGO Ethics number: 25487
IRAS Project ID: 202824

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

My name is Fanis Stavrou and I am doing this research study as part of my Clinical Doctorate at the University of Southampton. I am interested in exploring what factors matters the most to older people who had the experience of hospital readmission. The overall aim of this study is to look what factors matters the most to older people who had the experience of hospital readmission and examine whether these factors are collected by associate services. I am doing this study to identify any issues or problems that people deal with, so they can be avoided or minimized. The study involves people over 65 years old, who have had the experience of unplanned hospital readmission within a period of 30 days, and provides the opportunity to explore the main factors that mattered the most to them, and led to their readmission.

Why have I been asked to participate?

You have been invited because the research is based on the age group that you belong to, have two or more chronic conditions and you have been admitted to the hospital twice in a period of 30 days within the last 12-18 months. We would value hearing your opinions about your experience of hospital readmission.

What will happen to me if I take part?

You may decide if you want to take part in the research study within a week from receiving this document. During this time you may wish to discuss with friends and family and gather any questions relating to your participation. I will then contact you to confirm your eligibility and to answer any questions you may have about the research. If you have received an invitation letter during your stay in UHS hospital, you should contact the researcher a week after your discharge.

A mutually convenient date and time to meet will be arranged. The place of the meeting will preferably be a room on the campus of the University of Southampton unless you are unable to travel to University of Southampton. In that case, a mutually convenient place to meet will be arranged. You will provide informed consent by completing the consent form at the meeting. Should you lose the capacity to consent for yourself, your participation will be withdrawn. The interview will last approximately 40-60 minutes.

At the beginning of the interview, three assessment tools will be used for testing your functional and health status, in order to see if the inclusion/exclusion criteria are met. The tools will be used only for descriptive purposes and this assessment session will last 30 – 40 minutes. The tools that will be used are: Activities of Daily Living (ADL) index, Grip strength (Jamar handgrip) and Montreal Cognitive Assessment (MoCA). Standard operating procedures and guidelines will be followed. The ADL index is a questionnaire that measures the performance of daily living activities. MoCA is also a questionnaire that assess cognitive ability. For these two questionnaires you will be asked to answer some questions. Jamar handgrip dynamometer is a devise that measures your muscle strength by using your grip. For this tool you will be asked to grip the hand dynamometer three times with each hand, in order to generate an average grip strength.

The face-to-face interview that follows will be anonymised and will last approximately 30 – 40 minutes. The interview will be audio recorded and transcribed. Both the audio recording and transcription will be anonymous as all the participants will be assign with a code name in order to ensure your anonymity. Direct quotes may be used for the final thesis of my Doctorate of Clinical Practise, and although they will be anonymised I cannot guarantee that they will not be identifiable. Quotes will be chosen carefully in order to protect your identity.

Are there any benefits in my taking part?

There are no benefits for you personally but the research will help understand older people's views and preferences about hospital readmission. Unfortunately, it will not be possible to reimburse any of your travel expenses.

Are there any risks involved?

There are not any particular risks involved.

What data will be collected?

The researcher will collect data in regards to your year of birth, gender, educational level, marital status, living arrangements, ethnicity, and postcode prefix. The particular information are collected in order to create a participant profile and will not be used individually. Furthermore, the interview questions will focus on exploring your experiences. Last, the three assessment tools mentioned previously will only be used for descriptive reasons.

Please be advised that your participation will be confidential and the information you provide will be stored in the University for 10 years, in accordance with the University of Southampton Research Data Management Policy. All files containing any personal data will be made anonymous. Data will be stored on a password protected computer to which only the researcher will have access. Also, a hard copy of your consent form will be securely stored in a locked filing cabinet within the post-graduate researcher office. The interview recordings will be destroyed once they have been transcribed.

Will my participation be confidential?

Further to the above, your participation and the information we collect about you during the course of the research will be kept strictly confidential. Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to sign a consent form to show you have agreed to take part. If you are interested on participating in this research study please free to contact the researcher. DClinP student Fanis Stavrou

Tel: **07808577063** and Email: fs1r12@soton.ac.uk

What happens if I change my mind?

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights being affected. You are under no obligation at all to take part in this research. Even after agreeing to take part you are free to change your mind and withdraw from the research at any time. You may terminate the interview or decline to answer any question you don't wish to answer. If you decided that you wish to withdraw any data collected up to the point of withdraw will be destroyed.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent. Your data will not be used for future studies. If you wish to receive a copy of the results, please let the researcher know during the interview process.

Where can I get more information?

You can get more information regarding this research study by contacting the researcher or the supervisors. Contact details are listed below. Also, you can contact the Patient Advice and Liaison Service (PALS) for independent advice on taking part in this research. PALS offers confidential advice, support and information on health-related matters. They provide a point of contact for patients, their families and their carers. You can contact PALS Southampton on 02380777222.

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions.

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Researcher	Supervisors	Contact Address
Fanis Stavrou	Dr Dinesh Samuel	Faculty of Health Sciences:
DClinP candidate	Tel: 02380 598925	Building 45 University of
Tel: **07808577063**	Email :D.Samuel@soton.ac.uk	Southampton, Burgess Road, Highfield,
Email:fs1r12@soton.ac.uk	Professor Jo Adams	Southampton, SO171BJ
	Tel: 02380 595287	
	Email: ja@soton.ac.uk	

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at:
http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will not keep identifiable information about you after the study has finished after which time any link between you and your information will be removed.

For studies involving other recruitment sites the following information must be included:
University Hospital of Southampton will keep identifiable information about you from this study for 10 years after the study has finished. The EDGE database will automatically anonymize your data prior to 2028.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you for taking the time to read through the information sheet and considering taking part in the research.

Appendix 22: Phase 2 Consent form

UNIVERSITY OF
Southampton

NHS
University Hospital Southampton
NHS Foundation Trust

CONSENT FORM

Study title:

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study (Phase 2)"

Researcher name: Fanis Stavrou
ERGO Ethics reference: 25487
IRAS Project ID: 202824

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (27.Sep.2018/ V3.2) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw anytime for any reason without my participation rights being affected.	

Optional - please only initial the box(es) you wish to agree to:

I understand that I will not be directly identified in any reports of the research.	
I understand that I may be quoted directly in reports of the research but that I will not be directly identified (e.g. that my name will not be used).	
I understand that taking part in the study involves audio recording which will be transcribed and then destroyed for the purposes set out in the participation information sheet.	

Name of participant (print name)...

Signature of participant...

Date...

Name of researcher (print name)...

Signature of researcher ....

Date...

Appendix 23: Phase 2 Recruitment strategy

UNIVERSITY OF Southampton

NHS University Hospital Southampton NHS Foundation Trust

Recruitment strategy (Phase 2)

Duration: *Sep 2018 – Jul 2019*

Pathways:

1. **University Hospital Southampton (UHS)**
1.1. **UHS NHS Trust (Divisions and wards):**

Month/Year

Collaboration Letter

Dear...........................,

I am a Doctorate in Clinical Practise student at the University of Southampton and for the purposes of my doctoral program, I am conducting a research study titled *"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"*.

I am therefore looking to recruit participants who have had an experience of hospital readmission within 30 days in the last 18 months. I would be most grateful if you could grant permission for your staff nurses to provide the study information pack, to those patients that might meet the study criteria. Patients who express an interest in taking part in the study will be asked to contact the researcher 7 days after being discharged from hospital. Participation in this research study will be entirely the patient's choice and would have no impact on the care that they receive at the hospital. Additionally, I would like to place posters on noticeboards in your ward.

I do hope that you will feel able to support me in this. Please do not hesitate to contact me if you require further information about the research study.

I look forward to hearing from you.

Yours sincerely

Fanis Stavrou, MSc Gerontology, BSc Nursing, RGN

Faculty of Health Sciences, Building 45, University of Southampton,

Southampton, SO17 1BJ

If you confirm your agreement with the above recruitment strategy, please sign below.

Thank you in advance.

I agree that Staff Nurses of ....ward can provide the information pack to patients in the ward and I am happy for posters to be placed on noticeboards for the purposes of the study entitled "Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study".

Name:
Signature:
Position:
Date:

UNIVERSITY OF
Southampton

NHS
University Hospital Southampton
NHS Foundation Trust

ERGO Ethics No: 25487
IRAS Project ID: 202824

VOLUNTEERS WANTED PLEASE!!!

We would like to recruit people *aged 65 years and over*, who have 2 or more chronic conditions and have had an *experience of hospital readmission within 30 days in the last 18 months*.

You will have an interview which will last approximately 60 minutes. Also, we will assess Activities of daily living, Grip strength, and Cognitive Ability by using established measures.

We would like to hear from you!

Meetings can be carried out at the University of Southampton or at a mutually convenient place.

Appendix_2_Poster_Phase 2_V1.1_01Feb_2018_FS_DS_JA

For more information, please contact the researcher.
Email: fs1r12@soton.ac.uk   **Tel: 07808577063**

FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063	FANIS STAVROU fs1r12@soton.ac.uk 07808577063

Research information leaflet:

UNIVERSITY OF
Southampton

University Hospital Southampton
NHS
NHS Foundation Trust

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"

30 days

The overall aim of this study is to look at what factors matters the most to older people who have had the experience of non-elective readmission and examine whether these factors are collected by the associated services. The reason behind the study is to identify the issues that people experienced, so that these could inform services aimed at preventing readmission and could potentially be avoided or minimized.

ERGO ethics number: 25487   IRAS project ID: 202824

Inclusion Criteria	Exclusion Criteria
Age: 65 years and over	People with chronic illness at terminal stage (cancer, respiratory problems)
Comorbidities: two or more	Immobilised (*Amputees will not be excluded from this study since they are not immobilised but fully independent*)
No cognitive impairment	Cognitive impairment
Admitted to hospital twice within last 12-18 months in a period of 30 days (*2nd admission was non-elective*)	

If any of the Nurses notice that anyone of their patients might meet the criteria of the study:

1. Ask the patients if they are interested to receive Participant envelope for a research study about hospital readmission within 30 days.
2. Provide the participant envelope if patients express an interest in taking part in the study.

*Kindly note that the researcher could be contacted and arrange a visit if the patient wishes to do so.

Fanis Stavrou   E: fs1r12@soton.ac.uk   T: 07808577063

Research information booklet:
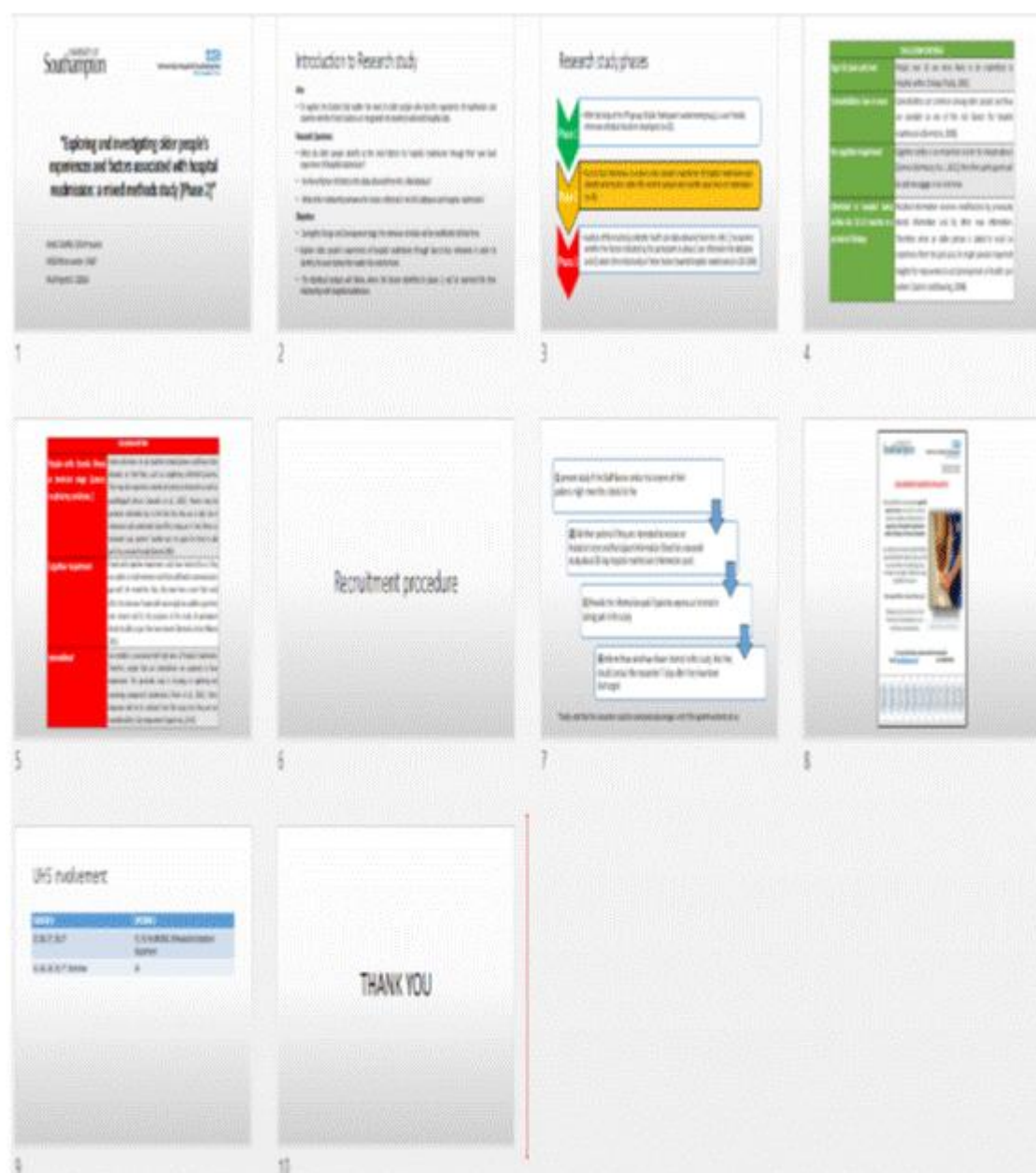
DIVISION B

MEDICINE

D5				
17/9/18	3 0	3/12/18	-	13/6/19	1(x)

D5					
17/9/18	3 / 0	3/12/18	-	13/6/19	1(x)
D6					
17/9/18	3 / 0	5/2/19	-	13/6/19	1(x)
D8					
17/9/18	3 / 0	5/2/19	-	13/6/19	-
D9					
17/9/18	3 / 0	14/12/18	-	13/6/19	-
E7					
17/9/18	3 / 0	15/1/19	-	14/6/19	-

MOP

G5					
14/9/18	3 / 0	30/11/18	-	5/6/19	-
G6					
14/9/18	3 / 0	30/11/18	-	5/6/19	-
G8					
14/9/18	3 / 0	29/11/18	-	5/6/19	1 / 1(/)
G9					
14/9/18	3 / 0	29/11/18	-	5/6/19	-
F7					
14/9/18	3 / 0	5/2/19	-	5/6/19	-
BRAMSHAW					
28/9/18	3 / 1(/)	28/11/18	1	3/6/19	1 / 1 (#)

DIVISION D

T&O

BROOKE					
	5		10		1
12/9/18	3(x)	14/12/18	5(/) / 3(#)	3/6/19	1(/) / 1(#)
F2					
	3		1		-
12/9/18	1(x)	5/2/19		13/6/19	
F3					
	3		-		-
27/9/18		18/1/19		14/6/19	1(x)
F4					
	3		/		/
24/9/18		N/A	/	N/A	/
			/		/

Cardiology

E4					
	3		1		
6/9/18		14/12/18	1(/)	3/6/19	1 (#) / 1 (/)

Total

UHS Wards = 16 wards	Envelopes = 65	Participant= 23
(/) Interview 10 = (8F-2M)	(#) Response/no interview 6 = (5F-1M)	(X) No response 7 = (5F-2M)

1.2. Principle investigator: Doctor from Medicine for Older People (MOP) - (28/3/19)

2. **UoS – Faculty of Health Sciences Register**

Volunteering group			
	28		4
28/9/18	1(#) / 0	15/1/19	0

3. **Libraries Posters - (18/12/18)**

4. **Radian Group- (17/12/18)**

5. **Community Centres – Social Groups**

Appendix 24: Phase 2 Invitation letter UHS

Invitation Letter (Phase 2)

Study title:

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"

Dear Sir/Madam,

We are sending this letter to invite you to take part in our research study. You are receiving this letter because we believe you are aged 65 or over and have been admitted to hospital twice within the last 12-18 months within a period of 30 days (the readmission was unplanned). My name is Fanis Stavrou, I am a nurse at the University Hospital of Southampton and a postgraduate student at the University of Southampton. I am carrying out a study exploring hospital readmissions as part of my Doctorate in Clinical Practice degree. The research study aims to explore the factors that matter the most to older people who have had the experience of hospital readmission and examine whether these factors are integrated into routinely collected health care data.

I have enclosed a copy of a Participant Information Sheet for you to read. This will tell you more about the study and help you decide if you wish to take part. If you do choose to take part in this study, you will be asked to contact me in order to arrange a meeting, 7 days after your discharge.

You can contact me using any of the ways described in the information sheet (email or phone call). I look forward to hearing from you.

Yours sincerely,

Fanis Stavrou, MSc Gerontology, BSc Nursing, RGN

Tel: 02380 524322, Email:fs1r12@soton.ac.uk

Faculty of Health Sciences, Building 45
University of Southampton
Southampton, SO17 1BJ

Appendix 25: Phase 2 Invitation letter UoS

UNIVERSITY OF Southampton

University Hospital Southampton
NHS Foundation Trust

Study Title:

"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study (Phase 2)"

Dear Sir/Madam,

As you are a member of the Faculty of Health Sciences Participant Register, we are sending this letter to invite you to take part in our study which is about older people and 30 day hospital readmission within the last 12-18 months.

My name is Fanis Stavrou and I am doing this research study as part of my Doctorate in Clinical Practice at the University of Southampton.

The overall aim of this study is to explore the factors that matter the most to older people who had the experience of hospital readmission and examine whether these factors are integrated into routinely collected health care data obtained from the hospital. At the beginning of the interviews, three assessment tools will be used for testing the functional and health status of you, so the inclusion/exclusion criteria are met. The tools will be used only for descriptive purposes and this assessment session will last 30 – 40 minutes. The face-to-face interviews that follow will be anonymised and will last approximately 30 – 40 minutes. The interviews will be recorded and transcribed. We would value hearing your experiences of your hospital readmission.

The interviews can be carried out in a room in the Highfield campus of the University of Southampton or a place more convenient to you. If you are interested in taking part, please contact me.

Contact details:

Fanis Stavrou (DClinP student)

Tel: **07808577063**

Email: fs1r12@soton.ac.uk

THANK YOU

Appendix 26: Phase 2 Participant information

Phase 2 Participant Information

	G	Year	PC	M/S	L/A	E/L	Com	1st Admission	LoS	D/C	POC	RA	2nd Admission	LoS	T (min)
1	F	1944	SO15	M	P	Sec	4	Dissection of endometrial ca/ Infection	4d	Mon	N	11d	Infection/ Thrombosis	20d	35.2
2	F	1949	DT3	S	A	Sec	3	VATS Lobectomy	4d	Sat	N	4d	Surgical emphysema	3d	14.55
3	M	1939	SO19	W	A	Sec	11	#NOF/fall	19d	Mon	R	24d	Orthostatic hypotension/ fall/ infection	20d	17.39
4	F	1950	SP10	D	C	Sec	6	TKR	4d	Sat	N	26d	Infection/ Pain and swelling	8d	16.47
5	M	1936	SO45	W	A	Ter	7	Hypoglycaemic episode-fall/ #Ankle/ Pain and Charcot's foot	21d	Fri	Y	1d	Pain and Charcot's foot	14d	34.06
6	F	1942	SO16	M	P	Sec	3	#Rib and #T7 / fall	1d	Fri	N	1d	Pain-difficult of breathing	7d	11.35
7	F	1942	SO30	W	A	Sec	3	#Fibula –ORIF/fall	5d	Tue	N	2d	Fall-pain in the groin	5d	21.49
8	F	1938	SO19	M	P	Sec	3	#NOF/fall	10d	Wed	Y	7d	Chest infection-difficult of breathing	7d	21.54
9	F	1941	SO19	W	A	Sec	4	#NOF	5d	Fri	N	6d	Vehicular accident on d/c - pain/ periprosthetic #	8d	43.09
10	F	1939	SO45	M	P	Ter	5	VATS Bilobectomy	3d	Thu	N	1d	Surgical emphysema/ infection/ pain	8d	40.44

Key:

G= Gender (Female, Male), **PC=** Postcode prefix, **M/S=** marital status (Married, Single, Widowed, Divorced), **L/A=** Living Arrangement (Partner, Children, Alone), **E/L=** Educational Level (Secondary, Tertiary), **Com=** Comorbidities, **LoS=** Length of Stay (in days), **D/C=** Discharge day, **POC=** Package of care (Yes, No, Rehabilitation Centre), **RA=** Period between admissions, **T=** Length of interview

Comorbidities and Past medical history:

P1 [4] VTE, Osteoporosis, Breast Ca 11y, Vision impairment
P2 [3] COPD, Lobectomy, 2019, Stress
P3 [10] Atrial fibrillation, Mitral regurgitation, Aortic regurgitation, Pulmonary-regurgitation, L ventricular systolic dysfunction, PE, Fracture NOF,
        Cellulitis-chest, AKI, Ca oesophagus
P4 [6] Osteoarthritis, Osteoporosis, Diabetes Mellitus Type 2, Ca Bowel 6y, Vision/Hearing impairment
P5 [7] Hypertension, L THR 2007, Diabetes Mellitus type 2, Hypothyroidism, Stress, Vision/Hearing impairment
P6 [3] COPD, Hypertension, Vision impairment
P7 [3] Hypertension, Hypercholesterolemia, Hypothyroidism
P8 [3] COPD, Asthma, Osteoporosis
P9 [4] Hypertension, Aortic valve stenosis, Osteoarthritis, Rheumatoid Arthritis
P10 [5] Hypertension, COPD, Hypothyroidism, Ca Lung, Hearing impairment

	C/V	Resp	M/S	End	Ca	V/H	Stress
1	x		x		x		
2					x		x
3	x		x		x		
4			x	x	x	x	
5	x		x	x		x	x
6	x	x				x	
7	x			x			
8		x	x				
9	x		x				
10	x	x		x	x	x	

C/V- Cardiovascular system – Hypertension, Hypercholesterolemia, Atrial fibrillation, Mitral regurgitation, Aortic regurgitation, Pulmonary regurgitation, L ventricular systolic dysfunction, Aortic valve stenosis, Pulmonary Embolism, Venous thromboembolism, Acute kidney injury
M/S - Musculoskeletal system – Osteoporosis, Osteoarthritis, Rheumatic arthritis, Hip replacement, Cellulitis
Resp – Respiratory system - Chronic obstructive Pulmonary disease, Asthma,
End – Endocrine system - Diabetes Mellitus type 2, Hypothyroidism
Ca- Cancer – Lung, Bowel, Oesophagus, Breast
V/H - Vision/Hearing impairment –

Appendix 27: Phase 2 Barthel Index of Activities of Daily Living

---

Barthel Index of Activities of Daily Living

Instructions: Choose the scoring point for the statement that most closely corresponds to the patient's current level of ability for each of the following 10 items. Record actual, not potential, functioning. Information can be obtained from the patient's self-report, from a separate party who is familiar with the patient's abilities (such as a relative), or from observation. Refer to the Guidelines section on the following page for detailed information on scoring and interpretation.

The Barthel Index

Bowels
0 = incontinent (or needs to be given enemata)
1 = occasional accident (once/week)
2 = continent
Patient's Score: _____

Bladder
0 = incontinent, or catheterized and unable to manage
1 = occasional accident (max. once per 24 hours)
2 = continent (for over 7 days)
Patient's Score: _____

Grooming
0 = needs help with personal care
1 = independent face/hair/teeth/shaving (implements provided)
Patient's Score: _____

Toilet use
0 = dependent
1 = needs some help, but can do something alone
2 = independent (on and off, dressing, wiping)
Patient's Score: _____

Feeding
0 = unable
1 = needs help cutting, spreading butter, etc.
2 = independent (food provided within reach)
Patient's Score: _____

Transfer
0 = unable – no sitting balance
1 = major help (one or two people, physical), can sit
2 = minor help (verbal or physical)
3 = independent
Patient's Score: _____

Mobility
0 = immobile
1 = wheelchair independent, including corners, etc.
2 = walks with help of one person (verbal or physical)
3 = independent (but may use any aid, e.g., stick)
Patient's Score: _____

Dressing
0 = dependent
1 = needs help, but can do about half unaided
2 = independent (including buttons, zips, laces, etc.)
Patient's Score: _____

Stairs
0 = unable
1 = needs help (verbal, physical, carrying aid)
2 = independent up and down
Patient's Score: _____

Bathing
0 = dependent
1 = independent (or in shower)
Patient's Score: _____

Total Score: _____

(Collin et al., 1988)

Scoring:
Sum the patient's scores for each item. Total possible scores range from 0 – 20, with lower scores indicating increased disability. If used to measure improvement after rehabilitation, changes of more than two points in the total score reflect a probable genuine change, and change on one item from fully dependent to independent is also likely to be reliable.

Sources:
- Collin C, Wade DT, Davies S, Horne V. The Barthel ADL Index: a reliability study. *Int Disabil Stud.* 1988;10(2):61-63.
- Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. *Md State Med J.* 1965;14:61-65.
- Wade DT, Collin C. The Barthel ADL Index: a standard measure of physical disability? *Int Disabil Stud.* 1988;10(2):64-67.

1

Guidelines for the Barthel Index of Activities of Daily Living

General
- The Index should be used as a record of what a patient **does**, NOT as a record of what a patient **could do**.
- The main aim is to establish degree of independence from any help, physical or verbal, however minor and for whatever reason.
- The need for supervision renders the patient <u>not</u> independent.
- A patient's performance should be established using the best available evidence. Asking the patient, friends/relatives, and nurses will be the usual source, but direct observation and common sense are also important. However, direct testing is not needed.
- Usually the performance over the preceding 24 – 48 hours is important, but occasionally longer periods will be relevant.
- Unconscious patients should score '0' throughout, even if not yet incontinent.
- Middle categories imply that the patient supplies over 50% of the effort.
- Use of aids to be independent is allowed.

Bowels (preceding week)
- If needs enema from nurse, then 'incontinent.'
- 'Occasional' = once a week.

Bladder (preceding week)
- 'Occasional' = less than once a day.
- A catheterized patient who can completely manage the catheter alone is registered as 'continent.'

Grooming (preceding 24 – 48 hours)
- Refers to personal hygiene: doing teeth, fitting false teeth, doing hair, shaving, washing face. Implements can be provided by helper.

Toilet use
- Should be able to reach toilet/commode, undress sufficiently, clean self, dress, and leave.
- 'With help' = can wipe self and do some other of above.

Feeding
- Able to eat any normal food (not only soft food). Food cooked and served by others, but not cut up.
- 'Help' = food cut up, patient feeds self.

Transfer
- From bed to chair and back.
- 'Dependent' = NO sitting balance (unable to sit); two people to lift.
- 'Major help' = one strong/skilled, or two normal people. Can sit up.
- 'Minor help' = one person easily, OR needs any supervision for safety.

Mobility
- Refers to mobility about house or ward, indoors. May use aid. If in wheelchair, must negotiate corners/doors unaided.
- 'Help' = by one untrained person, including supervision/moral support.

Dressing
- Should be able to select and put on all clothes, which may be adapted.
- 'Half' = help with buttons, zips, etc. (check!), but can put on some garments alone.

Stairs
- Must carry any walking aid used to be independent.

Bathing
- Usually the most difficult activity.
- Must get in and out unsupervised, and wash self.
- Independent in shower = 'independent' if unsupervised/unaided.

(Collin et al., 1988)

Appendix 28: Phase 2 Jamar handgrip

OPERATION:

When you use the JAMAR Hand Dynamometer, please remember that it is a precision instrument and its accuracy can be impaired by abuse. Have the subject use the wrist safety strap to minimize the chance of dropping the JAMAR.

To use the dynamometer:

1. Set the adjustable handle to the desired spacing. (Before moving the handle from one position to another, note that the handle clip is located at the lower (furthest) post from the gauge. If the handle is not replaced in the correct position, the readings will not be accurate.)

2. Rotate the red peak-hold needle counterclockwise to 0.

3. Let the subject arrange the instrument so that it fits in his hand comfortably. Ask him to squeeze with his maximum strength. The peak-hold needle will automatically record the highest force he has exerted.

4. After the subject has used the instrument, record the reading.

5. Reset the peak-hold needle to zero before recording new readings.
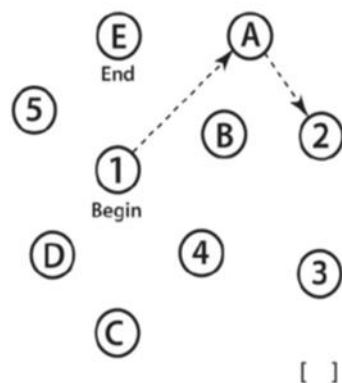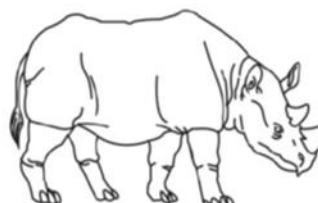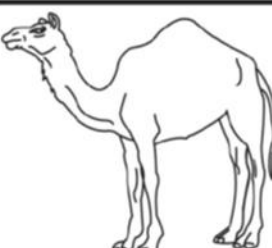
Suggested Standard Procedures

1. Sit or stand comfortable

2. Shoulder adducted and neutrally rotated

3. Elbow flexed to 90 degrees

4. Forearm in neutral position

5. Wrist in neutral position

6. Each test should be repeated 3 times

7. Use the average as the recorded result

Average Grip-Strength vs. Age

Age	Hand	Males Mean	SD	Females Mean	SD
6-7	R	32.5	4.8	28.6	4.4
	L	30.7	5.4	27.1	4.4
8-9	R	41.9	7.4	35.3	8.3
	L	39.0	9.3	33.0	6.9
10-11	R	53.9	9.7	49.7	8.1
	L	48.4	10.8	45.2	6.8
12-13	R	58.7	15.5	56.8	10.6
	L	55.4	16.9	50.9	11.9
14-15	R	77.3	15.4	58.1	12.3
	L	64.4	14.9	49.3	11.9
16-17	R	94.0	19.4	67.3	16.5
	L	78.5	19.1	56.9	14.0
18-19	R	108.0	24.6	71.6	12.3
	L	93.0	27.8	61.7	12.5
20-24	R	121.0	20.6	70.4	14.5
	L	104.5	21.8	61.0	13.1
25-29	R	120.8	23.0	74.5	13.9
	L	110.5	16.2	63.5	12.2
30-34	R	121.8	22.4	78.7	19.2
	L	110.4	21.7	68.0	17.7
35-39	R	119.7	24.0	74.1	10.8
	L	112.9	21.7	66.3	11.7
40-44	R	116.8	20.7	70.4	13.5
	L	112.8	18.7	62.3	13.8
45-49	R	109.9	23.0	62.2	15.1
	L	100.8	22.8	56.0	12.7
50-54	R	113.6	18.1	65.8	11.6
	L	101.9	17.0	57.3	10.7
55-59	R	101.1	26.7	57.3	12.5
	L	83.2	23.4	47.3	11.9
60-64	R	89.7	20.4	55.1	10.1
	L	76.8	20.3	45.7	10.1
65-69	R	91.1	20.6	49.6	9.7
	L	76.8	19.8	41.0	8.2
70-74	R	75.3	21.5	49.6	11.7
	L	64.8	18.1	41.5	10.2
75+	R	65.7	21.0	42.6	11.0
	L	55.0	17.0	37.6	8.9

Appendix 29: Phase 2 Montreal Cognitive Assessment (MoCA)

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

NAME :
Education :
Sex :
Date of birth :
DATE :

VISUOSPATIAL / EXECUTIVE

Copy cube [ ]

Draw CLOCK (Ten past eleven) (3 points)
[ ] Contour   [ ] Numbers   [ ] Hands   ___/5

NAMING
[ ]   [ ]   [ ]   ___/3

MEMORY — Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED	
1st trial						No points
2nd trial						

ATTENTION — Read list of digits (1 digit/ sec.).
Subject has to repeat them in the forward order [ ] 2 1 8 5 4
Subject has to repeat them in the backward order [ ] 7 4 2   ___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B   ___/1

Serial 7 subtraction starting at 100 [ ] 93   [ ] 86   [ ] 79   [ ] 72   [ ] 65
4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt**   ___/3

LANGUAGE — Repeat : I only know that John is the one to help today. [ ]
The cat always hid under the couch when dogs were in the room. [ ]   ___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words)   ___/1

ABSTRACTION — Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler   ___/2

DELAYED RECALL

Has to recall words **WITH NO CUE**	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only	___/5
Optional Category cue							
Multiple choice cue							

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City   ___/6

© Z.Nasreddine MD   www.mocatest.org   Normal ≥ 26 / 30   TOTAL ___/30
Administered by: _____   Add 1 point if ≤ 12 yr edu

298

Appendix 30: Phase 2 Themes and nodes list

Name	Description	Files	Ref
All about me without me	This superordinate theme reflects participants' feelings on their experiences of the hospital environment, discharge process and challenges they faced.		
Experiencing the healthcare environment	This subordinate theme refers to the experiences of participants within the hospital environment.	10	35
Busy wards	Participants' comments on how they found wards busy such as professionals' heavy workload, noisy environment, alarms going off, patients' talking etc.	8	10
Food	This covers comments regarding the taste and quality of the food in the hospital.	5	5
Healthcare	Participants' interactions with professionals such as nurses and comments about the overall care they received.	10	12
Sleep	Participant's ability to sleep within the hospital and any interferences from the environment.	3	3
Transport	This covers comments regarding transport issues (4-hour window).	5	5
Perceptions of discharge decisions	This subordinate theme refers to participants perceptions regarding discharge decisions and their involvement with them.	10	25
Included	Descriptions of how people were made to feel involved in discharge decisions.	3	3
Not included	Descriptions of how people felt not included in discharge decisions.	7	10
Not ready	This node covers comments suggesting that patients were not ready to be discharged.	5	6
Ready	This node covers comments that showed patients' readiness to be discharged.	5	6
Fragmented and ad hoc post-discharge support	This superordinate theme reflects patients' views of disintegrated support that lacks continuity after leaving the hospital.		
Continuation of care	This subordinate theme covers continuity of care after leaving the hospital.	10	25
Follow-up	This node covers comments on follow-up outpatient appointments.	9	9
Informal care	Participants discuss in which ways they received informal care by friends or relatives and how it made them feel.	10	11
No follow-up	This node covers comments on lack of follow-up appointments.	1	1
POC	Discussions on continuity of care and on having received a package of care upon discharge.	3	3
Rehabilitation	Going to rehabilitation as a discharge plan.	1	1
Daily living and post-discharge challenges	This subordinate theme covers daily living after discharge and any associated adjustments/challenges during the transitioning period.	10	11
Functional limitations	Patients share experiences regarding functional limitations and how they coped with them.	8	9
Independence	This node covers those that maintained independence post-discharge.	2	2
Pathways of hospital readmission	This subordinate theme reflects patients and their social network's behaviours and what helped they sought prior to being readmitted.	10	24

999	This node covers those that called 999.	4	4
Ambulance	This node covers those that used an ambulance.	7	7
GP	This node covers comments on contacting their GP.	1	1
Other	This node covers other sources that were used (other services such as volunteer service, other hospital).	4	4
Own transport	This node covers those who used their own transport to get to the hospital.	3	3
UHS ward	This node covers those that spoke to a UHS ward directly.	5	5
My readmission experience and what led me back	This superordinate theme reflects patients' readmission experience, what they attributed as factors that led to it, and if it could have been prevented.		
Greater attention led to better experiences	Discussions on how patients found their readmission experience better as they received greater attention by professionals.	10	17
Attentive care	This node covers comments on the care patients received during their readmission and compared it to their first admission.	10	17
Perceived risk factors of hospital readmission	This subordinate theme groups the nodes referring to the risk factors patients identified as the core reason for their readmission.	10	38
Early discharge	This node refers to early discharge as the reason for readmission.	6	10
Fall	This node refers to fall as the reason for readmission.	2	3
Infection	This node refers to infection as the reason for readmission.	5	5
Pain	This node refers to pain as the reason for readmission.	6	6
Poor practice	This node refers to poor practice as core reason for readmission.	5	9
SE	This node refers to surgical emphysema as the reason for readmission.	2	2
SOB	This node refers to shortness of breath as the reason for readmission.	2	3
Preventability of my readmission	This subordinate theme reflects participant's views on the preventability of their readmission.	10	11
Avoidable	This node covers comments suggesting that readmission could have been avoided.	6	6
Inevitable	This node covers comments suggesting that readmission was inevitable.	4	5
Segregated health and social services that are detached from people's needs	This superordinate theme reflects patients' views of the health and social services and how the two are divided and do not meet people's needs.	10	27
All-round care services	This subordinate theme discusses on how well health and social services work together.	2	4
Integrated	Participants shared views on how the health and social services are integrated.	2	4
Causes and effects of faulty integrated care services	This subordinate theme includes participants' views on the faulty services and the impact it had on them.	8	23
Disorganised	Participants argue the gaps and defects found in the system.	8	10
Let down	Participants' feelings on the impact a broken-down system has on them.	8	13

Appendix 31: Phase 3 East of England – Essex Research Ethic Committee (REC)

NHS
Health Research Authority

East of England - Essex Research Ethics Committee

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Please note: This is the favourable opinion of the REC only and does not allow the amendment to be implemented at NHS sites in England until the outcome of the HRA assessment has been confirmed.

24 October 2019

Mr Fanis Stavrou
University of Southampton
Faculty of Health Sciences Building 45 Highfield
Southampton
SO17 1BJ

Dear Mr Stavrou,

Study title:	**"Exploring and investigating older people's experiences and factors associated with hospital readmission: a mixed methods study"**
REC reference:	18/EE/0152
Amendment number:	**Substantial Amendment 1**
Amendment date:	**09 October 2019**
IRAS project ID:	202824

The above amendment was reviewed on 21 October 2019 by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Notice of Substantial Amendment (non-CTIMP)	Substantial Amendment 1	09 October 2019
Research protocol or project proposal [Protocol, Tracked]	V3.1, Tracked	27 July 2019

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

18/EE/0152:	Please quote this number on all correspondence

Yours sincerely,

[signature]

P.P
Dr Niki Bannister
Chair

E-mail: NRESCommittee.EastofEngland-Essex@nhs.net

Enclosures: List of names and professions of members who took part in the review

East of England - Essex Research Ethics Committee

Attendance at Sub-Committee of the REC meeting on 21 October 2019

Committee Members:

Name	Profession	Present
Dr Niki Bannister (Chair)	Retired Hospital Doctor	Yes
Dr Susan Smith	Research Adviser / Senior Research Officer	Yes

Also in attendance:

Name	Position (or reason for attending)
Miss Katie Arnold	Approvals Administrator

Appendix 32: Phase 3 Health Research Authority (HRA)

IRAS Project ID 202824. HRA Approval for the Amendment

NRESCommittee.EastofEngland-Essex@nhs.net
Thu 07/11/2019 09:37
To: Stavrou F. <fs1r12@soton.ac.uk>; Rgoinfo <rgoinfo@soton.ac.uk>

Dear Mr Stavrou,

IRAS Project ID:	202824
Short Study Title:	Older people and hospital readmission
Amendment No./Sponsor Ref:	Substantial Amendment 1
Amendment Date:	09 October 2019
Amendment Type:	Substantial Non-CTIMP

I am pleased to confirm **HRA and HCRW Approval** for the above referenced amendment.

You should implement this amendment at NHS organisations in England and Wales, in line with the conditions outlined in your categorisation email.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

Please contact hra.amendments@nhs.net for any queries relating to the assessment of this amendment.

Kind regards

Kevin Ahmed
HRA Approvals Manager
Health Research Authority
Ground Floor | Skipton House | 80 London Road | London | SE1 6LH
E.hra.amendments@nhs.net
W. www.hra.nhs.uk

Sign up to receive our newsletter HRA Latest.

Appendix 33: Phase 3 Removed values

UHS dataset [Oct/Nov/Dec-2019]

Dataset total: 6789 values

- **2593** duplicate values were removed from the dataset with **4196** unique values remaining
- **586** values were removed (passed away)
- **491** values removed (admitting wards: Adult Cardiothoracic Int/Care, Bournemouth Nuffield, C neuro,C4 Solent, C5, C6, C7 Hamilton Fairley, C7 Managed care D2, D5 Sleep lab, D8 temporally, Dermatology Day Unit, E5, Eyeoptegra Day Cases, Emergency theatre, F6, F8, Surgical admission unit, G6, G9, GICU, ISTC, Macmillan acute oncology, Medical high intensive unit, Neuro high intensive unit, Neurology day case, Radiology, Sarum Road Winchester, Urology centre recovery, Nuffield) and Palliative care.
- **267** removed due to dementia- Readmission: 20
- **87** removed with two elective admission for same day, emergency followed by elective
- **52** removed 1 chronic illness
- **5** removed months: July(x1) and Sep (x4)

Remaining 2708 (admission months – Oct [26], Nov [324], Dec [2394])**/ Readmission: 159**

UHS wards: ACUTE MEDICAL UNIT SHORT STAY, ACUTE SURGICAL UNIT EX SAU, AMU ADMISSIONS 1, AMU ADMISSIONS 2, AMU ADMISSIONS 3, BRAMSHAW WOMENS UNIT, CARDIAC HIGH DEPENDENCY UNIT, CATH LAB DAY CASE UNIT, CLINICAL DECISIONS UNIT AE, CORONARY CARE UNIT, D NEURO, D10 MEDICAL, D4 VASCULAR, D5 MEDICAL, D6 TEMPORARY, D7 MEDICAL, D9, DAY SURGERY UNIT, E LEVEL NEUROLOGY, E3 GREEN, E5 UPPER GI, EYE SHORT STAY UNIT, F11 MEDICAL, F4 DAY, F4 ORTHOPAEDICS, F7, HYPER ACUTE STROKE UNIT, MEDICAL ENDOSCOPY UNIT E LEVEL, NEURO REGIONAL TRANSFER UNIT, SAME DAY EMERGENCY CARE, SPIRE HOSPITAL, SURGICAL DAY UNIT, THE RESPIRATORY CENTRE, TRAUMA ADMISSIONS UNIT, UHS KNIGHTWOOD WARD LYMINGTON, VICTORIA HOUSE INFUSION UNIT, WARD E2, WARD E3, WARD E4, WARD E7, WARD E8, WARD F1, WARD F2, WARD F3, WARD F5, WARD G5

Appendix 34: Phase 3 Descriptive and frequencies statistics

"All admission group"

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	1367	50.5	50.5	50.5
	FEMALE	1341	49.5	49.5	100.0
	Total	2708	100.0	100.0	

Ethnic Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BRITISH	2330	86.0	86.0	86.0
	AFRICAN	2	.1	.1	86.1
	BANGLADESHI	4	.1	.1	86.3
	CARIBBEAN	2	.1	.1	86.3
	CHINESE	5	.2	.2	86.5
	INDIAN	29	1.1	1.1	87.6
	IRISH	14	.5	.5	88.1
	NOT ASKED/NOT STATED	243	9.0	9.0	97.1
	OTHER ASIAN BACKGROUND	3	.1	.1	97.2
	OTHER BLACK BACKGROUND	4	.1	.1	97.3
	OTHER MIXED BACKGROUND	7	.3	.3	97.6
	PAKISTANI	8	.3	.3	97.9
	WHITE AND ASIAN BACKGROUND	1	.0	.0	97.9
	ANY OTHER ETHINC GROUP	9	.3	.3	98.3
	ANY OTHER WHITE BACKGROUND	44	1.6	1.6	99.9
	WHITE AND BLACK CARIBBEAN	1	.0	.0	99.9
	WHITE/BLACK AFRICAN	2	.1	.1	100.0
	Total	2708	100.0	100.0	

Postcode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SO	2228	82.3	82.3	82.3
	PO	143	5.3	5.3	87.6
	BH	122	4.5	4.5	92.1
	GU	13	.5	.5	92.5
	SP	59	2.2	2.2	94.7
	TA	3	.1	.1	94.8
	GY	26	1.0	1.0	95.8
	R6	20	.7	.7	96.5
	SN	4	.1	.1	96.7
	CR	2	.1	.1	96.8
	NE	2	.1	.1	96.8
	ZZ	9	.3	.3	97.2
	DT	20	.7	.7	97.9
	TQ	3	.1	.1	98.0
	JE	5	.2	.2	98.2
	PE	1	.0	.0	98.2
	BA	12	.4	.4	98.7
	LE	2	.1	.1	98.7
	RH	3	.1	.1	98.9
	DN	2	.1	.1	98.9
	BN	8	.3	.3	99.2
	DY	1	.0	.0	99.3
	B6	1	.0	.0	99.3
	SE	1	.0	.0	99.3

TR	1	.0	.0	99.4
HP	1	.0	.0	99.4
LA	1	.0	.0	99.4
NE	1	.0	.0	99.5
HD	1	.0	.0	99.5
CA	1	.0	.0	99.6
BS	1	.0	.0	99.6
PL	1	.0	.0	99.6
S7	1	.0	.0	99.7
WA	1	.0	.0	99.7
DG	1	.0	.0	99.7
TN	1	.0	.0	99.8
SW	1	.0	.0	99.8
LD	1	.0	.0	99.9
GL	1	.0	.0	99.9
CM	1	.0	.0	99.9
LS	1	.0	.0	100.0
NP	1	.0	.0	100.0
Total	2708	100.0	100.0	

Age Groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	65-69	330	12.2	12.2	12.2
	70-74	642	23.7	23.7	35.9
	75-79	628	23.2	23.2	59.1
	80-84	524	19.4	19.4	78.4
	85+	584	21.6	21.6	100.0
	Total	2708	100.0	100.0	

Admitting Ward Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ACUTE MEDICAL UNIT SHORT STAY	60	2.2	2.2	2.2
	D4 VASCULAR	17	.6	.6	2.8
	SAME DAY EMERGENCY CARE	275	10.2	10.2	13.0
	UHS KNIGHTWOOD WARD LYMINGTON	117	4.3	4.3	17.3
	AMU ADMISSIONS 1	72	2.7	2.7	20.0
	AMU ADMISSIONS 2	116	4.3	4.3	24.3
	AMU ADMISSIONS 3	127	4.7	4.7	29.0
	MEDICAL ENDOSCOPY UNIT E LEVEL	373	13.8	13.8	42.7
	ACUTE SURGICAL UNIT EX SAU	155	5.7	5.7	48.5
	CLINICAL DECISIONS UNIT AE	261	9.6	9.6	58.1
	TRAUMA ADMISSION UNIT	86	3.2	3.2	61.3
	CORONARY CARE UNIT	126	4.7	4.7	65.9
	SPIRE HOSPITAL	31	1.1	1.1	67.1
	VICTORIA HOUSE INFUSION UNIT	2	.1	.1	67.2
	HYPER ACUTE STROKE UNIT	66	2.4	2.4	69.6
	CATH LAB DAY CASE UNIT	130	4.8	4.8	74.4
	DAY SURGERY UNIT	23	.8	.8	75.2
	WARD F5	20	.7	.7	76.0
	SURGICAL DAY UNIT	179	6.6	6.6	82.6
	D10 MEDICAL	21	.8	.8	83.4
	F4 ORTHOPAEDICS	12	.4	.4	83.8
	THE RESPIRATORY CENTRE	21	.8	.8	84.6
	F4 DAY	24	.9	.9	85.5
	NEURO REGIONAL TRANSFER UNIT	30	1.1	1.1	86.6
	EYE SHORT STAY UNIT	175	6.5	6.5	93.1
	WARD F3	19	.7	.7	93.8
	BRAMSHAW WOMENS UNIT	4	.1	.1	93.9
	WARD G5	1	.0	.0	93.9

	WARD E7	2	.1	.1	94.0
	D9	3	.1	.1	94.1
	WARD F1	17	.6	.6	94.8
	WARD E2	11	.4	.4	95.2
	D5 MEDICAL	1	.0	.0	95.2
	WARD F2	30	1.1	1.1	96.3
	WARD E3	23	.8	.8	97.2
	E LEVEL NEUROLOGY	6	.2	.2	97.4
	CARDIAC HIGH DEPENDENCY UNIT	17	.6	.6	98.0
	WARD E4	23	.8	.8	98.9
	D7 MEDICAL	1	.0	.0	98.9
	E3 GREEN	14	.5	.5	99.4
	WARD E8	2	.1	.1	99.5
	D6 TEMPORARY	4	.1	.1	99.6
	F11 MEDICAL	3	.1	.1	99.7
	E5 UPPER GI	1	.0	.0	99.8
	D NEURO	6	.2	.2	100.0
	Total	2707	100.0	100.0	
Missing	System	1	.0		
Total		2708	100.0		

Admission Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY GP	201	7.4	7.4	7.4
	EMERGENCY A+E	1231	45.5	45.5	52.9
	OTHER EMERGENCY ADMISSION	36	1.3	1.3	54.2
	EMERGENCY CONSULTANT O/P	18	.7	.7	54.9
	EM TX INPAT FROM OTHER HOS	29	1.1	1.1	55.9
	ELECTIVE WAITING LIST	898	33.2	33.2	89.1
	ELECTIVE PLANNED	173	6.4	6.4	95.5
	ELECTIVE BOOKED	31	1.1	1.1	96.6
	OTHER HEALTH CARE PROVIDER	86	3.2	3.2	99.8
	OTHER A+E WHERE NOT ADMITTED	5	.2	.2	100.0
	Total	2708	100.0	100.0	

Admission Source Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL RESIDENCE INCL NFA	2588	95.6	95.6	95.6
	OTHER NHS PROVIDER GENERAL A+E	109	4.0	4.0	99.6
	TEMP RESIDENCE EG HOTEL	5	.2	.2	99.8
	NON-NHS RUN HOSPITAL	6	.2	.2	100.0
	Total	2708	100.0	100.0	

Type of Patient Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY	1606	59.3	59.3	59.3
	DAY CASE	787	29.1	29.1	88.4
	INPATIENT (ELECTIVE ADMISSION)	315	11.6	11.6	100.0
	Total	2708	100.0	100.0	

LoS1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-3	1701	62.8	62.8	62.8
	4-7	346	12.8	12.8	75.6
	8+	661	24.4	24.4	100.0
	Total	2708	100.0	100.0	

Primary Diagnosis Code

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I Certain infectious and parasitic diseases [A00-B99]	56	2.1	2.1	2.1
	II Neoplasms [C00-D48]	104	3.8	3.8	5.9
	III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism [D50-D89]	37	1.4	1.4	7.3
	IV Endocrine, nutritional and metabolic diseases [E00-E90]	39	1.4	1.4	8.7
	V Mental and behavioural disorders [F00-F99]	16	.6	.6	9.3
	VI Diseases of the nervous system [G00-G99]	42	1.6	1.6	10.9
	VII Diseases of the eye and adnexa [H00-H59]	251	9.3	9.3	20.1
	VIII Diseases of the ear and mastoid process [H60-H95]	13	.5	.5	20.6
	IX Diseases of the circulatory system [I00-I99]	511	18.9	18.9	39.5
	X Diseases of the respiratory system [J00-J99]	280	10.3	10.3	49.8
	XI Diseases of the digestive system [K00-K93]	434	16.0	16.0	65.8
	XII Diseases of the skin and subcutaneous tissue [L00-L99]	41	1.5	1.5	67.4
	XIII Diseases of the musculoskeletal system and connective tissue [M00-M99]	150	5.5	5.5	72.9
	XIV Diseases of the genitourinary system [N00-N99]	120	4.4	4.4	77.3
	XVII Congenital malformations, deformations and chromosomal abnormalities [Q00-Q99]	6	.2	.2	77.5
	XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified [R00-R99]	260	9.6	9.6	87.1
	XIX Injury, poisoning and certain other consequences of external causes [S00-T98]	313	11.6	11.6	98.7
	XXI Factors influencing health status and contact with health services [Z00-Z99]	35	1.3	1.3	100.0
	Total	2708	100.0	100.0	

Main Specialty Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GENERAL MEDICINE	584	21.6	21.6	21.6
	CARDIOLOGY	297	11.0	11.0	32.5
	OPHTALMOLOGY	258	9.5	9.5	42.1
	GERIATRIC MEDICINE	305	11.3	11.3	53.3
	ORAL SURGERY	6	.2	.2	53.5
	TRAUMA & ORTHOPAEDICS	240	8.9	8.9	62.4
	ACCIDENT & EMERGENCY	222	8.2	8.2	70.6
	RESPIRATORY MEDICINE	50	1.8	1.8	72.5
	GASTROENTEROLOGY	98	3.6	3.6	76.1
	GENERAL SURGERY	268	9.9	9.9	86.0
	UROLOGY	78	2.9	2.9	88.8
	NEUROLOGY	52	1.9	1.9	90.8
	ENT	28	1.0	1.0	91.8
	CARDIOTHORACIC SURGERY	146	5.4	5.4	97.2
	NEIROSURGERY	40	1.5	1.5	98.7
	GYNAECOLOGY	19	.7	.7	99.4
	ANAESTHETICS	9	.3	.3	99.7
	OBSTETRICS	5	.2	.2	99.9
	NEPHROLOGY	3	.1	.1	100.0
	Total	2708	100.0	100.0	

Comorbidities Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-4	392	14.5	14.5	14.5
	5-7	604	22.3	22.3	36.8
	8+	1712	63.2	63.2	100.0
	Total	2708	100.0	100.0	

MEDGroup2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5	565	20.9	20.9	20.9
	6-10	1757	64.9	64.9	85.7
	11-15	265	9.8	9.8	95.5
	16-20	78	2.9	2.9	98.4
	21+	43	1.6	1.6	100.0
	Total	2708	100.0	100.0	

Discharge Day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MONDAY-THURSDAY	1749	64.6	64.6	64.6
	FRIDAY-SUNDAY	959	35.4	35.4	100.0
	Total	2708	100.0	100.0	

Discharge Alert Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GREEN	200	7.4	7.4	7.4
	AMBER	379	14.0	14.0	21.4
	RED	1475	54.5	54.5	75.8
	BLACK	654	24.2	24.2	100.0
	Total	2708	100.0	100.0	

Discharge Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ON MEDICAL ADVISE	2694	99.5	99.5	99.5
	DISCHARGE BY SELF OR RELATIVE	14	.5	.5	100.0
	Total	2708	100.0	100.0	

Discharge Destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL PLACE OF RESIDENCE	2507	92.6	92.6	92.6
	NHS NURSING HOME	19	.7	.7	93.3
	NON-NHS RUN HOSPITAL	4	.1	.1	93.4
	OTHER-GEN.WARD/ YOUNG PHYS.DIS.	136	5.0	5.0	98.4
	TEMPORARY PLACE OF RESIDENCE	23	.8	.8	99.3
	NON-NHS RUN RESIDENTIAL CARE	12	.4	.4	99.7
	LOCAL AUTHORITY PART 3 ACCOM.	1	.0	.0	99.8
	REPAT. FROM HIGH SEC PSY HOSP	1	.0	.0	99.8
	OTHER-MENTAL ILLNESS/ HANDICAP	4	.1	.1	100.0
	NHS HOSP PROVIDE-MED.SEC.UNIT	1	.0	.0	100.0
	Total	2708	100.0	100.0	

SMEAN(Followup)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	916	33.8	33.8	33.8
	N	1792	66.2	66.2	100.0
	Total	2708	100.0	100.0	

SMEAN(SCC)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	103	3.8	3.8	3.8
	N	2605	96.2	96.2	100.0
	Total	2708	100.0	100.0	

SMEAN(Livesalone)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	475	17.5	17.5	17.5
	N	2233	82.5	82.5	100.0
	Total	2708	100.0	100.0	

"Readmitted group"

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	72	45.3	45.3	45.3
	FEMALE	87	54.7	54.7	100.0
	Total	159	100.0	100.0	

Ethnic Group Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BRITISH	147	92.5	92.5	92.5
	BANGLADESHI	5	3.1	3.1	95.6
	NOT ASKED/NOT STATED	3	1.9	1.9	97.5
	IRISH	1	.6	.6	98.1
	ANY OTHER WHITE BACKGROUND	2	1.3	1.3	99.4
	CHINESE	1	.6	.6	100.0
	Total	159	100.0	100.0	

Postcode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SO	153	96.2	96.2	96.2
	PO	2	1.3	1.3	97.5
	BH	2	1.3	1.3	98.7
	GU	1	.6	.6	99.4
	SP	1	.6	.6	100.0
	Total	159	100.0	100.0	

AgeGroups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	65-69	19	11.9	11.9	11.9
	70-74	27	17.0	17.0	28.9
	75-79	35	22.0	22.0	50.9
	80-84	28	17.6	17.6	68.6
	85+	50	31.4	31.4	100.0
	Total	159	100.0	100.0	

Admitting Ward Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ACUTE MEDICAL UNIT SHORT STAY	6	3.8	3.8	3.8
	D4 VASCULAR	2	1.3	1.3	5.0
	SAME DAY EMERGENCY CARE	23	14.5	14.5	19.5
	UHS KNIGHTWOOD WARD LYMINGTON	3	1.9	1.9	21.4
	AMU ADMISSIONS 1	9	5.7	5.7	27.0
	AMU ADMISSIONS 2	12	7.5	7.5	34.6
	AMU ADMISSIONS 3	10	6.3	6.3	40.9
	MEDICAL ENDOSCOPY UNIT E LEVEL	6	3.8	3.8	44.7
	ACUTE SURGICAL UNIT EX SAU	19	11.9	11.9	56.6
	CLINICAL DECISIONS AE	20	12.6	12.6	69.2
	TRAUMA ADMISSIONS UNIT	7	4.4	4.4	73.6
	CORONARY CARE UNIT	10	6.3	6.3	79.9
	SPIRE HOSPITAL	1	.6	.6	80.5
	VICTORIA HOUSE INFUSION UNIT	2	1.3	1.3	81.8
	HYPER ACUTE STROKE UNIT	6	3.8	3.8	85.5
	CATH LAB DAY CASE UNIT	4	2.5	2.5	88.1
	DAY SURGERY UNIT	2	1.3	1.3	89.3
	WARD F5	1	.6	.6	89.9
	SURGICAL DAY UNIT	7	4.4	4.4	94.3
	D10 MEDICAL	2	1.3	1.3	95.6
	F4 ORTHOPAEDICS	1	.6	.6	96.2
	THE RESPIRATORY CENTRE	2	1.3	1.3	97.5
	F4 DAY	2	1.3	1.3	98.7
	NEURO REGIONAL TRANSFER UNIT	1	.6	.6	99.4
	EYE SHORT STAY UNIT	1	.6	.6	100.0
	Total	159	100.0	100.0	

Admission Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY GP	17	10.7	10.7	10.7
	EMERGENCY A+E	108	67.9	67.9	78.6
	OTHER EMERGENCY ADMISSION	3	1.9	1.9	80.5
	ELECTIVE WAITING LIST	25	15.7	15.7	96.2
	ELECTIVE BOOKED	1	.6	.6	96.9
	ELECTIVE PLANNED	3	1.9	1.9	98.7
	OTHER HEALTH CARE PROVIDER	2	1.3	1.3	100.0
	Total	159	100.0	100.0	

Admission Source Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL RESIDENCE INCL NFA	157	98.7	98.7	98.7
	OTHER NHS PROVIDER GENERAL A+E	2	1.3	1.3	100.0
	Total	159	100.0	100.0	

Type of Patient Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY	130	81.8	81.8	81.8
	DAY CASE	12	7.5	7.5	89.3
	INPATIENT (ELECTIVE ADMISSION)	17	10.7	10.7	100.0
	Total	159	100.0	100.0	

LoS1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-3	81	50.9	50.9	50.9
	4-7	36	22.6	22.6	73.6
	8+	42	26.4	26.4	100.0
	Total	159	100.0	100.0	

Primary Diagnosis Code

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I Certain infectious and parasitic diseases [A00-B99]	3	1.9	1.9	1.9
	II Neoplasms [C00-D48]	8	5.0	5.0	6.9
	III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism [D50-D89]	2	1.3	1.3	8.2
	V Mental and behavioural disorders [F00-F99]	3	1.9	1.9	10.1
	VI Diseases of the nervous system [G00-G99]	4	2.5	2.5	12.6
	VII Diseases of the eye and adnexa [H00-H59]	3	1.9	1.9	14.5
	IX Diseases of the circulatory system [I00-I99]	25	15.7	15.7	30.2
	X Diseases of the respiratory system [J00-J99]	27	17.0	17.0	47.2
	XI Diseases of the digestive system [K00-K93]	24	15.1	15.1	62.3
	XII Diseases of the skin and subcutaneous tissue [L00-L99]	6	3.8	3.8	66.0
	XIII Diseases of the musculoskeletal system and connective tissue [M00-M99]	12	7.5	7.5	73.6
	XIV Diseases of the genitourinary system [N00-N99]	7	4.4	4.4	78.0
	XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified [R00-R99]	18	11.3	11.3	89.3
	XIX Injury, poisoning and certain other consequences of external causes [S00-T98]	15	9.4	9.4	98.7
	XXI Factors influencing health status and contact with health services [Z00-Z99]	2	1.3	1.3	100.0
	Total	159	100.0	100.0	

Main Specialty Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GENERAL MEDICINE	36	22.6	22.6	22.6
	CARDIOLOGY	16	10.1	10.1	32.7
	OPHTHALMOLOGY	3	1.9	1.9	34.6
	GERIATRIC MEDICINE	21	13.2	13.2	47.8
	ORAL SURGERY	1	.6	.6	48.4
	TRAUMA & ORTHOPAEDICS	13	8.2	8.2	56.6
	ACCIDENT & EMERGENCY	20	12.6	12.6	69.2
	RESPIRATORY MEDICINE	7	4.4	4.4	73.6
	GASTROENTEROLOGY	6	3.8	3.8	77.4
	GENERAL SURGERY	20	12.6	12.6	89.9
	UROLOGY	6	3.8	3.8	93.7
	NEUROLOGY	4	2.5	2.5	96.2
	ENT	1	.6	.6	96.9
	CARDIOTHORACIC SURGERY	1	.6	.6	97.5
	NEUROSURGERY	3	1.9	1.9	99.4
	GYNAECOLOGY	1	.6	.6	100.0
	Total	159	100.0	100.0	

Comorbidities Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-4	8	5.0	5.0	5.0
	5-7	22	13.8	13.8	18.9
	8+	129	81.1	81.1	100.0
	Total	159	100.0	100.0	

MEDGroup2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5	54	34.0	34.0	34.0
	6-10	65	40.9	40.9	74.8
	11-15	26	16.4	16.4	91.2
	16-20	7	4.4	4.4	95.6
	21+	7	4.4	4.4	100.0
	Total	159	100.0	100.0	

Discharge Day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MONDAY-THURSDAY	104	65.4	65.4	65.4
	FRIDAY-SUNDAY	55	34.6	34.6	100.0
	Total	159	100.0	100.0	

Discharge Alert Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GREEN	10	6.3	6.3	6.3
	AMBER	26	16.4	16.4	22.6
	RED	88	55.3	55.3	78.0
	BLACK	35	22.0	22.0	100.0
	Total	159	100.0	100.0	

Discharge Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ON MEDICAL ADVICE	159	100.0	100.0	100.0

Discharge Destination Desc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL PLACE OF RESIDENCE	148	93.1	93.1	93.1
	OTHER-GEN.WARD/YOUNG PHYS.DIS.	8	5.0	5.0	98.1
	NHS NURSING HOME	1	.6	.6	98.7
	TEMPORARY PLACE OF RESIDENCE	2	1.3	1.3	100.0
	Total	159	100.0	100.0	

PostDCLoS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5	79	49.7	49.7	49.7
	6-10	43	27.0	27.0	76.7
	11-15	22	13.8	13.8	90.6
	16-20	10	6.3	6.3	96.9
	21-25	4	2.5	2.5	99.4
	26-30	1	.6	.6	100.0
	Total	159	100.0	100.0	

RA Ward Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AMU ADMISSIONS 1	11	6.9	6.9	6.9
	AMU ADMISSIONS 2	13	8.2	8.2	15.1
	AMU ADMISSIONS 3	12	7.5	7.5	22.6
	D4 VASCULAR	1	.6	.6	23.3
	SAME DAY EMERGENCY CARE	29	18.2	18.2	41.5
	CLINICAL DECISIONS UNIT AE	24	15.1	15.1	56.6
	ACUTE SURGICAL UNIT AE	26	16.4	16.4	73.0
	WARD F5	2	1.3	1.3	74.2
	ACUTE MEDICAL UNIT SHORT STAY	8	5.0	5.0	79.2
	TRAUMA ADMISSIONS UNIT	1	.6	.6	79.9
	D9	1	.6	.6	80.5
	E LEVEL NEUROLOGY	1	.6	.6	81.1
	CORONARY CARE UNIT	8	5.0	5.0	86.2
	HYPER ACUTE STROKE UNIT	3	1.9	1.9	88.1
	F4 DAY	3	1.9	1.9	89.9
	D5 MEDICAL	1	.6	.6	90.6
	GICU	1	.6	.6	91.2
	WARD F2	2	1.3	1.3	92.5
	WARD F1	3	1.9	1.9	94.3
	WARD F3	1	.6	.6	95.0
	E5 LOWER GI	1	.6	.6	95.6
	E3 GREEN	1	.6	.6	96.2
	EYE SHORT STAY UNIT	2	1.3	1.3	97.5
	WARD E4	1	.6	.6	98.1
	NEURO REGIONAL TRANSFER UNIT	1	.6	.6	98.7
	D10 MEDICAL	1	.6	.6	99.4
	BRAMSHAW WOMENS UNIT	1	.6	.6	100.0
	Total	159	100.0	100.0	

RA Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY A+E	120	75.5	75.5	75.5
	EMERGENCY GP	21	13.2	13.2	88.7
	EMERGENCY CONSULTANT O/P	2	1.3	1.3	89.9
	OTHER EMERGENCY ADMISSION	13	8.2	8.2	98.1
	OTHER HEALTH CARE PROVIDER	1	.6	.6	98.7
	OTHER A+E WHERE NOT ADMITTED	2	1.3	1.3	100.0
	Total	159	100.0	100.0	

RA Source Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL RESIDENCE INCL NFA	155	97.5	97.5	97.5
	OTHER HOSPITAL PROVIDER GENERAL A+E	3	1.9	1.9	99.4
	TEMP RESIDENCE EG HOTEL	1	.6	.6	100.0
	Total	159	100.0	100.0	

RA Type of Patient Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY	159	100.0	100.0	100.0

RALoS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-3	77	48.4	48.4	48.4
	4-7	36	22.6	22.6	71.1
	8+	46	28.9	28.9	100.0
	Total	159	100.0	100.0	

RAPrimary Diagnosis Code

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certain infectious and parasitic diseases [A00-B99]	6	3.8	3.8	3.8
	II Neoplasms [C00-D48]	1	.6	.6	4.4
	III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism [D50-D89]	2	1.3	1.3	5.7
	IV Endocrine, nutritional and metabolic diseases [E00-E90]	2	1.3	1.3	6.9
	V Mental and behavioural disorders [F00-F99]	1	.6	.6	7.5
	VI Diseases of the nervous system [G00-G99]	4	2.5	2.5	10.1
	VII Diseases of the eye and adnexa [H00-H59]	3	1.9	1.9	11.9
	IX Diseases of the circulatory system [I00-I99]	24	15.1	15.1	27.0
	X Diseases of the respiratory system [J00-J99]	26	16.4	16.4	43.4
	XI Diseases of the digestive system [K00-K93]	21	13.2	13.2	56.6
	XII Diseases of the skin and subcutaneous tissue [L00-L99]	6	3.8	3.8	60.4
	XIII Diseases of the musculoskeletal system and connective tissue [M00-M99]	12	7.5	7.5	67.9
	XIV Diseases of the genitourinary system [N00-N99]	8	5.0	5.0	73.0
	XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified [R00-R99]	26	16.4	16.4	89.3
	XIX Injury, poisoning and certain other consequences of external causes [S00-T98]	15	9.4	9.4	98.7
	XXI Factors influencing health status and contact with health services [Z00-Z99]	2	1.3	1.3	100.0
	Total	159	100.0	100.0	

RA Main Specialty Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GENERAL MEDICINE	30	18.9	18.9	18.9
	VASCULAR SURGERY	2	1.3	1.3	20.1
	GERIATRIC MEDICINE	37	23.3	23.3	43.4
	ACCIDENT & EMERGENCY	18	11.3	11.3	54.7
	GENERAL SURGERY	20	12.6	12.6	67.3
	TRAUMA & ORTHOPAEDICS	9	5.7	5.7	73.0
	CARDIOLOGY	12	7.5	7.5	80.5
	RESPIRATORY MEDICINE	7	4.4	4.4	84.9
	NEUROLOGY	4	2.5	2.5	87.4
	SPINAL SURGERY SERVICE	1	.6	.6	88.1
	INFECTIOUS DISEASES	1	.6	.6	88.7
	HEPATOLOGY	1	.6	.6	89.3
	UROLOGY	8	5.0	5.0	94.3
	NEUROSURGERY	2	1.3	1.3	95.6
	GASTROENTEROLOGY	1	.6	.6	96.2
	ENT	1	.6	.6	96.9
	CARDIAC SURGERY	1	.6	.6	97.5
	OPHTHALMOLOGY	2	1.3	1.3	98.7
	CARDIOTHORACIC SURGERY	1	.6	.6	99.4
	GYNAECOLOGY	1	.6	.6	100.0
	Total	159	100.0	100.0	

RAComorbidities Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-4	9	5.7	5.7	5.7
	5-7	15	9.4	9.4	15.1
	8+	135	84.9	84.9	100.0
	Total	159	100.0	100.0	

RAMEDGroup2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5	40	25.2	25.2	25.2
	6-10	71	44.7	44.7	69.8
	11-15	30	18.9	18.9	88.7
	16-20	9	5.7	5.7	94.3
	21+	9	5.7	5.7	100.0
	Total	159	100.0	100.0	

RA Discharge_day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MONDAY-THURSDAY	99	62.3	62.3	62.3
	FRIDAY-SUNDAY	60	37.7	37.7	100.0
	Total	159	100.0	100.0	

RA Discharge Alert status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GREEN	25	15.7	15.7	15.7
	AMBER	20	12.6	12.6	28.3
	RED	86	54.1	54.1	82.4
	BLACK	28	17.6	17.6	100.0
	Total	159	100.0	100.0	

RA Discharge Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ON MEDICAL ADVICE	159	100.0	100.0	100.0

RA Discharge Destination Desc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL PLACE OF RESIDENCE	145	91.2	91.2	91.2
	OTHER-GEN.WARD/YOUNG PHYS.DIS.	7	4.4	4.4	95.6
	TEMPORARY PLACE OF RESIDENCE	2	1.3	1.3	96.9
	NHS NURSING HOME	4	2.5	2.5	99.4
	LOCAL AUTHORITY PART 3 ACCOM.	1	.6	.6	100.0
	Total	159	100.0	100.0	

SMEAN(Livesalone)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	48	30.2	30.2	30.2
	N	111	69.8	69.8	100.0
	Total	159	100.0	100.0	

SMEAN(SCC)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	8	5.0	5.0	5.0
	N	151	95.0	95.0	100.0
	Total	159	100.0	100.0	

SMEAN(Followup)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	66	41.5	41.5	41.5
	N	93	58.5	58.5	100.0
	Total	159	100.0	100.0	

SMEAN(RALivesalone)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	50	31.4	31.4	31.4
	N	109	68.6	68.6	100.0
	Total	159	100.0	100.0	

SMEAN(RASCC)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	9	5.7	5.7	5.7
	N	150	94.3	94.3	100.0
	Total	159	100.0	100.0	

SMEAN(RAFollowup)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	96	60.4	60.4	60.4
	N	63	39.6	39.6	100.0
	Total	159	100.0	100.0	

"Not readmitted group"

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	1295	50.8	50.8	50.8
	FEMALE	1254	49.2	49.2	100.0
	Total	2549	100.0	100.0	

Ethnic Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BRITISH	2183	85.6	85.6	85.6
	AFRICAN	2	.1	.1	85.7
	BANGLADESHI	2	.1	.1	85.8
	CARIBBEAN	2	.1	.1	85.9
	CHINESE	4	.2	.2	86.0
	INDIAN	26	1.0	1.0	87.1
	IRISH	13	.5	.5	87.6
	NOT ASKED/NOT STATED	240	9.4	9.4	97.0
	OTHER ASIAN BACKGROUND	3	.1	.1	97.1
	OTHER BLACK BACKGROUND	4	.2	.2	97.3
	OTHER MIXED BACKGROUND	7	.3	.3	97.5
	PAKISTANI	8	.3	.3	97.8
	WHITE AND ASIAN BACKGROUND	1	.0	.0	97.9
	ANY OTHER ETHINC GROUP	9	.4	.4	98.2
	ANY OTHER WHITE BACKGROUND	42	1.6	1.6	99.9
	WHITE AND BLACK CARIBBEAN	1	.0	.0	99.9
	WHITE/BLACK AFRICAN	2	.1	.1	100.0
	Total	2549	100.0	100.0	

Postcode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SO	2075	81.4	81.4	81.4
	PO	141	5.5	5.5	86.9
	BH	120	4.7	4.7	91.6
	GU	12	.5	.5	92.1
	SP	58	2.3	2.3	94.4
	TA	3	.1	.1	94.5
	GY	26	1.0	1.0	95.5
	R6	20	.8	.8	96.3
	SN	4	.2	.2	96.5
	CR	2	.1	.1	96.5
	NE	2	.1	.1	96.6
	ZZ	9	.4	.4	97.0
	DT	20	.8	.8	97.8
	TQ	3	.1	.1	97.9
	JE	5	.2	.2	98.1
	PE	1	.0	.0	98.1
	BA	12	.5	.5	98.6
	LE	2	.1	.1	98.7
	RH	3	.1	.1	98.8
	DN	2	.1	.1	98.9
	BN	8	.3	.3	99.2
	DY	1	.0	.0	99.2
	B6	1	.0	.0	99.3
	SE	1	.0	.0	99.3
	TR	1	.0	.0	99.3
	HP	1	.0	.0	99.4
	LA	1	.0	.0	99.4
	NE	1	.0	.0	99.5

		Frequency	Percent	Valid Percent	Cumulative Percent
	HD	1	.0	.0	99.5
	CA	1	.0	.0	99.5
	BS	1	.0	.0	99.6
	PL	1	.0	.0	99.6
	S7	1	.0	.0	99.6
	WA	1	.0	.0	99.7
	DG	1	.0	.0	99.7
	TN	1	.0	.0	99.8
	SW	1	.0	.0	99.8
	LD	1	.0	.0	99.8
	GL	1	.0	.0	99.9
	CM	1	.0	.0	99.9
	LS	1	.0	.0	100.0
	NP	1	.0	.0	100.0
	Total	2549	100.0	100.0	

Age Groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	65-69	311	12.2	12.2	12.2
	70-74	615	24.1	24.1	36.3
	75-79	593	23.3	23.3	59.6
	80-84	496	19.5	19.5	79.1
	85+	534	20.9	20.9	100.0
	Total	2549	100.0	100.0	

Admitting Ward Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ACUTE MEDICAL UNIT SHORT STAY	54	2.1	2.1	2.1
	D4 VASCULAR	15	.6	.6	2.7
	SAME DAY EMERGENCY CARE	252	9.9	9.9	12.6
	UHS KNIGHTWOOD WARD LYMINGTON	114	4.5	4.5	17.1
	AMU ADMISSIONS 1	63	2.5	2.5	19.5
	AMU ADMISSIONS 2	104	4.1	4.1	23.6
	AMU ADMISSIONS 3	117	4.6	4.6	28.2
	MEDICAL ENDOSCOPY UNIT E LEVEL	367	14.4	14.4	42.6
	ACUTE SURGICAL UNIT EX SAU	136	5.3	5.3	48.0
	CLINICAL DECISIONS UNIT AE	241	9.5	9.5	57.4
	TRAUMA ADMISSION UNIT	79	3.1	3.1	60.5
	CORONARY CARE UNIT	116	4.6	4.6	65.1
	SPIRE HOSPITAL	30	1.2	1.2	66.2
	HYPER ACUTE STROKE UNIT	60	2.4	2.4	68.6
	CATH LAB DAY CASE UNIT	126	4.9	4.9	73.5
	DAY SURGERY UNIT	21	.8	.8	74.4
	WARD F5	19	.7	.7	75.1
	SURGICAL DAY UNIT	172	6.7	6.8	81.9
	D10 MEDICAL	19	.7	.7	82.6
	F4 ORTHOPAEDICS	11	.4	.4	83.0
	THE RESPIRATORY CENTRE	19	.7	.7	83.8
	F4 DAY	22	.9	.9	84.7
	NEURO REGIONAL TRANSFER UNIT	29	1.1	1.1	85.8
	EYE SHORT STAY UNIT	174	6.8	6.8	92.6
	WARD F3	19	.7	.7	93.4
	BRAMSHAW WOMENS UNIT	4	.2	.2	93.5
	WARD G5	1	.0	.0	93.6
	WARD E7	2	.1	.1	93.6
	D9	3	.1	.1	93.8
	WARD F1	17	.7	.7	94.4
	WARD E2	11	.4	.4	94.9
	D5 MEDICAL	1	.0	.0	94.9

	WARD F2	30	1.2	1.2	96.1
	WARD E3	23	.9	.9	97.0
	E LEVEL NEUROLOGY	6	.2	.2	97.2
	CARDIAC HIGH DEPENDENCY UNIT	17	.7	.7	97.9
	WARD E4	23	.9	.9	98.8
	D7 MEDICAL	1	.0	.0	98.8
	E3 GREEN	14	.5	.5	99.4
	WARD E8	2	.1	.1	99.5
	D6 TEMPORARY	4	.2	.2	99.6
	F11 MEDICAL	3	.1	.1	99.7
	E5 UPPER GI	1	.0	.0	99.8
	D NEURO	6	.2	.2	100.0
	Total	2548	100.0	100.0	
Missing	System	1	.0		
Total		2549	100.0		

Admission Source Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	USUAL RESIDENCE INCL NFA	2431	95.4	95.4	95.4
	OTHER NHS PROVIDER GENERAL A+E	107	4.2	4.2	99.6
	TEMP RESIDENCE EG HOTEL	5	.2	.2	99.8
	NON-NHS RUN HOSPITAL	6	.2	.2	100.0
	Total	2549	100.0	100.0	

Admission Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY GP	184	7.2	7.2	7.2
	EMERGENCY A+E	1123	44.1	44.1	51.3
	OTHER EMERGENCY ADMISSION	33	1.3	1.3	52.6
	EMERGENCY CONSULTANT O/P	18	.7	.7	53.3
	EM TX INPAT FROM OTHER HOS	29	1.1	1.1	54.4
	ELECTIVE WAITING LIST	873	34.2	34.2	88.7
	ELECTIVE PLANNED	170	6.7	6.7	95.3
	ELECTIVE BOOKED	30	1.2	1.2	96.5
	OTHER HEALTH CARE PROVIDER	84	3.3	3.3	99.8
	OTHER A+E WHERE NOT ADMITTED	5	.2	.2	100.0
	Total	2549	100.0	100.0	

Type of Patient Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EMERGENCY	1476	57.9	57.9	57.9
	DAY CASE	775	30.4	30.4	88.3
	INPATIENT (ELECTIVE ADMISSION)	298	11.7	11.7	100.0
	Total	2549	100.0	100.0	

LoS1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-3	1620	63.6	63.6	63.6
	4-7	310	12.2	12.2	75.7
	8+	619	24.3	24.3	100.0
	Total	2549	100.0	100.0	

Primary Diagnosis Code

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I Certain infectious and parasitic diseases [A00-B99]	53	2.1	2.1	2.1
	II Neoplasms [C00-D48]	97	3.8	3.8	5.9
	III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism [D50-D89]	34	1.3	1.3	7.2
	IV Endocrine, nutritional and metabolic diseases [E00-E90]	39	1.5	1.5	8.7
	V Mental and behavioural disorders [F00-F99]	13	.5	.5	9.3
	VI Diseases of the nervous system [G00-G99]	38	1.5	1.5	10.7
	VII Diseases of the eye and adnexa [H00-H59]	248	9.7	9.7	20.5
	VIII Diseases of the ear and mastoid process [H60-H95]	13	.5	.5	21.0
	IX Diseases of the circulatory system [I00-I99]	486	19.1	19.1	40.1
	X Diseases of the respiratory system [J00-J99]	253	9.9	9.9	50.0
	XI Diseases of the digestive system [K00-K93]	409	16.0	16.0	66.0
	XII Diseases of the skin and subcutaneous tissue [L00-L99]	35	1.4	1.4	67.4
	XIII Diseases of the musculoskeletal system and connective tissue [M00-M99]	138	5.4	5.4	72.8
	XIV Diseases of the genitourinary system [N00-N99]	114	4.5	4.5	77.3
	XVII Congenital malformations, deformations and chromosomal abnormalities [Q00-Q99]	6	.2	.2	77.5
	XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified [R00-R99]	242	9.5	9.5	87.0
	XIX Injury, poisoning and certain other consequences of external causes [S00-T98]	298	11.7	11.7	98.7
	XXI Factors influencing health status and contact with health services [Z00-Z99]	33	1.3	1.3	100.0
	Total	2549	100.0	100.0	

ComorbiditiesGroup

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-4	384	15.1	15.1	15.1
	5-7	582	22.8	22.8	37.9
	8+	1583	62.1	62.1	100.0
	Total	2549	100.0	100.0	

MEDGroup2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5	510	20.0	20.0	20.0
	6-10	1693	66.4	66.4	86.4
	11-15	239	9.4	9.4	95.8
	16-20	71	2.8	2.8	98.6
	21+	36	1.4	1.4	100.0
	Total	2549	100.0	100.0	

Discharge Method Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ON MEDICAL ADVISE	2535	99.5	99.5	99.5
	DISCHARGE BY SELF OR RELATIVE	14	.5	.5	100.0
	Total	2549	100.0	100.0	

Discharge Day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MONDAY-THURSDAY	1645	64.5	64.5	64.5
	FRIDAY-SUNDAY	904	35.5	35.5	100.0
	Total	2549	100.0	100.0	

Discharge Alert Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GREEN	190	7.5	7.5	7.5
	AMBER	353	13.8	13.8	21.3
	RED	1387	54.4	54.4	75.7
	BLACK	619	24.3	24.3	100.0
	Total	2549	100.0	100.0	

SMEAN(SCC)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	95	3.7	3.7	3.7
	N	2454	96.3	96.3	100.0
	Total	2549	100.0	100.0	

SMEAN(Followup)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	850	33.3	33.3	33.3
	N	1699	66.7	66.7	100.0
	Total	2549	100.0	100.0	

SMEAN(Livesalone)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Y	427	16.8	16.8	16.8
	N	2122	83.2	83.2	100.0
	Total	2549	100.0	100.0	

Appendix 35: Phase 3 Chi-square test

Chi-Square Tests- Age groups

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.512[a]	4	.021
Likelihood Ratio	10.926	4	.027
Linear-by-Linear Association	6.246	1	.012
N of Valid Cases	2704		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19.40.

Chi-Square Tests- Ethnicity

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.598[a]	1	.018		
Continuity Correction[b]	5.051	1	.025		
Likelihood Ratio	6.484	1	.011		
Fisher's Exact Test				.017	.009
Linear-by-Linear Association	5.596	1	.018		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.99.
b. Computed only for a 2x2 table

Chi-Square Tests- Postcode

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	22.277[a]	1	.000		
Continuity Correction[b]	21.275	1	.000		
Likelihood Ratio	30.292	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	22.268	1	.000		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.99.
b. Computed only for a 2x2 table

Chi-Square Tests- Source

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.028[a]	1	.045		
Continuity Correction[b]	3.271	1	.071		
Likelihood Ratio	5.469	1	.019		
Fisher's Exact Test				.045	.023
Linear-by-Linear Association	4.027	1	.045		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.06.
b. Computed only for a 2x2 table

Chi-Square Tests- Ward

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	105.697[a]	44	.000
Likelihood Ratio	101.321	44	.000
Linear-by-Linear Association	21.884	1	.000
N of Valid Cases	2703		

a. 44 cells (48.9%) have expected count less than 5. The minimum expected count is .06.

Chi-Square Tests- Method

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	40.959[a]	1	.000		
Continuity Correction[b]	39.911	1	.000		
Likelihood Ratio	44.647	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	40.944	1	.000		

N of Valid Cases	2704			

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 69.86.
b. Computed only for a 2x2 table

Chi-Square Tests- Type

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.856[a]	2	.000
Likelihood Ratio	14.841	2	.001
Linear-by-Linear Association	4.476	1	.034
N of Valid Cases	2704		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.35.

Chi-Square Tests- Speciality

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	23.178[a]	1	.000		
Continuity Correction[b]	22.369	1	.000		
Likelihood Ratio	25.529	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	23.169	1	.000		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 58.39.
b. Computed only for a 2x2 table

Chi-Square Tests- Comorbidities

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	23.178[a]	1	.000		
Continuity Correction[b]	22.369	1	.000		
Likelihood Ratio	25.529	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	23.169	1	.000		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 58.39.
b. Computed only for a 2x2 table

Chi-Square Tests- Medication

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	19.172[a]	1	.000		
Continuity Correction[b]	18.302	1	.000		
Likelihood Ratio	17.044	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	19.165	1	.000		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.22.
b. Computed only for a 2x2 table

Chi-Square Tests- LoS

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.082[a]	1	.774		
Continuity Correction[b]	.042	1	.838		
Likelihood Ratio	.083	1	.774		
Fisher's Exact Test				.805	.420
Linear-by-Linear Association	.082	1	.774		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 68.74.
b. Computed only for a 2x2 table

Chi-Square Tests- Follow-up

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.395[a]	1	.036		
Continuity Correction[b]	4.040	1	.044		
Likelihood Ratio	4.268	1	.039		
Fisher's Exact Test				.038	.023
Linear-by-Linear Association	4.393	1	.036		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 53.86.

b. Computed only for a 2x2 table

Chi-Square Tests- Lives alone

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	18.586[a]	1	.000		
Continuity Correction[b]	17.672	1	.000		
Likelihood Ratio	16.192	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	18.579	1	.000		
N of Valid Cases	2704				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.93.

b. Computed only for a 2x2 table

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.395[a]	1	.036		
Continuity Correction[b]	4.040	1	.044		
Likelihood Ratio	4.268	1	.039		
Fisher's Exact Test				.038	.023
Linear-by-Linear Association	4.393	1	.036		
N of Valid Cases	2704				

Appendix 36: Phase 3 Hospital's discharge alert status
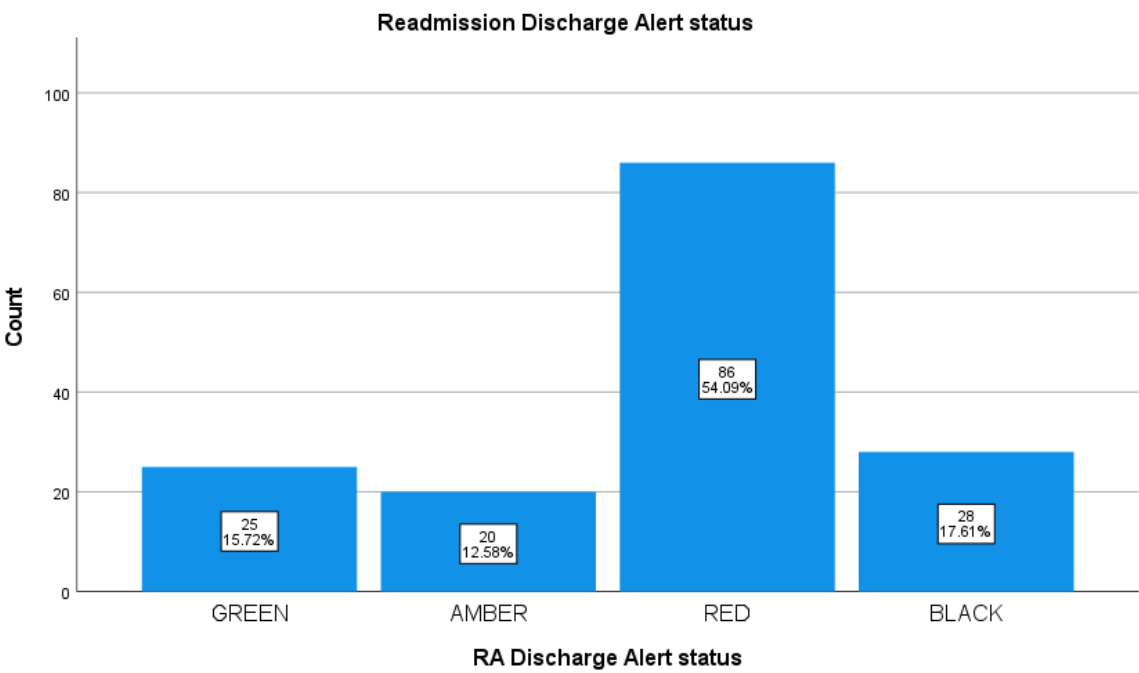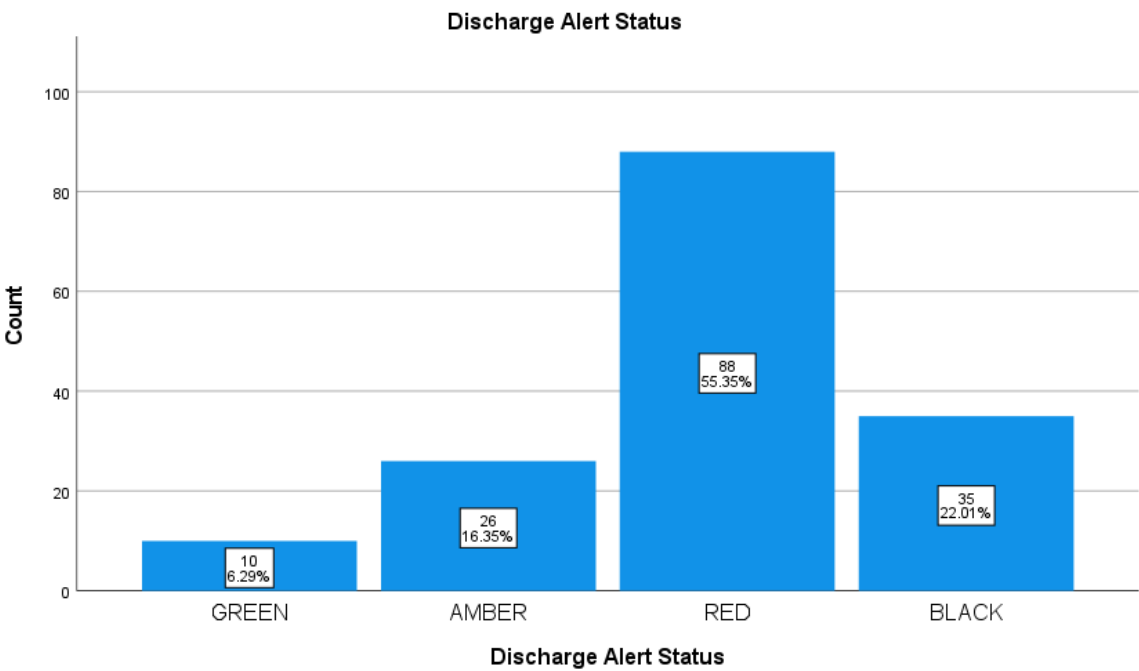
Reference list

Abu, H.O. *et al.* (2018) 'Are we "missing the big picture" in transitions of care? Perspectives of healthcare providers managing patients with unplanned hospitalization', *Applied Nursing Research*, 44(July), pp. 60–66. Available at: https://doi.org/10.1016/j.apnr.2018.09.006.

Adams, M., Caffrey, L. and McKevitt, C. (2015) 'Barriers and opportunities for enhancing patient recruitment and retention in clinical research: findings from an interview study in an NHS academic health science centre', *Health Research Policy and Systems*, 13(1), p. 8. Available at: https://doi.org/10.1186/1478-4505-13-8.

Age UK (2019a) *Briefing: Health and Care of Older People in England 2019*.

Age UK (2019b) *Later life in the United Kingdom 2019*.

AgeUK (2016) 'Age UK briefing – discharging older people from hospitals', *The Health and Care of Older People, Age UK*, (June), p. 6.

Aggarwal, P., Woolford, S.J. and Patel, H.P. (2020) 'Multi-Morbidity and Polypharmacy in Older People: Challenges and Opportunities for Clinical Practice', *Geriatrics*, 5(4), p. 85. Available at: https://doi.org/10.3390/geriatrics5040085.

Alase, A. (2017) 'The Interpretative Phenomenological Analysis (IPA): A Guide to a Good Qualitative Research Approach', *International Journal of Education and Literacy Studies*, 5(2), p. 9. Available at: https://doi.org/10.7575/aiac.ijels.v.5n.2p.9.

Albrecht, J.S. *et al.* (2014) 'Depressive symptoms and hospital readmission in older adults', *Journal of the American Geriatrics Society*, 62(3), pp. 495–499. Available at: https://doi.org/10.1111/jgs.12686.

Aldridge, H. and Hughes, C. (2016) *Informal carers & poverty in the UK*.

Ali, A.M. *et al.* (2017) 'Factors associated with 30-day readmission after primary total hip arthroplasty analysis of 514 455 procedures in the UK National Health Service', *JAMA Surgery*, 152(12), pp. 1–6. Available at: https://doi.org/10.1001/jamasurg.2017.3949.

Al-Maqbali, M.A. (2014) 'Nursing intervention in discharge planning for elderly patients with hip fractures', *International Journal of Orthopaedic and Trauma Nursing*, 18(2), pp. 68–80. Available at: https://doi.org/10.1016/j.ijotn.2013.07.002.

Andreasen, J. *et al.* (2015) 'The experience of daily life of acutely admitted frail elderly patients one week after discharge from the hospital', *International Journal of Qualitative Studies on Health and Well-being*, 10, pp. 1–11. Available at: https://doi.org/10.3402/qhw.v10.27370.

Anwar, M. (2015) 'What does It Mean to be Ethical in Research? What should It Mean?', *Jurnal Bisnis dan Manajemen*, 16(1), pp. 22–28. Available at: https://doi.org/10.24198/jbm.v16i1.35.

Ardron, D. and Kendall, M. (2010) 'Patient and public involvement in health research: what is it, and why is it so important?', *International Journal of Palliative Nursing*, 16(4).

Artetxe, A., Beristain, A. and Graña, M. (2018) 'Predictive models for hospital readmission risk: A systematic review of methods', *Computer Methods and Programs in Biomedicine* [Preprint]. Available at: https://doi.org/10.1016/j.cmpb.2018.06.006.

Baek, H. *et al.* (2018) 'Analysis of length of hospital stay using electronic health records: A statistical and data mining approach', *PLOS ONE*. Edited by T. Abe, 13(4), p. e0195901. Available at: https://doi.org/10.1371/journal.pone.0195901.

Baig, M. *et al.* (2018) 'Evaluation of Patients at Risk of Hospital Readmission (PARR) and LACE Risk Score for New Zealand Context', *Studies in health technology and informatics* [Preprint].

Baillie, C.A. *et al.* (2013) 'The readmission risk flag: Using the electronic health record to automatically identify patients at risk for 30-day readmission', *Journal of Hospital Medicine* [Preprint]. Available at: https://doi.org/10.1002/jhm.2106.

Baldwin, J.N. *et al.* (2018) 'Impacts of older people's patient and public involvement in health and social care research: a systematic review', *Age and Ageing*, 47(6), pp. 801–809. Available at: https://doi.org/10.1093/ageing/afy092.

Batty, C. (2010) 'Systematic review: Interventions intended to reduce admission to hospital of older people', *International Journal of Therapy and Rehabilitation*, 17(6), pp. 310–319. Available at: https://doi.org/10.12968/ijtr.2010.17.6.48154.

Baxter, R. *et al.* (2020) 'Delivering exceptionally safe transitions of care to older people: a qualitative study of multidisciplinary staff perspectives', *BMC Health Services Research*, 20(1), p. 780. Available at: https://doi.org/10.1186/s12913-020-05641-4.

Bellon, J.E. *et al.* (2019) 'University of Pittsburgh Medical Center Home Transitions Multidisciplinary Care Coordination Reduces Readmissions for Older Adults', *Journal of the American Geriatrics Society*, 67(1), pp. 156–163. Available at: https://doi.org/10.1111/jgs.15643.

Bendassat, J. and Taragin, M. (2000) 'Hospital readmissions as a measure of quality of healthcare.', *American Medical Association*, p. 460.

Beseler, M.R. *et al.* (2014) 'Clinical effectiveness of grip strength in predicting ambulation of elderly inpatients', *Clinical Interventions in Aging*, 9, pp. 1873–1877. Available at: https://doi.org/10.2147/CIA.S62002.

Billings, J. *et al.* (2012) 'Development of a predictive model to identify inpatients at risk of re-admission within 30 days of discharge (PARR-30)', *BMJ Open* [Preprint]. Available at: https://doi.org/10.1136/bmjopen-2012-001667.

Blakey, E.P. *et al.* (2017) 'What is the experience of being readmitted to hospital for people 65 years and over? A review of the literature', *Contemporary Nurse*, 53(6), pp. 698–712. Available at: https://doi.org/10.1080/10376178.2018.1439395.

Blane, D.N., McLean, G. and Watt, G. (2015) 'Distribution of GPs in Scotland by age, gender and deprivation.', *Scottish medical journal*, 60(4), pp. 214–219. Available at: https://doi.org/10.1177/0036933015606592.

Blom, M.C. *et al.* (2015) 'The probability of readmission within 30 days of hospital discharge is positively associated with inpatient bed occupancy at discharge - a retrospective cohort study', *BMC Emergency Medicine*, 15(1), pp. 4–34. Available at: https://doi.org/10.1186/s12873-015-0067-9.

Boge, R.M. *et al.* (2018) 'Elderly patients' (65 years) experiences associated with discharge; Development, validity and reliability of the discharge care experiences survey', *PLOS ONE*, 13(11), pp. 1–17. Available at: https://doi.org/10.1371/journal.pone.0206904.

Bohannon, R.W. (2019) 'Grip Strength: An Indispensable Biomarker For Older Adults', *Clinical Interventions in Aging*, Volume 14, pp. 1681–1691. Available at: https://doi.org/10.2147/CIA.S194543.

Borkenhagen, L.S. *et al.* (2018) 'Symptoms Reported by Frail Elderly Adults Independently Predict 30-Day Hospital Readmission or Emergency Department Care', *Journal of the American Geriatrics Society* [Preprint]. Available at: https://doi.org/10.1111/jgs.15221.

Brent, L. and Coffey, A. (2013) 'Patient's perception of their readiness for discharge following hip fracture surgery', *International Journal of Orthopaedic and Trauma Nursing*, 17(4), pp. 190–198. Available at: https://doi.org/10.1016/j.ijotn.2013.01.001.

Brett, J. *et al.* (2012) 'Mapping the impact of patient and public involvement on health and social care research: A systematic review', *Health Expectations*, 17(5), pp. 637–650. Available at: https://doi.org/10.1111/j.1369-7625.2012.00795.x.

Brunner-La Rocca, H.P. *et al.* (2020) 'Reasons for readmission after hospital discharge in patients with chronic diseases- Information from an international dataset', *PLoS ONE* [Preprint]. Available at: https://doi.org/10.1371/journal.pone.0233457.

Bryman, A. (2012) 'Social research methods Bryman', *OXFORD University Press* [Preprint]. Available at: https://doi.org/10.1017/CBO9781107415324.004.

De Buyser, S.L. *et al.* (2014a) 'Functional changes during hospital stay in older patients admitted to an acute care ward: A multicenter observational study', *PLoS ONE*, 9(5), pp. 1–7. Available at: https://doi.org/10.1371/journal.pone.0096398.

De Buyser, S.L. *et al.* (2014b) 'Functional changes during hospital stay in older patients admitted to an acute care ward: A multicenter observational study', *PLoS ONE* [Preprint]. Available at: https://doi.org/10.1371/journal.pone.0096398.

Care Quality Commission (2019) *Local area data profile: Older people's pathway Southampton*.

Care Quality Commission (2021) *2020 Adult Inpatient Survey*.

Carter, J. *et al.* (2018) 'The association between patient experience factors and likelihood of 30-day readmission: A prospective cohort study', *BMJ Quality and Safety* [Preprint]. Available at: https://doi.org/10.1136/bmjqs-2017-007184.

Casalini, F. *et al.* (2017) 'Unplanned readmissions within 30 days after discharge: Improving quality through easy prediction', *International Journal for Quality in Health Care* [Preprint]. Available at: https://doi.org/10.1093/intqhc/mzx011.

Cassell, A. *et al.* (2018) 'The epidemiology of multimorbidity in primary care: a retrospective cohort study', *British Journal of General Practice*, 68(669), pp. e245–e251.

Causey-Upton, R. *et al.* (2019) 'Factors influencing discharge readiness after total knee replacement', *Orthopaedic Nursing*, 38(1), pp. 6–14. Available at: https://doi.org/10.1097/NOR.0000000000000513.

Chalmers, J.D. *et al.* (2017) 'Patient participation in ERS guidelines and research projects: The EMBARC experience', *Breathe*, 13(3), pp. 194–207. Available at: https://doi.org/10.1183/20734735.009517.

Charmaz, K. (2006) 'Chapter 5 Theoretical Sampling, Saturation and Sorting', in *Constructing Grounded Theory A Pratical Guide Through Qualitative Analysis*, pp. 96–122.

Chow, S.K.Y. and Wong, F.K.Y. (2014) 'A randomized controlled trial of a nurse-led case management programme for hospital-discharged older adults with co-morbidities', *Journal of Advanced Nursing*, 70(10), pp. 2257–2271. Available at: https://doi.org/10.1111/jan.12375.

Coffey *et al.* (2019) 'Interventions to Promote Early Discharge and Avoid Inappropriate Hospital (Re)Admission: A Systematic Review', *International Journal of Environmental Research and Public Health*, 16(14), p. 2457. Available at: https://doi.org/10.3390/ijerph16142457.

Coffey, A. and McCarthy, G.M. (2013) 'Older people's perception of their readiness for discharge and postdischarge use of community support and services', *International Journal of Older People Nursing*, 8(2), pp. 104–115. Available at: https://doi.org/10.1111/j.1748-3743.2012.00316.x.

Collin, C. *et al.* (1988) 'The Barthel ADL Index: A reliability study', *International Disability Studies*, 10(2), pp. 61–63. Available at: https://doi.org/10.3109/09638288809164103.

Conroy, S. and Dowsing, T. (2012) 'What should we do about hospital readmissions?', *Age and Ageing*, 41(6), pp. 702–704. Available at: https://doi.org/10.1093/ageing/afs154.

Conroy, S.P. *et al.* (2011) 'A systematic review of comprehensive geriatric assessment to improve outcomes for frail older people being rapidly discharged from acute hospital: "Interface geriatrics"', *Age and Ageing*, 40(4), pp. 436–443. Available at: https://doi.org/10.1093/ageing/afr060.

Conroy, S.P. *et al.* (2013) 'Understanding readmissions: An in-depth review of 50 patients readmitted back to an acute hospital within 30 days', *European Geriatric Medicine*, 4(1), pp. 25–27. Available at: https://doi.org/10.1016/j.eurger.2012.02.007.

Considine, J. *et al.* (2018) 'Factors associated with unplanned readmissions within 1 day of acute care discharge: a retrospective cohort study', *BMC Health Services Research*, pp. 1–11. Available at: https://doi.org/10.1186/s12913-018-3527-6.

Considine, J. *et al.* (2020) 'Understanding the patient experience of early unplanned hospital readmission following acute care discharge: A qualitative descriptive study', *BMJ Open* [Preprint]. Available at: https://doi.org/10.1136/bmjopen-2019-034728.

Courtney, M. *et al.* (2009) 'Fewer emergency readmissions and better quality of life for older adults at risk of hospital readmission: A randomized controlled trial to determine the effectiveness of a 24-week exercise and telephone follow-up program', *Journal of the American Geriatrics Society*, 57(3), pp. 395–402. Available at: https://doi.org/10.1111/j.1532-5415.2009.02138.x.

Courtney, M.D. *et al.* (2011) 'A randomised controlled trial to prevent hospital readmissions and loss of functional ability in high risk older adults: A study protocol', *BMC Health Services Research*, 11(1), p. 202. Available at: https://doi.org/10.1186/1472-6963-11-202.

Craven, E. and Conroy, S. (2015) 'Hospital readmissions in frail older people', *Reviews in Clinical Gerontology*, 25(2), pp. 107–116. Available at: https://doi.org/10.1017/S0959259815000064.

Creswell, J.W. and Plano Clark, V.L. (2006) 'Choosing a mixed method design', in *Designing and Conducting Mixed Methods Research*. Sage Publications, Inc, pp. 58–88.

Cypress, B.S. (2017) 'Rigor or Reliability and Validity in Qualitative Research', *Dimensions of Critical Care Nursing*, 36(4), pp. 253–263. Available at: https://doi.org/10.1097/DCC.0000000000000253.

Damery, S. and Combes, G. (2017) 'Evaluating the predictive strength of the LACE index in identifying patients at high risk of hospital readmission following an inpatient episode: A retrospective cohort study', *BMJ Open* [Preprint]. Available at: https://doi.org/10.1136/bmjopen-2017-016921.

Damiani, G. *et al.* (2009) 'Hospital discharge planning and continuity of care for aged people in an Italian local health unit: Does the care-home model reduce hospital readmission and mortality rates?', *BMC Health Services Research*, 9, pp. 1–9. Available at: https://doi.org/10.1186/1472-6963-9-22.

Data Services NHS (2021) *Data quality Improvement*. Available at: https://www.england.nhs.uk/data-services/validate/.

Davies, M.A.M. *et al.* (2017) 'The consultation of rugby players in co-developing a player health study: Feasibility and consequences of sports participants as research partners', *Research Involvement and Engagement*, 3(1), pp. 1–14. Available at: https://doi.org/10.1186/s40900-017-0055-1.

Davis, S.F. *et al.* (2019) 'Hearing the voices of older adult patients: Processes and findings to inform health services research', *Research Involvement and Engagement*, 5(1), pp. 1–9. Available at: https://doi.org/10.1186/s40900-019-0143-5.

Dementia Action Alliance (2012) *The Right Care: creating dementia friendly hospitals*.

DePalma, G. *et al.* (2013) 'Hospital readmission among older adults who return home with unmet need for ADL disability', *Gerontologist*, 53(3), pp. 454–461. Available at: https://doi.org/10.1093/geront/gns103.

Dilworth, S., Higgins, I. and Parker, V. (2012) 'Feeling let down: An exploratory study of the experiences of older people who were readmitted to hospital following a recent discharge', *Contemporary Nurse*, 42(2), pp. 280–288. Available at: https://doi.org/10.5172/conu.2012.42.2.280.

Dirks, M.L. *et al.* (2016) 'One week of bed rest leads to substantial muscle atrophy and induces whole-body insulin resistance in the absence of skeletal muscle lipid accumulation', *Diabetes* [Preprint]. Available at: https://doi.org/10.2337/db15-1661.

Dobler, C.C. *et al.* (2020) 'Ability of the LACE index to predict 30-day hospital readmissions in patients with community-acquired pneumonia', *ERJ Open Research* [Preprint]. Available at: https://doi.org/10.1183/23120541.00301-2019.

Dobrzanska, L. and Newell, R. (2006) 'Readmissions: A primary care examination of reasons for readmission of older people and possible readmission risk factors', *Journal of Clinical Nursing*, 15(5), pp. 599–606. Available at: https://doi.org/10.1111/j.1365-2702.2006.01333.x.

Dong, X.Q. and Simon, M.A. (2014) 'Elder self-neglect is associated with an increased rate of 30-day hospital readmission: Findings from the chicago health and aging project', *Gerontology*, 61(1), pp. 41–50. Available at: https://doi.org/10.1159/000360698.

Doyle, C., Lennox, L. and Bell, D. (2013) 'A systematic review of evidence on the links between patient experience and clinical safety and effectiveness', *BMJ Open*, 3(1). Available at: https://doi.org/10.1136/bmjopen-2012-001570.

Edwards, K., Duff, J. and Walker, K. (2014) 'What Really Matters? A Multi-View Perspective of One Patient's Hospital Experience', *Contemporary nurse*, 49, pp. 5130–5157. Available at: https://doi.org/10.5172/conu.2014.5130.

Emmerling, S.A. *et al.* (2019) 'A comparative study of social capital and hospital readmission in older adults', *Geriatric Nursing*, 40(1), pp. 25–30. Available at: https://doi.org/10.1016/j.gerinurse.2018.06.003.

Ewbank, L. *et al.* (2020) *NHS hospital bed numbers: past, present, future*.

Falvey, J.R. *et al.* (2016) 'Role of Physical Therapists in Reducing Hospital Readmissions: Optimizing Outcomes for Older Adults During Care Transitions From Hospital to Community', *Physical Therapy*, 96(8), pp. 1125–1134. Available at: https://doi.org/10.2522/ptj.20150526.

Faul, F. *et al.* (2007) 'G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences', *Behavior Research Methods*, 39(2), pp. 175–191. Available at: https://doi.org/10.3758/BF03193146.

Fereday, S. and Rezel, K. (2016) *Patient and public involvement in quality improvement*, *Healthcare Quality Improvement Partnership*.

Ferré, M.F.C. *et al.* (2019) '72-hour hospital readmission of older people after hospital discharge with home care services', *Home Health Care Services Quarterly*, 38(3), pp. 153–161. Available at: https://doi.org/10.1080/01621424.2019.1616024.

Finlayson, K. *et al.* (2018) 'Transitional care interventions reduce unplanned hospital readmissions in high-risk older adults', *BMC Health Services Research* [Preprint]. Available at: https://doi.org/10.1186/s12913-018-3771-9.

Fisher, S.R. *et al.* (2013) 'Mobility after hospital discharge as a marker for 30-day readmission', *Journals of Gerontology - Series A Biological Sciences and Medical Sciences*, 68(7), pp. 805–810. Available at: https://doi.org/10.1093/gerona/gls252.

Fox, M.T. *et al.* (2013) 'Effectiveness of early discharge planning in acutely ill or injured hospitalized older adults: A systematic review and meta-analysis', *BMC Geriatrics*, 13(1), p. 1. Available at: https://doi.org/10.1186/1471-2318-13-70.

Frankel A, H.C.F.F.L.-E.J. (2017) *A Framework for Safe, Reliable, and Ef fective Care*. Cambridge MA.

De Freitas, C. (2017) 'Public and patient participation in health policy, care and research', *Porto Biomedical Journal*, 2(2), pp. 31–32. Available at: https://doi.org/10.1016/j.pbj.2017.01.001.

Friebel, R. *et al.* (2018) 'National trends in emergency readmission rates: A longitudinal analysis of administrative data for England between 2006 and 2016', *BMJ Open*, 8(3), pp. 1–10. Available at: https://doi.org/10.1136/bmjopen-2017-020325.

Friebel, R. *et al.* (2019) 'The implications of high bed occupancy rates on readmission rates in England: A longitudinal study', *Health Policy*, 123(8), pp. 765–772. Available at: https://doi.org/10.1016/j.healthpol.2019.06.006.

Gabriel, Z. and Bowling, A. (2004) 'Quality of life from the perspectives of older people', *Ageing and Society*, 24(5), pp. 675–691. Available at: https://doi.org/10.1017/S0144686X03001582.

Gale, C.R., Cooper, C. and Aihie Sayer, A. (2015) 'Prevalence of frailty and disability: findings from the English Longitudinal Study of Ageing', *Age and Ageing*, 44(1), pp. 162–165. Available at: https://doi.org/10.1093/ageing/afu148.

Gamble, C. *et al.* (2014) 'Patient and public involvement in the early stages of clinical trial development: A systematic cohort investigation', *BMJ Open*, 4(7), pp. 1–11. Available at: https://doi.org/10.1136/bmjopen-2014-005234.

García-Pérez, L. *et al.* (2011) 'Risk factors for hospital readmissions in elderly patients: A systematic review', *Q J Med*, 104(8), pp. 639–651. Available at: https://doi.org/10.1093/qjmed/hcr070.

Gobbens, R.J.J. *et al.* (2010) 'Determinants of frailty', *Journal of the American Medical Directors Association* [Preprint]. Available at: https://doi.org/10.1016/j.jamda.2009.11.008.

Gold, H.T. *et al.* (2016) 'Association of Depression With 90-Day Hospital Readmission After Total Joint Arthroplasty', *Journal of Arthroplasty*, 31(11), pp. 2385–2388. Available at: https://doi.org/10.1016/j.arth.2016.04.010.

Gonçalves-Bradley, D. *et al.* (2017) 'Early discharge hospital at home', *Cochrane Database of Systematic Reviews* [Preprint], (6). Available at: https://doi.org/10.1002/14651858.CD000356.pub4.www.cochranelibrary.com.

Gorenc-Mahmutaj, L. *et al.* (2015) 'The Positivity Effect on the Intensity of Experienced Emotion and Memory Performance in Mild Cognitive Impairment and Dementia', *Dementia and Geriatric Cognitive Disorders Extra*, 5(2), pp. 233–243. Available at: https://doi.org/10.1159/000381537.

Greysen, S.R. *et al.* (2014) '"Missing Pieces" - Functional, social, and environmental barriers to recovery for vulnerable older adults transitioning from hospital to home', *Journal of the American Geriatrics Society*, 62(8), pp. 1556–1561. Available at: https://doi.org/10.1111/jgs.12928.

Greysen, S.R. *et al.* (2015) 'Functional Impairment and Hospital Readmission in Medicare Seniors', *JAMA Intern Med.*, 176(1), pp. 139–148. Available at: https://doi.org/10.1016/j.physbeh.2017.03.040.

Greysen, S.R. *et al.* (2017) 'Understanding patient-centred readmission factors: A multi-site, mixed-methods study', *BMJ Quality and Safety*, 26(1), pp. 33–41. Available at: https://doi.org/10.1136/bmjqs-2015-004570.

Guba, E.G. (1987) 'Naturalistic evaluation.', *New Directions for Program Evaluation*, pp. 23–43. Available at: https://doi.org/10.1002/ev.1451.

Guest, G. and Fleming, P. (2015) 'Mixed Methods Research', in, pp. 581–610. Available at: https://doi.org/10.4135/9781483398839.n19.

Hallgren, J. *et al.* (2015) 'In Hospital We Trust: Experiences of older peoples' decision to seek hospital care', *Geriatric Nursing*, 36(4), pp. 306–311. Available at: https://doi.org/10.1016/j.gerinurse.2015.04.012.

Hallgren, J. and Aslan, A.K.D. (2018) 'Risk factors for hospital readmission among Swedish older adults', *European Geriatric Medicine*, 9(5), pp. 603–611. Available at: https://doi.org/10.1007/s41999-018-0101-z.

Hanley, B., Bradburn, J. and Barnes, M. (2004) *Involving the public in NHS, public health, and social care research: Briefing Notes for Researchers.* Eastleigh.

Hansen, L.O. *et al.* (2011) 'Interventions to Reduce 30-Day Rehospitalization : A Systematic Review', *Ann Intern Med.*, 155(8), pp. 520–528. Available at: https://doi.org/doi: 10.7326/0003-4819-155-8-201110180-00008.

Hao, Q. *et al.* (2019) 'The role of frailty in predicting mortality and readmission in older adults in acute care wards: a prospective study', *Scientific Reports*, 9(1), p. 1207. Available at: https://doi.org/10.1038/s41598-018-38072-7.

Haub, C. and Gribble, J. (2011) 'The world at 7 billion', *Population bulletin*, 66(1), p. 12.

Hayter, M. (2011) 'Involving service users in the development and evaluation of health care and services - good practice and the need for a research agenda', *Contemporary*

Nurse, 40(1), pp. 103–105. Available at:
https://doi.org/10.1080/10376178.2011.11002577.

Heale, R. and Twycross, A. (2015) 'Validity and reliability in quantitative studies', *Evidence Based Nursing*, 18(3), pp. 66–67. Available at: https://doi.org/10.1136/eb-2015-102129.

Health Research Authority (2018) *GDPR guidance: Definitions*. Available at:
https://www.hra.nhs.uk/planning-and-improving-research/policies-standards-legislation/data-protection-and-information-governance/gdpr-guidance/definitions/#:~:text='Personal data' means any information,location data%2C an online identifier.

Healthwatch England (2015a) *Healthwatch England Special Inquiry : Older People Briefing*, *Healthwatch England*.

Healthwatch England (2015b) *Safely home: What happens when people leave hospital and care settings?*, *Healthwatch England Special Inquiry: Safely home*. Available at: https://doi.org/10.1007/BF01620058.

Healthwatch England (2018) *Emergency readmissions: What's changed one year on?*, *Healthwatch England*.

Hesselink, G. *et al.* (2014) 'Improving patient discharge and reducing hospital readmissions by using Intervention Mapping', *BMC Health Services Research*, 14(1), pp. 1–11. Available at: https://doi.org/10.1186/1472-6963-14-389.

Holmås, T.H., Monstad, K. and Steskal, D. (2019) 'Family Matters? The Importance of Relatives for Frail Elders' Mortality and Hospital Readmission', *Journal of Population Ageing*, 12(2), pp. 229–246. Available at: https://doi.org/10.1007/s12062-017-9202-6.

Horney, C. *et al.* (2017) 'Factors Associated With Early Readmission Among Patients Discharged to Post-Acute Care Facilities', *Journal of the American Geriatrics Society*, 65(6), pp. 1199–1205.

Horwitz, L.I. *et al.* (2015) 'Association of hospital volume with readmission rates: a retrospective cross-sectional study', *BMJ*, 350. Available at: https://doi.org/10.1136/bmj.h447.

Howard-Anderson, J. *et al.* (2016) 'From discharge to readmission: Understanding the process from the patient perspective', *Journal of Hospital Medicine*, 11(6), pp. 407–412. Available at: https://doi.org/10.1002/jhm.2560.

Hoyer, E.H. *et al.* (2014) 'Association of Impaired Functional Status at Hospital Discharge and Subsequent Rehospitalization', *J Hosp Med.*, 176(3), pp. 139–148. Available at: https://doi.org/10.1016/j.physbeh.2017.03.040.

Hu, J., Kind, A.J.H. and Nerenz, D. (2018) 'Area Deprivation Index Predicts Readmission Risk at an Urban Teaching Hospital', *American Journal of Medical Quality*, 33(5), pp. 493–501. Available at: https://doi.org/10.1177/1062860617753063.

Hughes, L.D. and Witham, M.D. (2018) 'Causes and correlates of 30 day and 180 day readmission following discharge from a Medicine for the Elderly Rehabilitation unit', *BMC Geriatrics* [Preprint]. Available at: https://doi.org/10.1186/s12877-018-0883-3.

Hull, D. *et al.* (2012a) 'Patient and public involvment to support liver disease research', *British Journal of Nursing*, 21(16), pp. 972–977.

Hull, D. *et al.* (2012b) 'Patient and public involvment to support liver disease research', *British Journal of Nursing*, 21(16), pp. 972–977.

INVOLVE (2012) 'Public involvement in research: impact on ethical aspects of research'.

Ismail, H. and Coulton, S. (2016) 'Arrhythmia care co-ordinators: Their impact on anxiety and depression, readmissions and health service costs', *European Journal of Cardiovascular Nursing*, 15(5), pp. 355–362. Available at: https://doi.org/10.1177/1474515115584234.

Jack, S. (2008) 'Guidelines to Support Nurse-Researchers Reflect on Role Conflict in Qualitative Interviewing', *The Open Nursing Journal*, 2, pp. 58–62. Available at: https://doi.org/10.2174/1874434600802010058.

Jeffs, L. *et al.* (2014) 'The perspectives of patients, family members and healthcare professionals on readmissions: preventable or inevitable?', *Journal of Interprofessional Care*, 28(6), pp. 507–512. Available at: https://doi.org/10.3109/13561820.2014.923988.

Jun, J. and Faulkner, K.M. (2018) 'Scoping review: Hospital nursing factors associated with 30-day readmission rates of patients with heart failure', *Journal of Clinical Nursing*, 27(7–8), pp. e1673–e1683. Available at: https://doi.org/10.1111/jocn.14323.

Kadri, A.N. *et al.* (2018) 'Causes and predictors of 30-day readmission in patients with syncope/collapse: A nationwide cohort study', *Journal of the American Heart Association*, 7(18), pp. 1–16. Available at: https://doi.org/10.1161/JAHA.118.009746.

Kahlon, S. *et al.* (2015) 'Association between frailty and 30-day outcomes after discharge from hospital', *Canadian Medical Association Journal*, 187(11), pp. 799–804. Available at: https://doi.org/10.1503/cmaj.150100.

Kansagara, D. *et al.* (2011) 'Risk prediction models for hospital readmission: A systematic review', *JAMA - Journal of the American Medical Association* [Preprint]. Available at: https://doi.org/10.1001/jama.2011.1515.

Kapoor, A. *et al.* (2017) 'Self-Reported Function More Informative than Frailty Phenotype in Predicting Adverse Postoperative Course in Older Adults', *Journal of the American Geriatrics Society* [Preprint]. Available at: https://doi.org/10.1111/jgs.15108.

Karim, K. (2000) 'Conducting research involving palliative patients', *Nursing standard*, 15(2), pp. 34–36.

Karlsson, M. and Karlsson, I. (2019) 'Follow-up visits to older patients after a hospital stay: Nurses' perspectives', *British Journal of Community Nursing*, 24(2), pp. 80–86. Available at: https://doi.org/10.12968/bjcn.2019.24.2.80.

Ketterer, M.W. *et al.* (2014) 'Behavioral Factors and Hospital Admissions/Readmissions in Patients With CHF', *Psychosomatics*, 55(1), pp. 45–50. Available at: https://doi.org/10.1016/j.psym.2013.06.019.

Kingston, A. *et al.* (2018) 'Projections of multi-morbidity in the older population in England to 2035: Estimates from the Population Ageing and Care Simulation (PACSim) model', *Age and Ageing*, 47(3), pp. 374–380. Available at: https://doi.org/10.1093/ageing/afx201.

Koopmans, E. and Schiller, Dr.C. (2022) 'Understanding Causation in Healthcare: An Introduction to Critical Realism', *Qualitative Health Research*, p. 104973232211057. Available at: https://doi.org/10.1177/10497323221105737.

Kortebein, P. *et al.* (2007) 'Effect of 10 days of bed rest on skeletal muscle in healthy older adults [8]', *Journal of the American Medical Association* [Preprint]. Available at: https://doi.org/10.1001/jama.297.16.1772-b.

Kronzer, V.L. *et al.* (2016) 'Preoperative Falls Predict Postoperative Falls, Functional Decline, and Surgical Complications', *EBioMedicine*, 12, pp. 302–308. Available at: https://doi.org/10.1016/j.ebiom.2016.08.039.

Lafayette Instrument Company Inc (2004) *Hand Dynamometer User Instructions*.

Larkin, M. and Thompson, A.R. (2011) 'Interpretative Phenomenological Analysis in Mental Health and Psychotherapy Research', in *Qualitative Research Methods in Mental Health and Psychotherapy*. John Wiley & Sons, Ltd, pp. 99–116. Available at: https://doi.org/https://doi.org/10.1002/9781119973249.ch8.

Lasater, K.B. and Mchugh, M.D. (2016) 'Nurse staffing and the work environment linked to readmissions among older adults following elective total hip and knee replacement', *International Journal for Quality in Health Care*, 28(2), pp. 253–258. Available at: https://doi.org/10.1093/intqhc/mzw007.

Lau, D. *et al.* (2016) 'Patient-Reported Discharge Readiness and 30-Day Risk of Readmission or Death: A Prospective Cohort Study', *American Journal of Medicine*, 129(1), pp. 89–95. Available at: https://doi.org/10.1016/j.amjmed.2015.08.018.

LaWall, E. *et al.* (2019) 'Living alone and homelessness as predictors of 30-day potentially preventable hospital readmission', *Preventing Chronic Disease*, 16(2), pp. 1–11. Available at: https://doi.org/10.5888/pcd16.180189.

Lawrie, M. and Battye, F. (2012) 'Older people's experience of emergency hospital readmission', *Age UK* [Preprint].

Lee, D.C.A. *et al.* (2018) 'Hospital readmission risks in older adults following inpatient subacute care: A six-month follow-up study', *Archives of Gerontology and Geriatrics* [Preprint]. Available at: https://doi.org/10.1016/j.archger.2018.05.005.

Lee, E.W. (2012) 'Selecting the Best Prediction Model for Readmission', *Journal of Preventive Medicine and Public Health* [Preprint]. Available at: https://doi.org/10.3961/jpmph.2012.45.4.259.

Legrain, S. *et al.* (2011) 'A new multimodal geriatric discharge-planning intervention to prevent emergency visits and rehospitalizations of older adults: The optimization of medication in aged multicenter randomized controlled trial', *Journal of the American Geriatrics Society* [Preprint]. Available at: https://doi.org/10.1111/j.1532-5415.2011.03628.x.

Leung, D.Y.P. *et al.* (2015) 'The effect of a virtual ward program on emergency services utilization and quality of life in frail elderly patients after discharge: A pilot study', *Clinical Interventions in Aging*, 10, pp. 413–420. Available at: https://doi.org/10.2147/CIA.S68937.

Li, J.Y.Z. *et al.* (2014) 'Identifying risk factors and patterns for unplanned readmission to a general medical service', *Australian Health Review*, 39(1), pp. 56–62.

Linertová, R. *et al.* (2011) 'Interventions to reduce hospital readmissions in the elderly: In-hospital or home care. A systematic review', *Journal of Evaluation in Clinical Practice*, 17(6), pp. 1167–1175. Available at: https://doi.org/10.1111/j.1365-2753.2010.01493.x.

Liu, B. *et al.* (2013) 'Evaluation of a multisite educational intervention to improve mobilization of older patients in hospital: protocol for mobilization of vulnerable elders in Ontario (MOVE ON)', *Implementation Science*, 8(1), p. 76. Available at: https://doi.org/10.1186/1748-5908-8-76.

Low, S. *et al.* (2018) 'Factors associated with hospital readmission and emergency visits among older adults–5-year experience in a busy acute hospital', *Journal of Clinical Gerontology and Geriatrics* [Preprint]. Available at: https://doi.org/10.33879/JCGG.2018.1779.

Mabire, C., Coffey, A. and Weiss, M. (2015) 'Readiness for Hospital Discharge Scale for older people: Psychometric testing and short form development with a three country sample', *Journal of Advanced Nursing*, 71(11), pp. 2686–2696. Available at: https://doi.org/10.1111/jan.12731.

Mathew, S.A. *et al.* (2016) 'Risk factors for hospital re-presentation among older adults following fragility fractures: A systematic review and meta-analysis', *BMC Medicine*, 14(1), pp. 1–20. Available at: https://doi.org/10.1186/s12916-016-0671-x.

Maxwell, J.A. (2010) 'Using Numbers in Qualitative Research', *Qualitative Inquiry*, 16(6), pp. 475–482. Available at: https://doi.org/10.1177/1077800410364740.

McCormack, B. *et al.* (2010) 'Exploring person-centredness: A qualitatie meta-synthesis of four studies.', *Scandinavian Journal of Caring Sciences*, 24, pp. 620–634.

McCormick, B., Hill, P.-S. and Redding, S. (2018) 'Comparative morbidities and the share of emergencies in hospital admissions in deprived areas: a method and evidence from English administrative data', *BMJ open*, 8(8), pp. e022573–e022573. Available at: https://doi.org/10.1136/bmjopen-2018-022573.

Middleton, A. *et al.* (2019) 'Functional Status Is Associated with 30-Day Potentially Preventable Readmissions Following Home Health Care', *Medical Care*, 57(2), pp. 145–151. Available at: https://doi.org/10.1097/MLR.0000000000001047.

Min, X., Yu, B. and Wang, F. (2019) 'Predictive Modeling of the Hospital Readmission Risk from Patients' Claims Data Using Machine Learning: A Case Study on COPD', *Scientific Reports* [Preprint]. Available at: https://doi.org/10.1038/s41598-019-39071-y.

Mitchell, S.J. *et al.* (2019) 'Ethics and patient and public involvement with children and young people', *Archives of disease in childhood - Education & practice edition*, 104(4), pp. 195–200. Available at: https://doi.org/10.1136/archdischild-2017-313480.

Morandi, A. *et al.* (2014) 'Functional Status and Length of Stay', *J Am Med Dir Assoc*, 14(10), pp. 761–767. Available at: https://doi.org/10.1016/j.jamda.2013.03.013.Predictors.

Morgan, H. *et al.* (2016) 'Combining PPI with qualitative research to engage "harder-to-reach" populations: Service user groups as co-applicants on a platform study for a trial', *Research Involvement and Engagement*, 2(1). Available at: https://doi.org/10.1186/s40900-016-0023-1.

Mueller, C. *et al.* (2017) *Mental Health in Older People A Practice Primer*.

Mukumbang, F.C. *et al.* (2020) 'Using the realist interview approach to maintain theoretical awareness in realist studies', *Qualitative Research*, 20(4), pp. 485–515. Available at: https://doi.org/10.1177/1468794119881985.

Munn, Z. *et al.* (2018) 'Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach', *BMC Medical Research Methodology*, 18(1), p. 143. Available at: https://doi.org/10.1186/s12874-018-0611-x.

Nasreddine, Z.S. *et al.* (2005) 'The Montreal Cognitive Assessment, MoCA: A Brief Screening Tool For Mild Cognitive Impairment', *Journal of the American Geriatrics Society*, 53(4), pp. 695–699. Available at: https://doi.org/10.1111/j.1532-5415.2005.53221.x.

Nelson, J.M. and Rosenthal, L. (2015) *How nurses can help reduce hospital readmissions*, *The Essence of Nursing, Part 2*. Available at: https://www.myamericannurse.com/nurses-can-help-reduce-hospital-readmissions/.

NHS (2019a) *Reducing long stays: Where best next campaign: Principle 1: Plan for discharge from the start*. Available at: https://www.england.nhs.uk/urgent-emergency-care/reducing-length-of-stay/reducing-long-term-stays/plan-for-discharge/.

NHS (2019b) *The NHS Long Term Plan*. Available at: https://www.longtermplan.nhs.uk/.

NHS Digital (2020) *No Title*, *3.2 Emergency readmissions within 30 days of discharge from hospital - Specification v1.4*.

NHS England (2018) *A just culture guide*. Available at: https://www.england.nhs.uk/patient-safety/a-just-culture-guide/.

NICE (2015) 'Transition between inpatient hospital settings and community or care home settings for adults with social care needs', *NICE guideline*, (December 2015), p. 1.4.6.

Ofori-Asenso, R. *et al.* (2019) 'Global Incidence of Frailty and Prefrailty Among Community-Dwelling Older Adults', *JAMA Network Open*, 2(8), p. e198398. Available at: https://doi.org/10.1001/jamanetworkopen.2019.8398.

Oliver, D. (2015) 'David Oliver: Who is to blame for older people's readmission?', *BMJ (Online)*, 351(August), pp. 2014–2015. Available at: https://doi.org/10.1136/bmj.h4244.

ONS (2018) *Overview of the UK population: November 2018*.

ONS (2020) *People living alone aged 65 years old and over, by specific age group and sex, UK, 1996 to 2019*.

Palys, T. (2008) 'Purposive sampling.In L.; M. Given (Ed.)', *The Sage Encyclopedia of Qualitative Research Methods* [Preprint].

Park, L. *et al.* (2014) 'Institution specific risk factors for 30 day readmission at a community hospital: A retrospective observational study', *BMC Health Services Research*, 14(1), pp. 1–6. Available at: https://doi.org/10.1186/1472-6963-14-40.

Parry, S.M. and Puthucheary, Z.A. (2015) 'The impact of extended bed rest on the musculoskeletal system in the critical care environment', *Extreme Physiology and Medicine* [Preprint]. Available at: https://doi.org/10.1186/s13728-015-0036-7.

Paula, F. de L. *et al.* (2016) 'Readmission of older patients after hospital discharge for hip fracture: a multilevel approach', *Revista de saude publica*, 50, p. 16. Available at: https://doi.org/10.1590/S1518-8787.2016050005947.

Pedersen, M.K., Mark, E. and Uhrenfeldt, L. (2018) 'Hospital readmission: Older married male patients' experiences of life conditions and critical incidents affecting the course of care, a qualitative study', *Scandinavian Journal of Caring Sciences*, 32(4), pp. 1379–1389. Available at: https://doi.org/10.1111/scs.12583.

People and Communities Board and National Voices (2016) *Six principles for engaging people and communities*.

Pereira, F. *et al.* (2021a) 'Risk of 30-day hospital readmission associated with medical conditions and drug regimens of polymedicated, older inpatients discharged home: a registry-based cohort study', *BMJ Open*, 11(7), p. e052755. Available at: https://doi.org/10.1136/bmjopen-2021-052755.

Pereira, F. *et al.* (2021b) 'Risk of 30-day hospital readmission associated with medical conditions and drug regimens of polymedicated, older inpatients discharged home: a registry-based cohort study', *BMJ Open*, 11(7), p. e052755. Available at: https://doi.org/10.1136/bmjopen-2021-052755.

Pham, M.T. *et al.* (2014) 'A scoping review of scoping reviews: advancing the approach and enhancing the consistency', *Research Synthesis Methods*, 5(4), pp. 371–385. Available at: https://doi.org/10.1002/jrsm.1123.

Picker, D. *et al.* (2015) 'The number of discharge medications predicts thirty-day hospital readmission: A cohort study', *BMC Health Services Research*, 15(1), pp. 4–11. Available at: https://doi.org/10.1186/s12913-015-0950-9.

Pietkiewicz, I. and Smith, J.A. (2014) 'A practical guide to using Interpretative Phenomenological Analysis in qualitative research psychology', *Czasopismo Psychologiczne - Psychological Journal*, 20(1), pp. 7–14. Available at: https://doi.org/10.14691/CPPJ.20.1.7.

Pimouguet, C. *et al.* (2017) 'Living alone and unplanned hospitalizations among older adults: A population-based longitudinal study', *European Journal of Public Health*, 27(2), pp. 251–256. Available at: https://doi.org/10.1093/eurpub/ckw150.

Pollard, K. *et al.* (2015) 'Developing and evaluating guidelines for patient and public involvement (PPI) in research', *International Journal of Health Care Quality Assurance*, 28, pp. 141–155.

Pollock, F.H. *et al.* (2015) 'Readmission within 30 days of discharge after hip fracture care', *Orthopedics*, 38(1), pp. e7–e13. Available at: https://doi.org/10.3928/01477447-20150105-53.

Public Health England (2020) *Older people's hospital admissions in the last year of life*.

Purdy, S. (2010) 'Avoiding hospital admissions: what does the research evidence say?', *The King's Fund* [Preprint].

Rayan-Gharra, N. *et al.* (2019) 'Patients' ratings of the in-hospital discharge briefing and post-discharge primary care follow-up: The association with 30-day readmissions', *Patient Education and Counseling*, 102(8), pp. 1513–1519. Available at: https://doi.org/10.1016/j.pec.2019.03.018.

RCN (2013) *Moving care to the community: an international perspective*.

Ready for Ageing Alliance (2016) *Still not Ready for Ageing*.

Reed, R.L., Isherwood, L. and Ben-Tovim, D. (2015) 'Why do older people with multi-morbidity experience unplanned hospital admissions from the community: A root cause analysis', *BMC Health Services Research*, 15(1), pp. 1–6. Available at: https://doi.org/10.1186/s12913-015-1170-z.

Reeves, D. *et al.* (2018) 'The challenge of ageing populations and patient frailty: can primary care adapt?', *BMJ*, p. k3349. Available at: https://doi.org/10.1136/bmj.k3349.

Retrum, J.H. *et al.* (2013) 'Patient-identified factors related to heart failure readmissions', *Circulation: Cardiovascular Quality and Outcomes*, 6(2), pp. 171–177. Available at: https://doi.org/10.1161/CIRCOUTCOMES.112.967356.

Ritchie, J. *et al.* (2014) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. 2nd edn, *Sage Publications Ltd*. 2nd edn. Edited by K. Metzier. Sage Publications Ltd.

Ritchie, J. and Lewis, J. (2003) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. First. London: SAGE Publications Ltd.

Roberts, H.C. *et al.* (2011) 'A review of the measurement of grip strength in clinical and epidemiological studies: towards a standardised approach', *Age and Ageing*, 40(4), pp. 423–429. Available at: https://doi.org/10.1093/ageing/afr051.

Robinson, O.C. and Smith, J.A. (2010) 'Investigating the Form and Dynamics of Crisis Episodes in Early Adulthood: The Application of a Composite Qualitative Method', *Qualitative Research in Psychology*, 7(2), pp. 170–191. Available at: https://doi.org/10.1080/14780880802699084.

Robinson, R. *et al.* (2019) 'Predictors of 30-day hospital readmission: The direct comparison of number of discharge medications to the HOSPITAL score and LACE index', *Future Healthcare Journal* [Preprint]. Available at: https://doi.org/10.7861/fhj.2018-0039.

Robinson, S., Howie-Esquivel, J. and Vlahov, D. (2012) 'Readmission risk factors after hospital discharge among the elderly', *Population Health Management*, 15(6), pp. 338–351. Available at: https://doi.org/10.1089/pop.2011.0095.

Royal Voluntary Service (2014) *Going home alone*. Available at: https://doi.org/10.1136/bmj.312.7043.1372.

Rytter, L. *et al.* (2010) 'Comprehensive discharge follow-up in patient's homes by GPs and district nurses of elderly patients', *Scandinavian Journal of Primary Health Care*, 28(3), pp. 146–153. Available at: https://doi.org/10.3109/02813431003764466.

Sandelowski, M. (2001) 'Real qualitative researchers do not count: The use of numbers in qualitative research', *Research in Nursing & Health*, 24(3), pp. 230–240. Available at: https://doi.org/10.1002/nur.1025.

Saunders, B. *et al.* (2018) 'Saturation in qualitative research: exploring its conceptualization and operationalization', *Quality & Quantity*, 52(4), pp. 1893–1907. Available at: https://doi.org/10.1007/s11135-017-0574-8.

Saunders, N.D. *et al.* (2015) 'Examination of Unplanned 30-Day Readmissions to a Comprehensive Cancer Hospital', *Journal of Oncology Practice*, 11(2), pp. e177–e181. Available at: https://doi.org/10.1200/JOP.2014.001546.

Schilling, I. and Gerhardus, A. (2017) 'Methods for Involving Older People in Health Research — A Review of the Literature', *International Journal of Environmental Research and Public Health*, 14(1476). Available at: https://doi.org/10.3390/ijerph14121476.

Schultz, B.E. *et al.* (2021) 'Scoping review: Social support impacts hospital readmission rates', *Journal of Clinical Nursing* [Preprint]. Available at: https://doi.org/10.1111/jocn.16143.

Sganga, F. *et al.* (2017) 'Predictors of rehospitalization among older adults: Results of the CRIME Study', *Geriatrics and Gerontology International*, 17(10), pp. 1588–1592. Available at: https://doi.org/10.1111/ggi.12938.

Shannon, P. and Hambacher, E. (2015) 'Authenticity in Constructivist Inquiry: Assessing an Elusive Construct', *The Qualitative Report*, 19, pp. 1–13. Available at: https://doi.org/10.46743/2160-3715/2014.1418.

Shebehe, J. and Hansson, A. (2018) 'High hospital readmission rates for patients aged ≥65 years associated with low socioeconomic status in a Swedish region: a cross-sectional study in primary care', *Scandinavian Journal of Primary Health Care*, 36(3), pp. 300–307. Available at: https://doi.org/10.1080/02813432.2018.1499584.

Shih, S.L. *et al.* (2015) 'Functional Status Outperforms Comorbidities in Predicting Acute Care Readmissions in Medically Complex Patients', *Journal of General Internal Medicine* [Preprint]. Available at: https://doi.org/10.1007/s11606-015-3350-2.

Silverstein, M.D. *et al.* (2008) 'Risk Factors for 30-Day Hospital Readmission in Patients ≥65 Years of Age', *Baylor University Medical Center Proceedings* [Preprint]. Available at: https://doi.org/10.1080/08998280.2008.11928429.

Singh, G. *et al.* (2016) 'Association of psychological disorders with 30-day readmission rates in patients with COPD', *Chest*, 149(4), pp. 905–915. Available at: https://doi.org/10.1378/chest.15-0449.

Slatyer, S. *et al.* (2013) 'Early re-presentation to hospital after discharge from an acute medical unit: Perspectives of older patients, their family caregivers and health professionals', *Journal of Clinical Nursing*, 22(3–4), pp. 445–455. Available at: https://doi.org/10.1111/jocn.12029.

Smeraglio, A. *et al.* (2019) 'Patient vs provider perspectives of 30-day hospital readmissions', *BMJ Open Quality* [Preprint]. Available at: https://doi.org/10.1136/bmjoq-2017-000264.

Smith, J.A. and Osborn, M. (2008) 'Interpretative Phenomenological Analysis', in *Doing Social Psychology Research*. Oxford, UK: The British Psychological Society and Blackwell Publishing Ltd, pp. 229–254. Available at: https://doi.org/10.1002/9780470776278.ch10.

Sohrabi, B. *et al.* (2019) 'Predicting the Readmission of Heart Failure Patients through Data Analytics', *Journal of Information and Knowledge Management* [Preprint]. Available at: https://doi.org/10.1142/S0219649219500126.

Southampton City Council (2019) *Transforming health and care outcomes for the people of Southampton*.

Southampton City Council (2021) *Southampton Strategic Assessment: Population size and structure*.

Southern, D.A. *et al.* (2014) 'Characterizing types of readmission after acute coronary syndrome hospitalization: Implications for quality reporting', *Journal of the American Heart Association*, 3(5), pp. 1–8. Available at: https://doi.org/10.1161/JAHA.114.001046.

Staniszewska, S. *et al.* (2007) 'User involvement in the development of a research bid: barriers, enablers and impacts.', *Heal Expect*, 10, pp. 173–183.

Steeman, E. *et al.* (2006) 'Implementation of discharge management for geriatric patients at risk of readmission or institutionalization', *International Journal for Quality in Health Care* [Preprint]. Available at: https://doi.org/10.1093/intqhc/mzl026.

Stein, J. *et al.* (2016) 'Was This Readmission Preventable? Qualitative Study of Patient and Provider Perceptions of Readmissions', *Southern Medical Journal*, 109(6), pp. 383–389.

Steventon, A. *et al.* (2018) 'Briefing: Emergency hospital admissions in England: which may be avoidable and how?', *The Health Foundation*, (May), pp. 1–21.

Steventon, A. and Billings, J. (2017) 'Preventing hospital readmissions: The importance of considering "impactibility," not just predicted risk', *BMJ Quality and Safety* [Preprint]. Available at: https://doi.org/10.1136/bmjqs-2017-006629.

Stillman, G.R., Stillman, A.N. and Beecher, M.S. (2021) 'Frailty Is Associated With Early Hospital Readmission in Older Medical Patients', *Journal of Applied Gerontology*, 40(1), pp. 38–46. Available at: https://doi.org/10.1177/0733464819894926.

Tashakkori, A. and Teddlie, C. (1998) 'Mixed methodology: Combining qualitative and quantitative approaches.', *Applied social research methods series*, 46.

The King's Fund (2018) *The health care workforce in England: make or break?*

The World Health Organisation (2020) *Basic documents: forty-ninth edition (including amendments adopted up to 31 May 2019)*.

Torisson, G. *et al.* (2013) 'Multidisciplinary intervention reducing readmissions in medical inpatients: A prospective, non-randomized study', *Clinical Interventions in Aging*, 8, pp. 1295–1304. Available at: https://doi.org/10.2147/CIA.S49133.

Tully, P.J. *et al.* (2016) 'Depression screening after cardiac surgery: A six month longitudinal follow up for cardiac events, hospital readmissions, quality of life and mental health', *International Journal of Cardiology*, 206, pp. 44–50. Available at: https://doi.org/10.1016/j.ijcard.2016.01.015.

University Hospital Southampton NHS Foundation Trust (2019) *Annual Report and Accounts 2018/19*.

University of Oxford (2017) 'Guide for researchers working with Patient and Public Involvement (PPI) contributors', *University of Oxford's Nuffield Department of Primary Care Health Sciences*, (January), pp. 1–80.

Vasileiou, K. *et al.* (2018) 'Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period', *BMC Medical Research Methodology* [Preprint]. Available at: https://doi.org/10.1186/s12874-018-0594-7.

Verhaegh, K.J. *et al.* (2019) 'Not feeling ready to go home: A qualitative analysis of chronically ill patients' perceptions on care transitions', *International Journal for Quality in Health Care*, 31(2), pp. 125–132. Available at: https://doi.org/10.1093/intqhc/mzy139.

Vernon, D. *et al.* (2019) 'Reducing readmission rates through a discharge follow-up service', *Future Healthcare Journal*, 6(2), pp. 114–117. Available at: https://doi.org/10.7861/futurehosp.6-2-114.

Vogel, T.R., Petroski, G.F. and Kruse, R.L. (2014) 'Impact of amputation level and comorbidities on functional status of nursing home residents after lower extremity amputation', *Journal of Vascular Surgery*, 59(5), pp. 1323-1330.e1. Available at: https://doi.org/10.1016/j.jvs.2013.11.076.

Walsh, B. (2014) 'Unplanned admissions and readmissions in older people: a review of recent evidence on identifying and managing high-risk individuals', *Reviews in Clinical Gerontology*, 24(3), pp. 228–237. Available at: https://doi.org/10.1017/S0959259814000082.

Weiss, M.E. *et al.* (2019) 'Effect of Implementing Discharge Readiness Assessment in Adult Medical-Surgical Units on 30-Day Return to Hospital', *JAMA Network Open*, 2(1), p. e187387. Available at: https://doi.org/10.1001/jamanetworkopen.2018.7387.

Wen, T. *et al.* (2018) 'Risk factors associated with 31-day unplanned readmission in 50,912 discharged patients after stroke in China', *BMC Neurology*, 18(1), pp. 1–11. Available at: https://doi.org/10.1186/s12883-018-1209-y.

Wittenberg, R., Hu, B. and Comas-Herrera, A. (2012) 'Care for older people: project expenditure to 2022', *Nuffieldtrust* [Preprint].

Wong, E.L. *et al.* (2011) 'Unplanned readmission rates, length of hospital stay, mortality, and medical costs of ten common medical conditions: A retrospective analysis of Hong Kong hospital data', *BMC Health Services Research*, 11(1), p. 149. Available at: https://doi.org/10.1186/1472-6963-11-149.

Woolford, S.J. *et al.* (2021) 'Frailty, multimorbidity and polypharmacy', *Medicine*, 49(3), pp. 166–172. Available at: https://doi.org/10.1016/j.mpmed.2020.12.010.

Yang, L. *et al.* (2018) 'Patients' perceptions of interactions with hospital staff are associated with hospital readmissions: A national survey of 4535 hospitals', *BMC Health Services Research*, 18(1), pp. 1–8. Available at: https://doi.org/10.1186/s12913-018-2848-9.

Yli-Kyyny, T.T. *et al.* (2019) 'Risk factors for early readmission due to surgical complications after treatment of proximal femoral fractures – A Finnish National Database study of 68,800 patients', *Injury*, 50(2), pp. 403–408. Available at: https://doi.org/10.1016/j.injury.2018.10.030.

Zhou, H. *et al.* (2016) 'Utility of models to predict 28-day or 30-day unplanned hospital readmissions: An updated systematic review', *BMJ Open* [Preprint]. Available at: https://doi.org/10.1136/bmjopen-2016-011060.